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Phylogeny and revision of *Messatoporus* Cushman (Hymenoptera, Ichneumonidae, Cryptinae), with descriptions of sixty five new species

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Abstract

The large New World genus *Messatoporus* Cushman is diagnosed, redefined, described, and its species revised. A total of 89 valid species are recognized, of which 65 are described as new. All previously known species are redescribed and illustrated. The following synonyms are proposed: *M. jocosus* (Provancher) and *M. rufiventris* Cushman under *M. discoidalis* (Cresson), **syn. nov.** and *M. tricolor* (Szépligeti) under *M. variegatus* (Szépligeti) **syn. nov.** The following new species are proposed: *M. advenus*, *M. albiaterartus*, *M. allomeros*, *M. amarelus*, *M. amazonensis*, *M. amplithorax*, *M. andinus*, *M. anepomius*, *M. apiopharkis*, *M. argentinus*, *M. atlanticus*, *M. atrifoveus*, *M. aurantius*, *M. badius*, *M. basiflavus*, *M. bennetii*, *M. bicolor*, *M. bimaculatus*, *M. campanulatus*, *M. caxiuanensis*, *M. citreocephalus*, *M. complexifemur*, *M. concavivenus*, *M. convexus*, *M. copiosus*, *M. depressifrons*, *M. dialeipsis*, *M. dissidens*, *M. dominicanus*, *M. elektor*, *M. ellipsicavus*, *M. euryoikos*, *M. igneus*, *M. interceptus*, *M. keraiopetalus*, *M. laevilatus*, *M. latissulcus*, *M. longicaudis*, *M. longitergus*, *M. lordos*, *M. lunatus*, *M. maculiscus*, *M. matucanus*, *M. nigriangulatus*, *M. nigriscapus*, *M. nigriscutus*, *M. occidentalis*, *M. opacus*, *M. orientalis*, *M. paeneater*, *M. pallidus*, *M. paradoxus*, *M. paralissonotus*, *M. pleuriflavus*, *M. semialbiventris*, *M. semiaurantigaster*, *M. subalaris*, *M. tenuiorbis*, *M. tenuissimus*, *M. teutonicus*, *M. titans*, *M. unidentatus*, *M. unimaculatus*, *M. versicolor* and *M. xanthogaster* **spp. nov.** As well, a lectotype is designated for *M. townesi* Alayo and Tzankov, and *Messatoporus nigrispina* (Cameron) is transferred to *Prosthopor* Porter, **comb. nov.** A key to species based on both sexes is also presented, and new distribution records and distribution maps are provided.

The validity and relationships of the genus are investigated cladistically using 162 morphological characters for 27 species of *Messatoporus* and 105 outgroup taxa. Tree search was conducted using TNT under implied weighting, with values of 1–6 for the concavity constant (*K*). All analyses recovered *Messatoporus* as a monophyletic group, supported by 7–11 synapomorphies. The results also support the monophyly of the six studied genera of Osprynchotina, in a clade including also *Dotocryptus* Brèthes. *Messatoporus* is diagnosed by the combination of the following features: apicolateral corners of clypeus projected; mandible long and tapered, ventral tooth much shorter than dorsal one or indistinct; transverse sulcus at base of propodeum long and shallow; anterior margin of propodeum concave; posterior area of propodeum almost always transversely wrinkled; first metasomal spiracle placed approximately on midlength; median dorsal carina of first metasomal segment absent; ovipositor basally cylindrical, apically depressed, with ventral valve enclosing completely dorsal valve as a sheath. A second analysis including all species of the genus was performed

to evaluate the phylogeny at the genus level. The character set for that analysis included 104 characters considered of phylogenetic importance within the genus, and used the same tree searching protocol as the first one. A distinct and gradual transition is detected, from species more similar to the remaining Osprynchotina to a significantly different morphotype with several convergences with the Gabuniina. These convergences are interpreted as adaptations to host location and substrate perforation, and may be related to use of more deeply concealed hosts.

Key words: Cryptini, Osprynchotina, Nematopodiina, Phygadeuontinae, implied weighting

Introduction

Messatoporus Cushman (1929) is a large New World cryptine genus, proposed to accommodate a group of North American species defined mainly by the broadly truncate clypeus, mandible very long with dorsal tooth much longer than ventral tooth, propodeum transversely striated, areolet small and first metasomal tergite long, with spiracle near the middle. This generic definition was reviewed by Townes and Townes (1962), Townes (1970) and Kasparyan and Ruíz (2005), but without significant changes. The type species, *M. discoidalis* Cresson, has been formerly placed in *Mesostenus* Gravenhorst. In the same work, Cushman (1929) described other three new species: *M. compressicornis*, *M. major* and *M. rufiventris*. Cushman (1929) also synonymized *Mesostenus jocosus* Provancher with *M. discoidalis*. *Messatoporus major* was later considered a synonym of *M. compressicornis* (Townes 1962).

Nine other species were added to *Messatoporus* by Townes (1946) and Townes & Townes (1966) from combinations of Neotropical species previously placed in *Mesostenus* Gravenhorst (*M. apertus* Taschenberg, *M. arcuatus* Cresson, *M. nigrispinus* Cameron, *M. transversostriatus* Spinola and *M. zonatus* Cresson), *Neomesostenus* Schmiedeknecht (*N. paraguayensis* Szépligeti, *N. tricolor* Szépligeti and *N. variegatus* Szépligeti) and *Glodianus* Cameron (*G. lissonotus* Cameron). Alayo and Tzankóv (1974) described *M. townesi* from Cuba.

Kasparyan and Ruíz (2005) revised the North American species of the genus, described twelve new species from Mexico and revalidated *M. jocosus*. Kasparyan (2006) described an additional Mexican species. Kasparyan and Ruíz (2008) described a new Mexican species and provided an updated key for the North American species. Hence, prior to this study, the genus included twenty eight valid species recorded for seven countries: Canada, United States, Mexico, Cuba, Guyana, Brazil and Paraguay.

Species of the genus are apparently parasitoids of mud nesting wasps, but host records are available only for the three Nearctic species: *M. discoidalis* is known to attack *Ageniella conflictata* Banks, *Phanagenia bombycina* (Cresson), *Auplopus mellipes* (Say) and *Ceropales maculata fraterna* Smith (Pompilidae) (Cushman 1929); *M. rufiventris* was reared from *Phanagenia bombycina* (Townes & Townes 1962); and *M. compressicornis* was reared from *Ancistrocerus tuberculocephalus sutterianus* Saussure (Vespidae, Eumeninae) and *Trypoxylon collinum rubrocinctum* (Crabronidae) (Carlson, 1979). Almost all species of Cryptinae for which the biology is known are idiobiont parasitoids—that is, their larvae develop on a host for which development has been interrupted (Askew and Shaw 1986). Based on that, and in their apparently low host specificity (see records above; low host specificity is expected in idiobiont parasitoids; see Askew and Shaw, *op. cit.*), species of *Messatoporus* are assumed to be idiobionts, although biological information for the genus is very scarce.

The monophyly and relationships of *Messatoporus* have never been deeply investigated. It was placed by Townes in the Nematopodiina (currently referred as Osprynchotina—see Fitton and Gauld 1978), but the subtribal arrangement of cryptine genera is apparently highly artificial (e.g. Gauld 1984, Laurenne *et al.* 2006). Although Gauld (1984) stated that the Osprynchotina were an “almost certainly holophyletic” group, the only extensive analyses available (Laurenne *et al.* 2006; Quicke *et al.* 2008),—using molecular data and including seven of the nine genera in the subtribe—did not recover these taxa as a monophyletic group, but mostly scattered along a large clade. *Messatoporus* was recovered as sister group of *Photocryptus* Viereck, also placed in Osprynchotina. However, these analyses included only one species of *Messatoporus*, so the monophyly of the genus was not tested. The main goal of this study is to provide a phylogenetic and taxonomic revision of *Messatoporus* Cushman, and to address its biology, diversity and distribution.

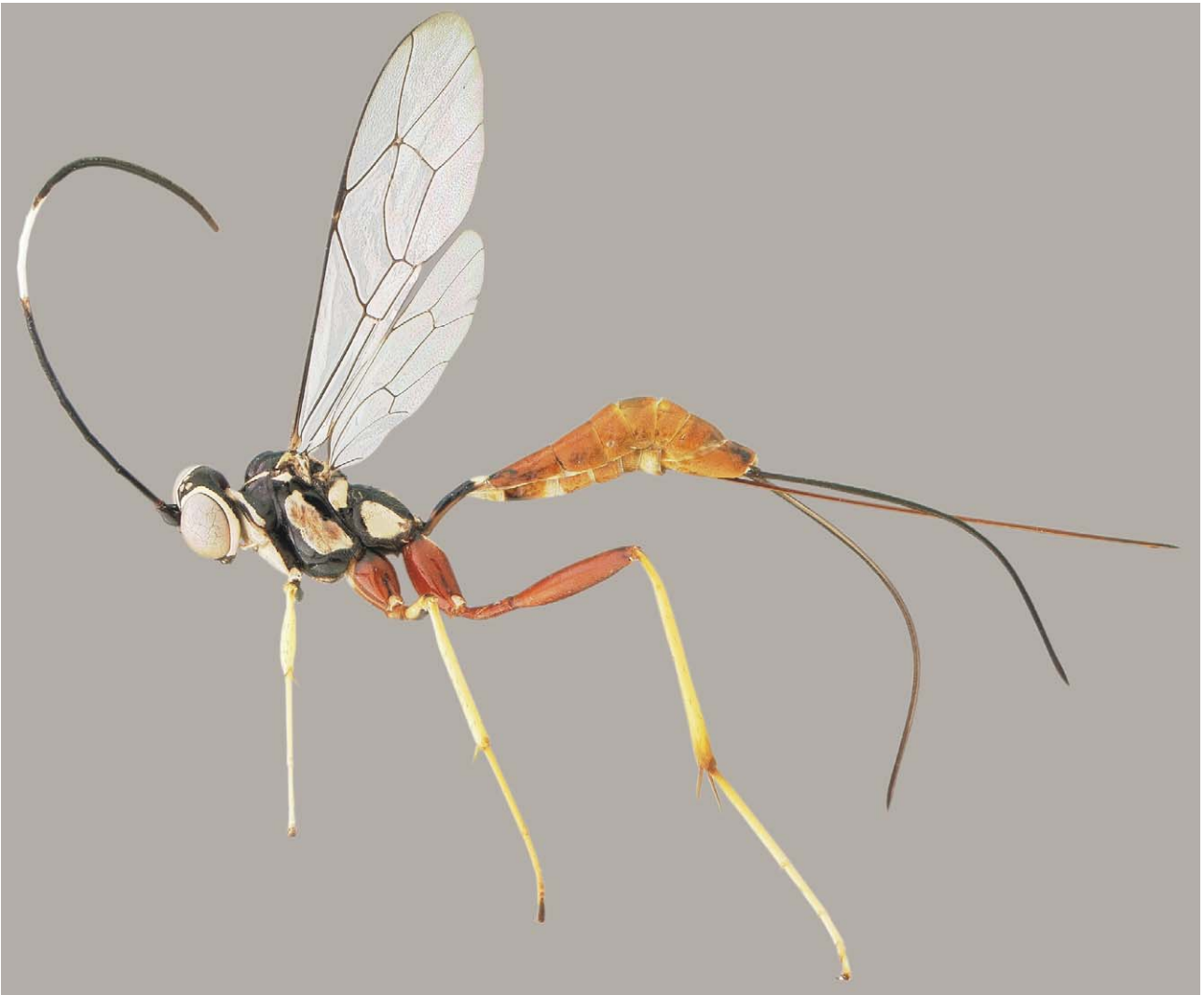


FIGURE 1. *Messatoporus euryoikos*, habitus. Picture by Berthil B. Longo.

Material and Methods

Material examined

A total of 2104 specimens of *Messatoporus*, corresponding to 1114 females, 987 males and 3 specimens of unknown sex, from 26 depositories, were examined. Institutional acronyms are used as follows, with the name of the respective curators at the time the material was loaned or studied, between parenthesis:

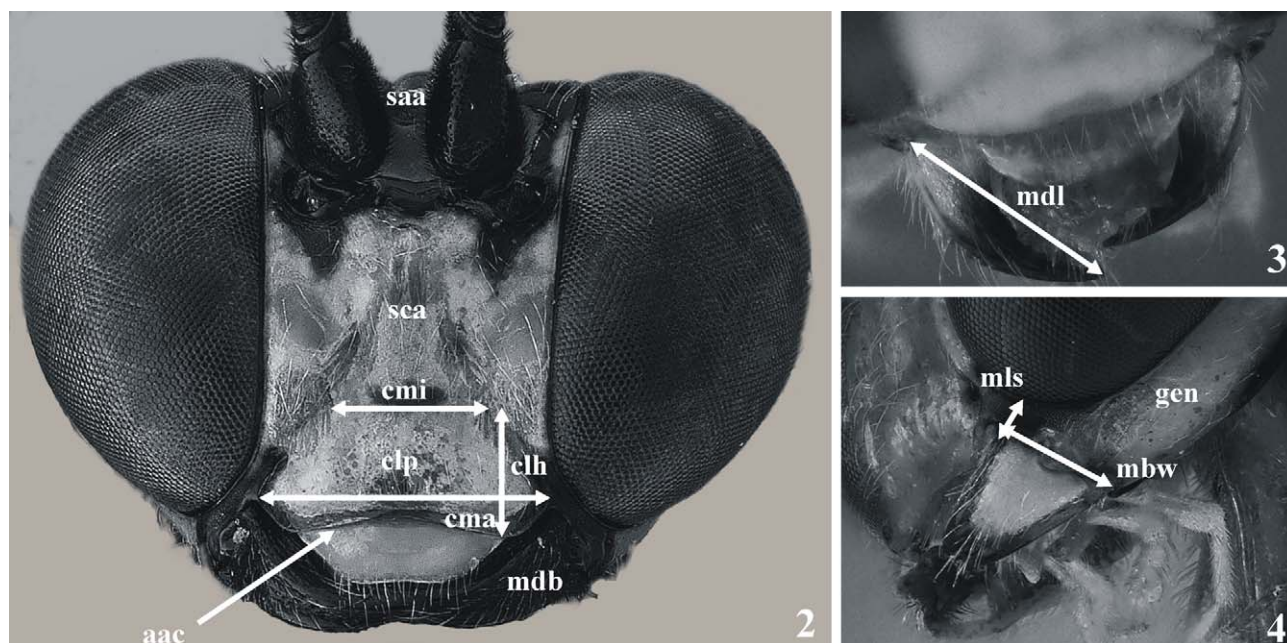
AEIC	American Entomological Institute, USA (D. Wahl)
AMNH	American Museum of Natural History, USA (J. Carpenter)
BMNH	The Natural History Museum, England (G. Broad)
CASC	California Academy of Sciences, USA (W. Pulawski)
CNCI	Canadian National Collection of Insects, Canada (A. Bennett)
DZUP	<i>Universidade Federal do Paraná</i> , Brazil (G.A.R. Melo)
FSCA	Florida State Collection of Arthropods, USA (J. Wiley)
IBRP	<i>Instituto Biológico de Ribeirão Preto</i> , Brazil (N.W. Perioto)
IESC	<i>Instituto de Ecología e Sistemática</i> , Cuba (Rayner Nuñez)
MLUH	<i>Martin-Luther-Universität Halle-Wittenberg</i> , Germany (K. Schneider)

MNRJ	<i>Museu Nacional</i> , Rio de Janeiro, Brazil (M.A. Monné)
MPEG	<i>Museu Paraense Emílio Goeldi</i> , Brazil (O. Tobias)
MRSN	<i>Museo Regionale Scienze Naturali</i> , Italy (G. Pagliano)
NHMW	<i>Naturhistorisches Museum Wien</i> , Austria (D. Zimmermann)
NHRS	<i>Naturhistoriska Riksmuseet</i> , Sweden (H. Vårdal)
RMNH	<i>Nationaal Natuurhistorische Museum</i> , Netherlands (R. de Vries)
TAMU	Texas A&M University, USA (R. Wharton)
UATM	<i>Universidad Autónoma de Tamaulipas</i> , Mexico (E. Ruíz)
UJMF	<i>Universidade Estadual Paulista Júlio de Mesquita Filho</i> , Brazil (F. Noll)
UFES	<i>Universidade Federal do Espírito Santo</i> , Brazil (C.O. Azevedo)
ULQC	Insect collection of University of Laval, Canada (G. Wagner)
USNM	United States National Museum of Natural History, USA (R. Kula)
ZMHU	<i>Museum für Naturkunde der Humboldt Universität zu Berlin</i> , Germany (F. Koch)
ZMUC	Zoological Museum, University of Copenhagen, Denmark (L. Vilhelmsen)
ZSMC	<i>Zoologische Staatssammlung</i> , Germany (S. Schmidt)
WUIC	Wageningen University Insect Collection, Netherlands (Y. Jongema)

Morphology

Wing venation was interpreted as in Sharkey & Wharton (1997; Figs 14–15). Leg surfaces and orientation were interpreted as in Aguiar & Gibson (2010). Morphological terminology is adapted from Gauld and Wahl (2011), which in its turn is mostly adapted from Townes (1969), and largely congruent with Gauld (1991). Some minor differences and additions are discussed below.

Head: The clypeal **apical area** (Fig. 2; same as *apical margin* of Townes) is a narrow, flat, transversal area, laying on a lower plane than the main area of the clypeus. In *Messatoporus*, it can be somewhat raised apically, and therefore slightly concave. The whitish or yellow band in the paraocular area, whether complete or not, is termed **orbital band**. The first and subsequent flagellomeres are referred simply as f1, f2, f3, etc.



FIGURES 2–4. Terms for structures used in the present work. **2**, *Messatoporus nigriscutus*. head, frontal view; *aac*, apical area of the clypeus; *clp*, clypeus; *cma*, clypeus maximum width; *cmi*, clypeus minimum width; *clh*, clypeus height; *sca*, supra-clypeal area; *saa*, supra-antennal area. **3**, *M. maculiscus*; *mdl*, mandible length **4**, *M. orientalis*; *mls*, malar space; *mbw*, mandible basal width; *gen*, gena.

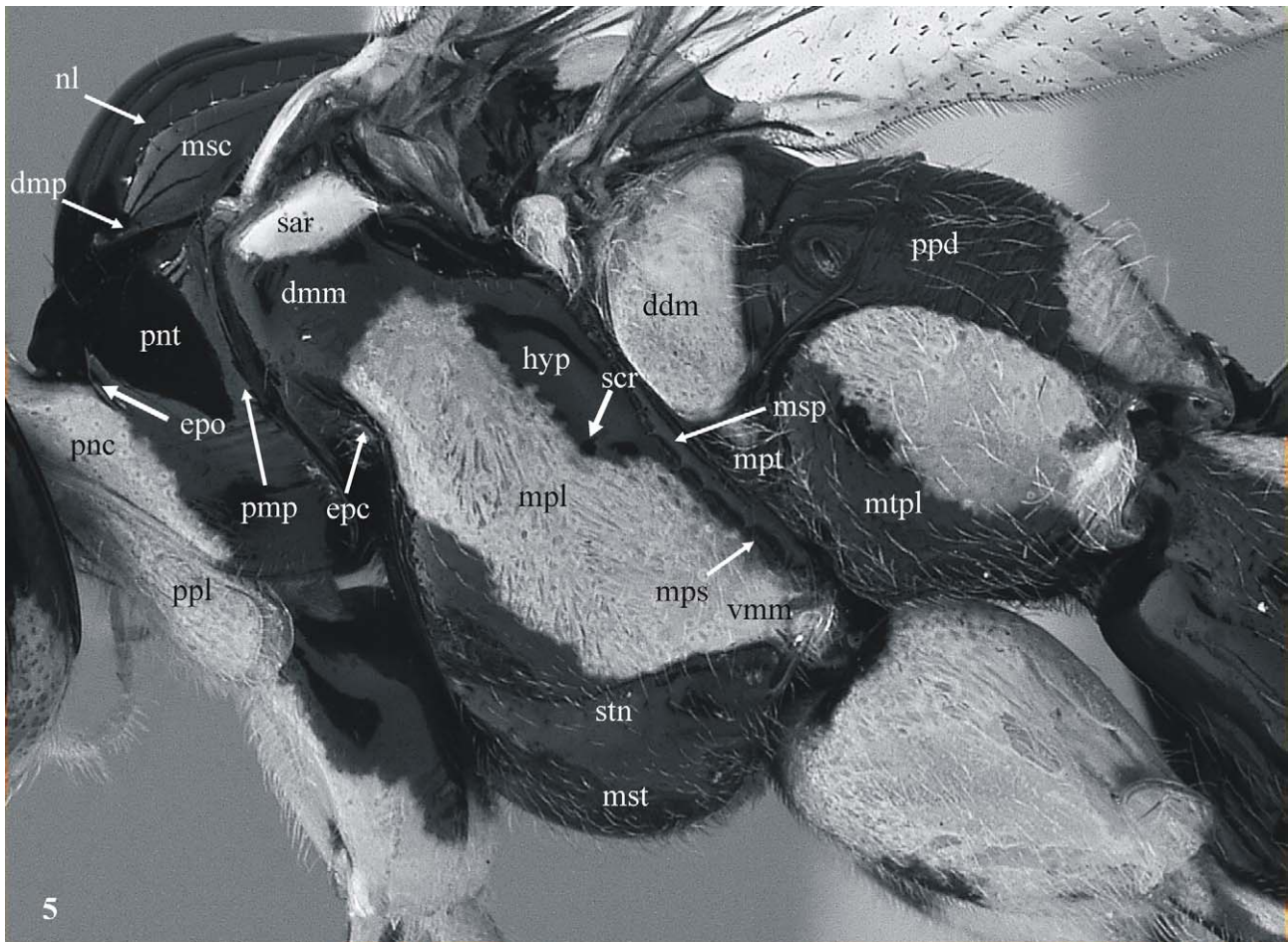


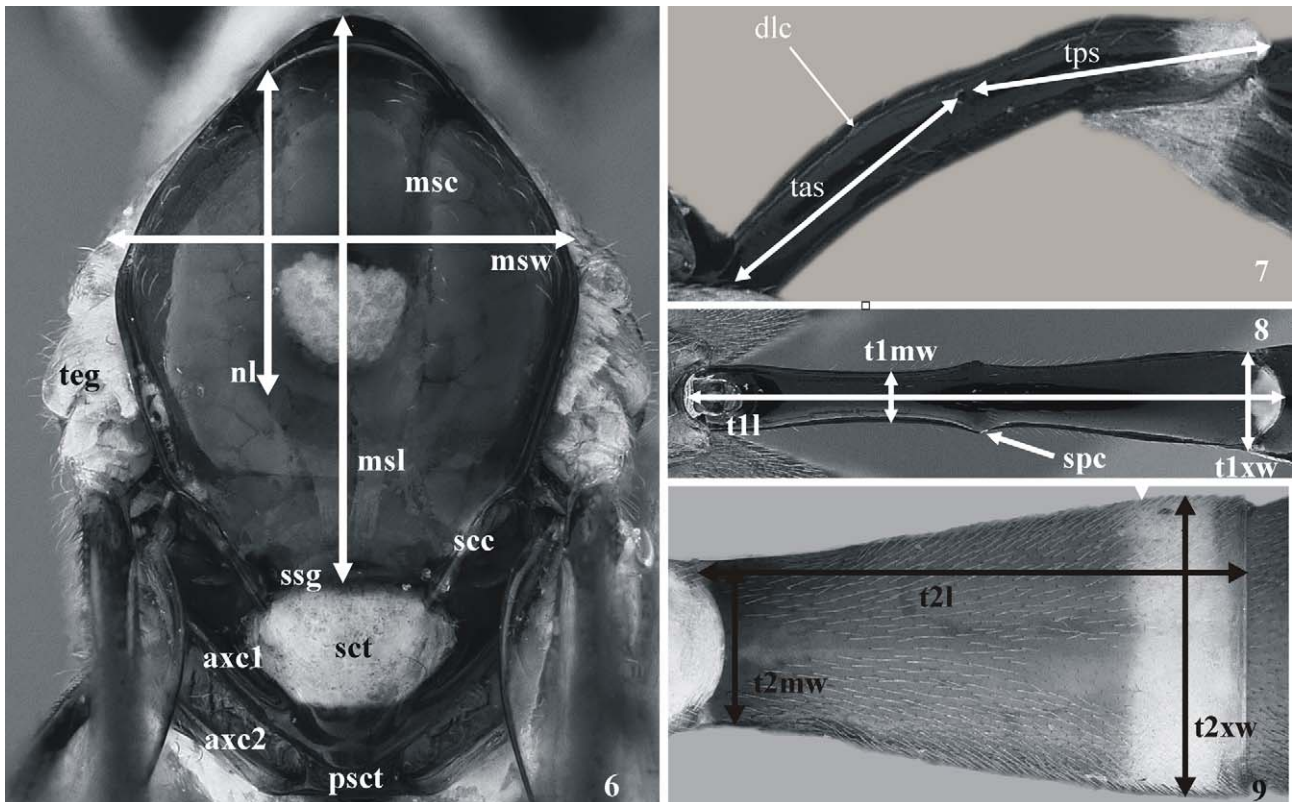
FIGURE 5. Terms for structures used in the present work. *Messatoporus orientalis*. mesosoma, lateral view; *ppl*, propleuron; *pnt*, pronotum; *pnc*, pronotal collar; *epo*, epomia; *dmp*, dorsal margin of pronotum; *pmp*, posterior margin of pronotum; *msc*, mesoscutum; *nl*, notaulus; *sar*, subalar ridge; *mpl*, mesopleuron; *dmm*, dorsal margin of mesopleuron; *epc*, epicnemial carina; *stn*, sternaulus; *hyp*, hypopimeron; *scr*, scrobe; *vmm*, ventral margin of mesopleuron; *mss*, mesopleural suture; *mst*, mesosternum; *ddm*, dorsal division of metapleuron; *mpt*, metapleural triangle; *mtpl*, ventral division of metapleuron (metapleuron); *ppd*, propodeum.

Mesosoma: The mesoscutum lateral and central areas as delimited by the notauli are referred as the **lateral and central lobes**. The **scuto-scutellar groove** (Fig. 6: *ssg*) is placed between the mesoscutum and the scutellum. The carinae delimiting the axillary troughs of mesonotum and metanotum are called, respectively, of **first and second axillar carinae** (Fig. 6: *axc1* and *axc2*). The anterior edge of the dorsal area of mesopleuron is termed simply **dorsal margin of mesopleuron** (Fig. 5: *dmm*), while the area dorsad to the posterior edge of the sternaulus is referred as the **ventral margin of mesopleuron** (Fig. 5: *vmm*). The “upper division of metapleuron” is here termed “dorsal division of metapleuron”, since “dorsal” is an ontogenetic term, whereas “upper” depends on position/reference. At its lateral end, the transverse furrow at base of propodeum is slightly expanded into a triangular area which is often differently colored than the surrounding areas (e.g. in *Messatoporus interceptus* **sp. nov.**, Fig. 69); it is here called **metapleural triangle** (Fig. 5: *mpt*). In most genera, the dorsal division of the metapleuron is almost indistinct medially, but in *Messatoporus* and some other taxa it advances medially between the posterior margin of metanotum and the transverse sulcus. In dorsal view, that generates the impression that the transverse sulcus is very long, particularly because the transverse sulcus is usually very shallow. However, the distinction between the two structures can be clearly observed when they are differently colored, and particularly when the transverse furrow has longitudinal wrinkles (e.g. in *M. dominicanus* **sp. nov.**, Fig. 190). The median area composed by the dorsal division of metapleuron + transverse furrow is termed the **transverse sulcus of propodeum** (Fig. 10: *tsp*). The trochantellus is referred here as the **second trochanter**, for brevity in color descriptions. The first and subsequent tarsomeres are referred as *t1*, *t2*, *t3*, etc. The area between the anterior margin and the anterior transverse carina is

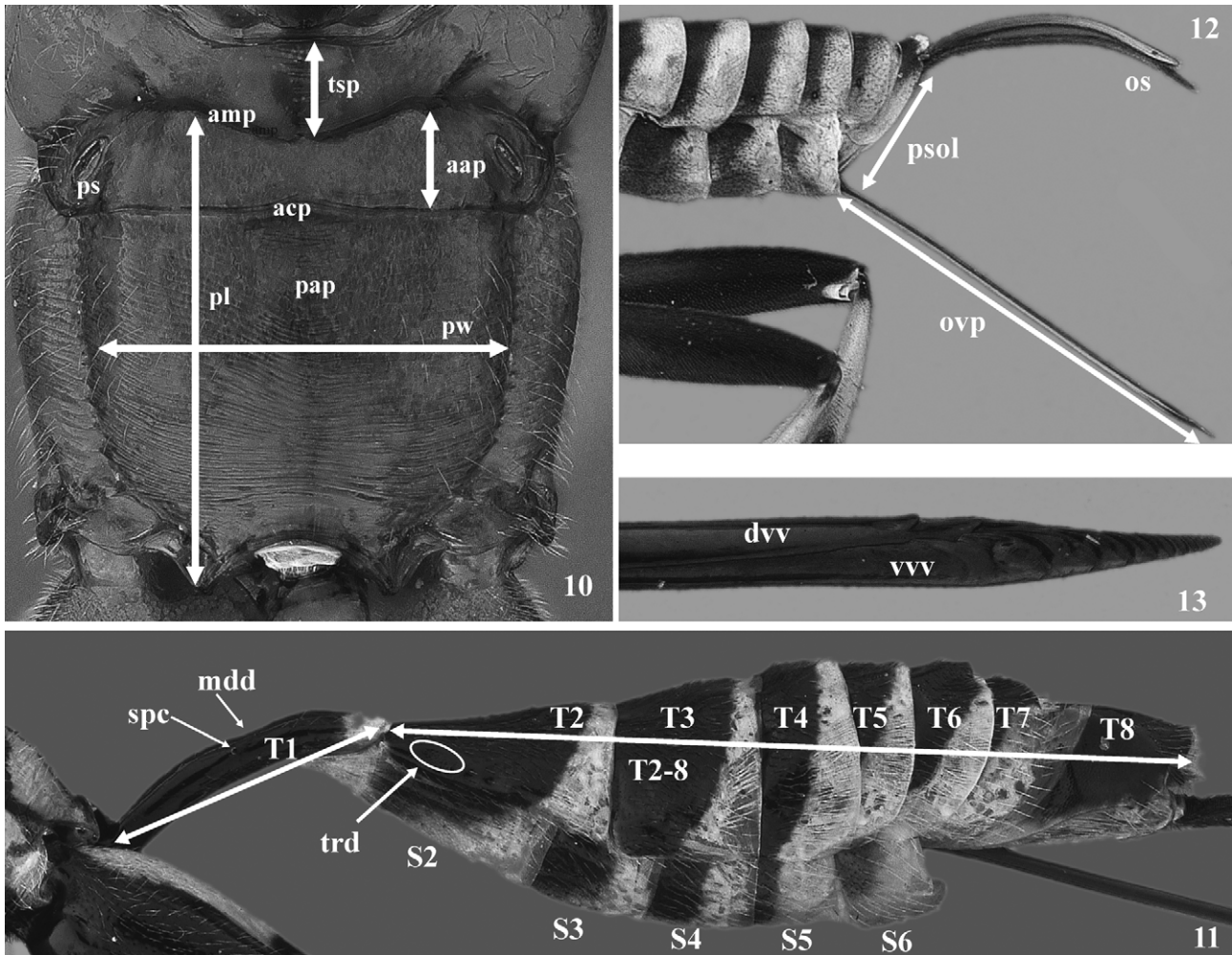
referred as anterior area of propodeum; the area posterior to the transverse carina is termed the posterior area of propodeum. The length and width of the propodeal spiracle are measured as straight lines, not counting the spiracle borders (Fig. 16).

Metasoma: Many species of *Messatoporus* have conspicuous depressions or pits on the first tergite. The most commonly found type is referred as **median depression** (Fig. 11: mdd), placed approximately at the level of the spiracle. When present, the **posterior median depression** is located distinctly posterior to the spiracle. Finally, a **lateral depression** can also occur just dorsad of the spiracle. Only the exerted part of the the ovipositor was considered to express the ovipositor length. The portion of the ovipositor that lies under the hypopigium (Fig. 12: *psol*) was not counted as part of the ovipositor length—that portion of the ovipositor length was subtracted from the total ovipositor length (Fig. 12: *ovp*) to obtain the correct measure. The same result can be achieved by measuring only the sheath of the ovipositor, but the former procedure has proven to be easier, because the ovipositor sheath is often contorted.

Surface sculpture terminology follows Harris (1979), except by the terms “mat,” not treated by that author; “shiny,” used instead of “nitid;” and “wrinkles,” used referring to strong, approximately regular raised lines (mainly in pronotum, propodeum and across some carinae). The term “wrinkle” is most commonly used in reference to irregular lines, similar to the description of “rugulose” in the present work. However, the use of “wrinkles” as defined here is more or less well established in Ichneumonidae taxonomic literature (e.g. Townes 1970). Furthermore, it was chosen because it is more intuitively understood when used as a noun, as in “distinctly arched wrinkles,” rather than in “distinctly arched striation” or “strigulation.”



FIGURES 6–9. Terms for structures used in the present work. **6.** *Messatoporus copiosus*, dorsal view; *teg*, tegula; *msc*, mesoscutum; *msl*, mesoscutum length; *msw*, mesoscutum width; *nl*, notaulus; *sec*, scutellar carina; *ssg*, scuto-scutellar groove; *scl*, scutellum; *axc1*, first axillar carina; *axc2*, second axillar carina; *psct*, postscutellum. **7.** *M. orientalis*, first metasomal tergite; *tas*, tergite length anterior to spiracle; *tps*, tergite length posterior to spiracle; *dlc*, dorsolateral carina. **8.** *M. nigriscutus*, T1, dorsal view; *t1l*, length of T1; *t1mw*, minimum width of T1; *t1xw*, maximum width of T1. **9.** *M. amazonensis*, T2, dorsal view; same codes of T1.



FIGURES 10–13. **10.** *M. convexus*, propodeum, dorsal view; *tsp*, transverse sulcus of propodeum; *pl*, propodeum length; *pw*, propodeum width; *amp*, anterior margin of propodeum; *aap*, anterior area of propodeum; *ps*, propodeal spiracle; *acp*, anterior transverse carina of propodeum; *pap*, posterior area of propodeum. **11.** *M. orientalis*; metasoma; *T1–8*, tergites 1–8; *S1–8*, sternites 1–8; *spc*, spiracle of first tergite; *mdd*, median depression of first tergite; *trd*, thiridium. **12.** *M. opacus*, metasoma and ovipositor; *ovp*, ovipositor; *psol*, “pre-sheath” ovipositor length; *os*, ovipositor sheath. **13.** *M. nigriscutus*, ovipositor tip; *dvv*, dorsal valve; *vvv*, ventral valve.

Observations and measurements

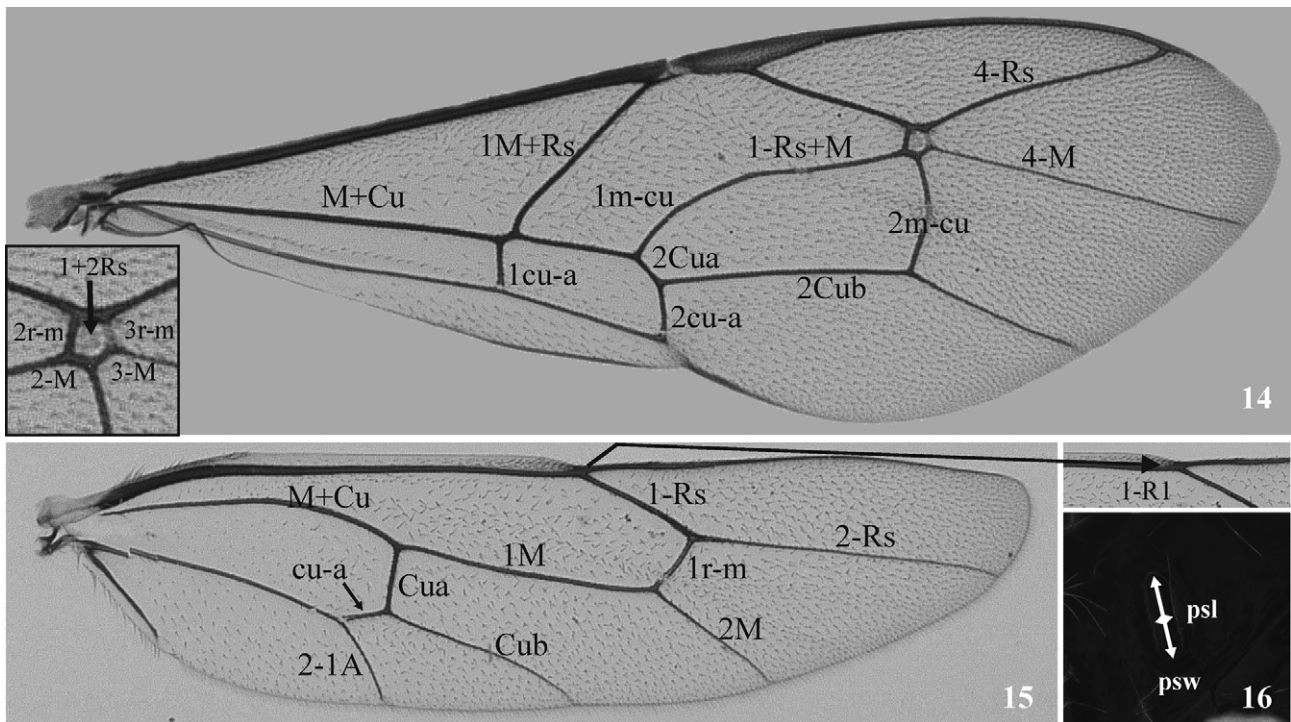
Observations of morphology, sculpturing and color were made using either a Leica MZ7.5 or MZ12.5 stereomicroscope with 16x oculars, and a 9W fluorescent lighting bulb. All ratios cited in the general morphology descriptions were derived from direct measurements; ratios cited for color descriptions usually represent subjective estimates. Wing vein measurements were performed through the Archimed software, part of the EntoVision® suite (see below), but should be interpreted as estimate values because folding and irregularities of wing surfaces make these measurements inevitably less precise.

Biometric ratios used in descriptions are as follows. Some measurements are briefly discussed below.

MLW	Mandible maximum length (Fig. 3)/maximum width (Fig. 4).
MWW	Mandible minimum width/maximum width.
CWH	Clypeus maximum width (Fig. 2)/maximum height (Fig. 2).
CWW	Clypeus maximum width/minimum width (Fig. 2).
MSM	Malar space maximum width (Fig. 4)/mandible maximum width.
SWL	Propodeal spiracle maximum width/maximum length (Fig. 16).
APH	Fore wing cell 1+2Rs (areolet) height/pterostigma maximum width.

AWH	1+2Rs maximum width/maximum height.
HW1C	Hind wing vein Cua/cu-a length.
T1LW	First metasomal tergite maximum length (Fig. 8)/maximum width, dorsal view (Fig. 8).
T1WW	First metasomal tergite maximum width/minimum width, dorsal view (Fig. 8).
T2LW	Second metasomal tergite maximum length (Fig. 9)/maximum width, dorsal view (Fig. 9).
T2WW	Second metasomal tergite maximum width/minimum width, dorsal view (Fig. 9).
OST	Ovipositor sheath length (measured as <i>ovp minus psol</i> , Fig. 12)/maximum length of hind tibia.

The mandible length is measured as a straight line, reaching from the most external point at base to the apex of the dorsal tooth. It should be measured in dorsal view (which is difficult when both mandibles are closed), because it helps to mitigate the parallax effect caused by the mandible curvature. The mandible maximum width (basal width) is measured with the specimen placed laterally, in order to give a perpendicular dorsal view of the mandible base. The mandible minimum width (apical width) is measured frontally, just basally to the mandibular teeth. The first tergite length (Fig. 8: t1l) is measured as a straight line in dorsal view. The same procedure is adopted to measure the first tergite maximum width (Fig. 6: t1xw), the first tergite minimum width (Fig. 8: t1mw) and the correspondent measures for the second tergite (Fig. 9: t2l, t2xw and t2mw). To evaluate the relative position of the spiracle (Fig. 5: spc) at the tergite, measurements are made laterally, as straight lines for the area anterior to the spiracle (Fig. 5: tas), and the area posterior to the spiracle (Fig. 5: tps). The ratio $tas/(tas+tps)$ is then used to describe the spiracle position. This procedure is adopted because it is more intuitive and easy to interpret than using the dorsal measure, “t1l” (i.e., regardless of tergite curvature).



FIGURES 14–16. **14**, *Messatoporus jalapa*, fore wing, codes for veins as interpreted from Sharkey and Wharton (1997); cell 1+2Rs in detail at bottom, left. **15**, *M. euryoikos*, hind wing, codes for veins; vein 1-R1 in detail at right top. **16**, *M. nigriscutus*, propodeal spiracle, lateral view; *psl*, propodeal spiracle length; *psw*, propodeal spiracle width.

Imaging

Images were generated using the extended-focus system EntoVision (GTVision, Hagerstown, Maryland), including a Leica Z16 zoom lens attached to a JVC KY-75U 3-CCD digital video camera that feeds image data to a desktop computer. The same lighting parameter and diaphragm opening was set for most pictures (Channels 1–4, respectively, 33.0, 88.8, 33.0, 5.4, Channel 2 facing the specimens head, diaphragm at 5), whereas the exposure

time (usually 0.5–0.8 seconds) was adjusted to each species individually. Although the stacks of pictures were produced in Cartograph, part of the EntoVision package, the online free software CombineZM (<http://www.hadleyweb.pwp.blueyonder.co.uk/CZM/combinezm.htm>) has provided better results in merging image series into a single in-focus image. Thus, stacks were exported as JPG files with the Archimed software and combined with CombineZM. The final images were further processed with GIMP 2.6 (<http://www.gimp.org/>) and Corel Draw v12. All illustrations are not to scale. Figures depicting holotypes are marked with an asterisk (*) in the caption.

Formatting

Whenever potentially ambiguous, color names are followed by their respective RGB formula, in the format (XXX,XXX,XXX), as determined from digital pictures of the studied specimens, according to procedures described by Aguiar (2005a). Geographic coordinates, when available on the labels, are compiled for each collecting site in Table 7, and are not repeated in the Material Examined. Descriptions of general morphology and the identification key were prepared using the DELTA Editor (Dallwitz 1974; Dallwitz 1980; Dallwitz, *et al.* 1993). The full character set for the descriptions is listed in the Appendix.

Cladistic analyses

Two distinct cladistic analyses were performed with different objectives and therefore using distinct taxa and character sets. A first analysis (Analysis 1) aimed to provide an objective evaluation of the monophyly and relationships of *Messatoporus*. For that, a representative group of 27 species was selected, aiming to encompass the broadest possible morphological variation within the genus. Those ingroup taxa were incorporated into a 162 characters x 105 species matrix, a combination of data from this and many other independent projects; about 50% of the data were coded by Anazélia M. Tedesco (UFES). This comparatively high number of taxa had to be used due to the fragility of the subtribal limits in Cryptinae, and the lack of clearly defined sister groups for *Messatoporus*. These outgroup taxa included seven species from five of the eight remaining genera of Osprynchotina (=Nematopodiina), in which Townes (1970) placed *Messatoporus*. The remaining taxa comprise 98 species from 72 genera in 12 Cryptini subtribes (of 15 listed by Wahl, 1999). Two species from other tribes of Cryptinae were also included: *Platymystax* sp. (Hemigasterini) and *Phygadeuon* sp. (Phygadeuontini), the latter used to root the tree. All taxa were determined either by the author or by H. Townes, D. Wahl, or W. Mason, and coded directly from the specimens.

The character set for this first analysis incorporates 100 characters from recent publications on the phylogeny of Cryptinae (Aguiar 2005b; Santos & Aguiar 2008; Tedesco & Aguiar 2009; and Santos *et al.* 2009 – see Table 1), plus 62 original characters. Those new characters were delimited and coded collectively by the author and by Anazélia M. Tedesco (UFES), for a parallel project (Tedesco & Aguiar 2013). Some of the new characters were selected from traditional features used in keys and descriptions, or discussed by Townes (1970) in his major revision of Cryptinae genera. Others were derived from original observation of discrete morphological variation. All characters were extensively and critically evaluated before coding, but a complete character-state analysis for cladistic analysis of Cryptinae at the genus level is beyond the scope of the present work, and will be published elsewhere (Aguiar *et al.*, in prep.). Accordingly, only the results of direct importance to the monophyly and close relationships of *Messatoporus* are presented and discussed.

A second analysis (Analysis 2) aimed at investigating the relationships among the species and character evolution within *Messatoporus*. The character set included 104 characters. Some of the characters of the previous analysis were also adopted here, or sometimes they were modified to fit in the context of the analysis. Other characters are features that appeared to have some phylogenetic significance to the intrageneric relationships of *Messatoporus*.

For both analyses, inapplicable characters were coded reductively (i.e., as “?”), as defended by Strong & Lipscomb (1999) and Fitzhugh (2006).

Tree searching was performed with heuristic analyses in TNT 1.1 (Goloboff *et al.* 2003), using all “new technologies” as described by Goloboff (2002): ratchet (see also Nixon, 1999a), sectorial search, tree-fusing and tree-drift, using default settings except for ratchet, which was set to 3,000 iterations each run. Implied weighting was tested for concavity constant (K) values of 1–6, without decimals. Multistate characters were always treated as unordered. Tree drawing and manipulation was performed with Winclada v.1.00.08 (Nixon, 1999b) and CorelDraw v.12.

Results and Discussion

Phylogeny and classification

Analysis 1. Monophyly and Relationships

The full character set used for the first analysis is presented below, listed approximately from the anterior to the posterior region of the body. The abbreviation [n/a] is used for non-applicable states.

1. **Body surface shine:** [0] mat to shiny, but never metallic; [1] with distinct metallic luster.
2. **Clypeus overall shape:** [0] approximately triangular, base much narrower than apex; [1] rectangular or slightly trapezoidal; base wide, at least $0.6 \times$ width of apex.
3. **Structure of apical portion of clypeus:** [0] truncate; flattened or slightly concave; [1] convex.
4. **Shape of clypeal margin medially:** [0] straight; [1] convex; [2] concave.
5. **Number of teeth on clypeal margin:** [0] 0; [1] 1; [2] 2, even if very small.
6. **Lateral projections on clypeal margin:** [0] absent; [1] present.
7. **Mandible length:** [0] short to medium, total length less than $1.8 \times$ basal width; [1] very long, total length over $4.0 \times$ basal width.
8. **Width of mandible apex:** [0] wide, more than $0.5 \times$ as wide as base; [1] narrow, less than $0.5 \times$ as wide as base.
9. **Projection of ventral margin of mandible:** [0] normal, not projected as a flange or crest; [1] projected as a flange or crest.
10. **Relative length of mandible teeth:** [0] ventral tooth longer than dorsal tooth; [1] teeth of equal length; [2] ventral tooth shorter than dorsal tooth, or ventral tooth indistinct.
11. **Shape of ventral tooth of mandible in frontal view:** [0] triangular or almost so, more or less uniformly tapered; [1] trapezoidal or lanceolate; [2] subquadrate.
12. **Differentiation of white band on flagellum of female:** [0] present; [1] absent.
13. **Extension of white on flagellomeres:** [0] covering entirely at least one flagellomere, both dorsally and ventrally; [1] covering only the dorsal face of flagellomeres along their entire length; [-] n/a (white band absent).
14. **Width of female flagellum subapically:** [0] regular, more or less uniform; [1] distinctly greater than rest of flagellum, even if not flattened.
15. **Shape of apex of apical flagellomere:** [0] regular, rounded or pointed; [1] distinctly flattened, cross section oval or subquadratic.
16. **Sculpturing of supra-antennal area medially:** [0] same as remainder of supra-antennal area; [1] with a smoother median longitudinal narrow stripe; [2] with a low, not continuous, median transversal suture-like structure; [3] with a weak to distinct median longitudinal carina.
17. **Presence of oval impression laterad tentorial pit on supra-antennal area:** [0] absent; [1] present.
18. **Presence of median horn or tubercle on supra-antennal area:** [0] absent; [1] present.
19. **Bifurcation of supra-antennal horn:** [0] not divided, either conical or compressed; [1] divided in two horns arising from a common base; [-] n/a (horns absent).
20. **Compression of supra-antennal horn:** [0] not compressed, base about as wide as long; [1] distinctly compressed, base longer than wide; [-] n/a (horns absent).
21. **Shape of apex of supra-antennal horn:** [0] pointed; [1] globose, not pointed; [-] n/a (horns absent).
22. **Profile of supra-antennal horn:** [0] straight; [1] distinctly curved forwards, posteriorly convex; [2], distinctly curved backwards, posteriorly concave; [-] n/a (horns absent).
23. **Width of gena:** [0] ventrally about as wide as at eye midlength; [1] distinctly wider ventrally than at eye midlength.
24. **Projection of occipital carina:** [0] low; [1] expanded, wide, forming a distinct flange.
25. **Shape of occipital carina (lateral view):** [0] more or less straight, not distinctly concave; [1] concave.

- 26. Extension of occipital carina ventrally:** [0] complete, reaching hypostomal carina, even if apically faint; [1] incomplete, not reaching hypostomal carina.
- 27. Apical shape of occipital carina:** [0] meeting hypostomal carina far beyond base of mandible; [1] meeting hypostomal carina at or very close to base of mandible; [-] n/a (occipital carina not reaching hypostomal carina).
- 28. Dorsomedial differentiation of occipital carina:** [0] present and conspicuous; [1] very narrow or vestigial; [2] absent.
- 29. Dorsomedial shape of occipital carina:** [0] uniformly arched; [1] distinctly pointed or acuminate; [2] distinctly bent at ventral direction; [-] n/a (carina dorsomedially absent).
- 30. Dorsolateral shape of occipital carina:** [0] uniformly curved; [1] angled or sinuous.
- 31. Ventral shape of occipital carina:** [0] uniformly curved with dorsal portion; [1] irregular, more markedly arched than ventral portion.
- 32. Projection of hypostomal carina:** [0] normal, not projected; [1] expanded, forming a flange or crest.
- 33. Shape of vertex dorsomedially:** [0] without sulcus; [1] with a deep longitudinal sulcus between ocellar triangle and occipital carina.
- 34. Mesoscutum sculpturing:** [0] shiny; [1] mat.
- 35. Shape of dorsal margin of pronotum:** [0] regular, not or only slightly swollen; [1] markedly swollen, often forming a tubercle near dorsal end of epomia.
- 36. Epomia length:** [0] short, ending far from dorsal margin of pronotum; [1] long, reaching dorsal margin of pronotum or nearly so; [2] absent.
- 37. Shape of median portion of pronotum (lateral view):** [0] regular, more or less flat, without a transverse depression; [1] weakly to strongly concave.
- 38. Notaulus length:** [0] very short to short, not reaching middle of mesoscutum; [1] long, reaching past middle of mesoscutum; [2] completely absent.
- 39. Notaulus differentiation:** [0] absent or very weak, not distinctly dividing mesoscutum; [1] moderate, narrow and slightly dividing mesoscutum; [2] deep, wide, distinctly dividing mesoscutum into three lobes.
- 40. Surface sculpturing inside the notaulus:** [0] uniformly smooth or punctate with mesoscutum; [1] with distinct longitudinal wrinkles; [-] n/a (notaulus absent).
- 41. Degree of convergence of notauli at middle portion:** [0] parallel or subparallel; [1] distinctly convergent posteriorly; [-] n/a (notaulus absent).
- 42. Curvature of anterior apex of notaulus:** [0] slight or indistinct, anterior apex straight or almost so; [1] strong, anterior apex distinctly curved in lateral direction; [-] n/a (notaulus absent).
- 43. Shape of posterior end of notaulus:** [0] straight, either parallel or convergent; [1] abruptly curved mesad, both notauli meeting posteriorly in U-shape; [-] n/a (notaulus absent).
- 44. Presence of mid-longitudinal groove on posterior portion of central lobe of mesoscutum:** [0] absent; [1] present, even if weak.
- 45. Surface sculpturing of scuto-scutellar groove:** [0] crenulated; [1] smooth; [-] n/a (scuto-scutellar groove absent).
- 46. Surface sculpturing of mesopleuron dorsad hypopimeron:** [0] distinctly striate; [1] smooth; [-] n/a (hypopimeron absent).
- 47. Extension of epicnemial carina:** [0] complete, reaching subalar ridge or almost so; [1] reaching only 0.6–0.85 of distance to subalar ridge; [2] reaching at most 0.50 of distance to subalar ridge.
- 48. Projection of epicnemial carina:** [0] without projections or flanges; [1] medially with two triangular, perpendicular projections on each side of mesopleuron.
- 49. Differentiation of sternaulus:** [0] complete but faint at least at posterior third; [1] complete and distinct throughout; [2] faint and incomplete, reaching 0.45–0.65 of the distance to mid coxa; [3] absent.
- 50. Position of sternaulus:** [0] placed laterally along its entire length; [1] anteriorly placed somewhat ventrally on mesothorax, posteriorly changing to occupy lateral position; [-] n/a (sternaulus absent).
- 51. Sculpturing of sternaulus:** [0] uniformly smooth or punctate with mesopleuron; [1] crenulate; [-] n/a (sternaulus absent).
- 52. Differentiation of median portion of posterior transverse carina of the mesothoracic venter:** [0] absent; [1] present, even if vestigial.

- 53. Shape of median portion of posterior transverse carina of the mesothoracic venter:** [0] straight; [1] arched forwards, somewhat v-shaped [2] distinctly arched backwards; [-] n/a (median portion absent).
- 54. Projection of median ventral portion of posterior transverse carina of the mesothoracic venter:** [0] without projections or flanges; [1] with two triangular projections at each side of mesosternum.
- 55. Differentiation of metapleural triangle:** [0] distinct, not impressed (e.g. Fig. 278); [1] small, impressed, sometimes almost indistinct; [-] n/a (sternaulus absent).
- 56. Presence of teeth-like projections at hind margin of metanotum:** [0] present; [1] absent (Figs 162–206).
- 57. Differentiation of dorsal division of metapleuron at median portion:** [0] not differentiated, metanotum and propodeum separated only by the transverse furrow (see Morphology section) ; [1] expanded, along with the transverse furrow forming the transverse sulcus (see Morphology section).
- 58. Length of transverse furrow at base of propodeum:** [0] short, sometimes almost indistinct; [1] at least 0.25 as long as anterior area of propodeum .
- Comment: note that the transverse furrow can be connected to the median portion of the dorsal division of metapleuron, forming a long area termed *transverse sulcus* (see character 57 and Morphology section). This character refers only to the length of the transverse furrow.
- 59. Depth of transverse furrow at base of propodeum:** [0] very deep to moderately shallow; [1] very shallow, sometimes inconspicuous.
- 60. Surface sculpturing of transverse furrow at base of propodeum:** [0] smooth; [1] crenulate.
- 61. Infuscation of fore wing:** [0] hyaline, even if with one to three dark marks; [1] weakly and uniformly infuscate, partially transparent; [2] strongly infuscate, entirely black or dark brown; [-] n/a (wings absent).
- 62. Shape of fore wing vein 1-Rs+M:** [0] straight or slightly convex; [1] concave or sinuous, even if slightly.
- 63. Length of fore wing crossvein 1m-cu:** [0] about as long as vein 1-Rs+M; [1] distinctly shorter than vein 1-Rs+M; [2] distinctly longer than vein 1-Rs+M; [-] n/a (limit between veins indistinct).
- 64. Presence of bulla on fore wing vein 1-Rs+M:** [0] absent; [1] present; [-] n/a (wings absent).
- 65. Position of bulla on fore wing vein 1-Rs+M:** [0] central; [1] apical, reaching cell 1+2Rs or nearly so; [-] n/a (wings absent).
- 66. Shape of fore wing crossvein 1m-cu:** [0] straight or uniformly curved; [1] sinuous or somewhat irregular; [-] n/a (wings absent).
- 67. Presence of short vein projection (ramellus) arising at junction of fore wing veins 1m-cu and 1-Rs+M:** [0] absent; [1] present; [-] n/a (wings absent).
- 68. Distinctness of limit between fore wing veins 1m-cu and 1-Rs+M:** [0] distinct; [1] indistinct, veins perfectly continuous; [-] n/a (wings absent).
- 69. Shape of fore wing vein 1M+Rs:** [0] weakly and uniformly curved, or straight; [1] slightly sinuous to weakly irregular; [-] n/a (wings absent).
- 70. Cell 2Cu (first subdiscal) shape:** [0] approximately rectangular, about as long basally as apically; [1] approximately trapezoidal, distinctly longer apically than basally; [-] n/a (wings absent).
- 71. Position of fore wing crossvein 1cu-a:** [0] distinctly basad to base of 1M+Rs; [1] opposite to base of 1M+Rs or almost so.; [2] distinctly apicad to base of 1M+Rs; [-] n/a (wings absent).
- 72. Angle between fore wing crossvein 1cu-a and vein M+Cu:** [0] approximately 90 degrees; [1] distinctly obtuse; [2] distinctly acute; [-] n/a (wings absent).
- 73. Shape of fore wing crossvein 1cu-a:** [0] straight; [1] convex, or at least posterior half slightly curved; [2] concave; [-] n/a (wings absent).
- 74. Relative length of fore wing vein 2Cua:** [0] distinctly longer than crossvein 2cu-a; [1] nearly of the same length of 2cu-a, or 2cu-a slightly longer; [2] much shorter than crossvein 2cu-a; [3] 2Cua entirely absent; [-] n/a (wings absent).
- 75. Relative position of fore wing veins 2Cua and 2cu-a:** [0] aligned; [1] angled, even if slightly; [2] aligned but 2cu-a placed more apically than 2Cua; [-] n/a (2Cua entirely absent or entire wing absent).
- 76. Shape of fore wing vein 4-Rs:** [0] uniformly curved; [1] sinuous or irregular; [2] approximately straight; [-] n/a (wings absent).
- 77. Relative position of fore wing veins 4-Rs and 4-M:** [0] basally aligned, starting at the same level of the wing length; [1] basally misaligned, starting at different levels of the wing length; [-] n/a (wings absent).

- 78. Shape of fore wing vein 2m-cu:** [0] convex; [1] straight; [2] concave, even if slightly; [3] sinuous or irregular; [-] n/a (wings absent).
- 79. Position of bulla of fore wing crossvein 2m-cu:** [0] mostly central to mostly ventral; [1] placed entirely or mostly on anterior 0.5; [2] nearly reaching or reaching cell 1+2Rs (areolet); [-] n/a (wings absent).
- 80. Size of areolet:** [0] small; [1] large, about as high as width of pterostigma; [-] n/a (areolet not differentiated).
- 81. Relative position of fore wing crossveins 2r-m and 3r-m:** [0] parallel or nearly so; [1] distinctly but slightly or moderately convergent towards anterior margin of wing; [2] markedly convergent, anterior portion or areolet less than 0.7 its maximum width; [3] slightly to distinctly divergent towards anterior margin of wing [-] n/a (areolet open or not differentiated).
- 82. Relative length of fore wing crossvein 2r-m:** [0] about as long as crossvein 3r-m; [1] distinctly longer than crossvein 3r-m; [2] distinctly shorter than apical vein; [-] n/a (areolet open: apical vein absent).
- 83. Structure of fore wing vein 2-M:** [0] entirely tubular or nebulous; [1] entirely or partly spectral; [-] n/a (wings absent).
- 84. Length of fore wing vein 2-M:** [0] approximately the same length of 3-M, or one slightly shorter than the other; [1] distinctly shorter than 3-M; [2] distinctly longer than 3-M; [-] n/a (areolet not differentiated).
- 85. Structure of fore wing vein 3r-m:** [0] tubular or nebulous; [1] entirely or partly spectral, including “with bulla;” [-] n/a (areolet open or cell 1+2Rs not differentiated).
- 86. Shape of areolet:** [0] pentagonal, or nearly square or circular, even if slightly longer than wide or if open; [1] transversely elongated, distinctly wider than high; [-] n/a (areolet not differentiated).
- 87. Structure of fore wing vein 3-M:** [0] tubular or nebulous; [1] mostly or entirely spectral; [-] n/a (wings absent).
- 88. Structure of fore wing 4-M:** [0] tubular or nebulous, distinct until wing margin or nearly so; [1] mostly or entirely spectral, sometimes apically indistinct; [-] n/a (wings absent).
- 89. Relative length of fore wing vein 4-M:** [0] slightly to distinctly longer than vein 4-Rs; [1] nearly as long as, or shorter, than 4-Rs; [-] n/a (4-M nebulous or spectral on apical half or more).
- 90. Shape of hind wing vein M+Cu subapically:** [0] uniformly and weakly convex, or straight; [1] strongly convex; [2] concave; [-] n/a (wings absent).
- 91. Length of hind wing vein Cua:** [0] nearly as long as crossvein cu-a; [1] Cua distinctly longer; [2] Cua distinctly shorter; [-] n/a (wings absent).
- 92. Shape of hind wing vein Cua:** [0] straight; [1] slightly convex or sinuous; [2] concave; [-] n/a (wings absent).
- 93. Structure of hind wing vein 2-Rs:** [0] complete and entirely tubular; [1] complete, but apical half or more nebulous or spectral [2] incomplete, not reaching wing margin; [-] n/a (wings absent).
- 94. Shape of hind wing cell R1 basally:** [0] somewhat trapezoidal, hind wing veins 1-Rs and 2-Rs forming a distinct angle; [1] pointed or lanceolate, hind wing veins 1-Rs and 2-Rs continuous or nearly so; [-] n/a (wings absent).
- 95. Angle between hind wing veins Cua and 1M:** [0] about 90°; [1] distinctly acute; [2] distinctly obtuse; [-] n/a (wings absent).
- 96. Differentiation of hind wing vein 1-R1** (the short basal section of R1 detached from wing margin): [0] distinct; [1] not differentiated; [-] n/a (wings absent).
- 97. Differentiation of hind wing vein Cub:** [0] present and tubular; [1] absent or spectral only; [-] n/a (wings absent).
- 98. Shape of hind wing vein Cub apical half:** [0] concave, straight or only very slightly convex; [1] distinctly convex, even if sinuous.
- 99. Length of hind wing vein 2-1A:** [0] short, reaching less than 0.3 of the way to wing margin, or absent; [1] complete or reaching more than 0.5 of the way to wing margin; [-] n/a (wings absent).
- 100. Aspect of fore tibia of female:** [0] normal, not swollen or basally constricted; [1] swollen, basally constricted.
- 101. Region of greatest swelling on fore tibia:** [0] at median portion, tibia of oval or fusiform aspect; [1] subapical or continuous, tibia somewhat conic; [-] n/a (tibia not swollen).
- 102. Shape of hind coxa:** [0] globose, about as long as its maximum diameter; [1] distinctly elongate, much longer than wide.
- 103. Shape of fourth tarsomeres of females (all legs):** [0] distinctly bilobed; [1] not distinctly bilobed.

- 104. Relative length of lobes of female fourth tarsomeres (all legs):** [0] approximately of equal length; [1] unequal, mesal lobe at least $1.5 \times$ as long as lateral lobe; [-] n/a (tarsomeres not bilobed).
- 105. Differentiation of juxtacoxal carina:** [0] present and distinct, even if incomplete; [1] completely absent; [2] represented only by very delicate ridges.
- 106. Differentiation of pleural carina:** [0] absent; [1] distinct and complete; [2] distinct but weak and incomplete.
- 107. Presence of tooth like sublateral projections at anterior margin of propodeum, :** [0] absent; [1] present.
- 108. Median outline of anterior margin of propodeum:** [0] straight; [1] convex; [2] concave; [-] n/a (anterior margin of propodeum not distinct).
- 109. Elevation of anterior area of propodeum:** [0] not inflated, in lateral view at the same level as the rest of propodeum; [1] somewhat inflated, in lateral view distinctly elevated compared to the rest of propodeum.
- 110. Shape of propodeal spiracle:** [0] rounded or almost so; [1] distinctly elliptic, about $2.0 \times$ width; [2] elongate, length distinctly over $2.5 \times$ width.
- 111. Length of anterior area of propodeum:** [0] approximately as long as distance between anterior and posterior transverse carinae, or just slightly shorter; [1] much shorter than distance between anterior and posterior transverse carinae; [2] longer than distance between anterior and posterior transverse carinae; [-] n/a (posterior or anterior carina absent).
- 112. Differentiation of anterior transverse carina of propodeum:** [0] present, distinct; [1] absent.
- 113. Shape of anterior transverse carina of propodeum:** [0] straight or weakly and uniformly curved; [1] strongly curved at median portion; [2] fused with posterior transverse carina; [-] n/a (anterior carina absent).
- 114. Sculpturing over anterior surface of anterior transverse carina of propodeum:** [0] without longitudinal wrinkles; [1] with distinct longitudinal wrinkles; [-] n/a (anterior carina absent).
- 115. Posterior sculpturing over posterior surface of anterior transverse carina of propodeum:** [0] uniformly sculptured with propodeum; [1] with distinct longitudinal wrinkles; [-] n/a (anterior carina absent).
- 116. Sculpturing of posterior area of propodeum:** [0] smooth or variously sculptured, not transversely wrinkled; [1] with distinct transverse wrinkles, either closely or widely spaced, straight or curved.
- 117. Shape of transverse wrinkles of posterior area of propodeum:** [0] slightly to distinctly curved or sinuous; [1] straight; [-] n/a (transverse wrinkles absent).
- 118. Presence of longitudinal medial carina on propodeum:** [0] absent; [1] interrupted medially; [2] complete.
- 119. Shape of posterior transverse carina of propodeum:** [0] uniformly convex, weakly or strongly, even if briefly interrupted centrally; [1] strongly bell-shaped or trapezoidal; [-] n/a (posterior transverse carina present only as sublateral crests or absent).
- 120. Differentiation of posterior transverse carina of propodeum:** [0] complete, either with or without sublateral crests; [1] interrupted medially, between sublateral crests or apophyses; [2] absent except for crests or apophyses; [3] completely absent.
- 121. Shape of sublateral portions of posterior transverse carina of propodeum:** [0] not forming crests or flanges; [1] forming distinct crests or flanges; [-], n/a (posterior transverse carina absent).
- 122. Structure of sublateral swelling at posterior area of propodeum (see character 123):** [0] rhombic, its apex rounded; [1] pointed, spine-like; [-] n/a (sublateral portion not swollen).
- 123. Outline of sublateral portion of posterior transverse carina:** [0] regular, not projected into tubercles or apophyses; [1] distinctly projected, forming tubercles or apophyses; [-] n/a (posterior transverse carina absent).
- 124. Presence of longitudinal carina between anterior margin of propodeum and anterior transverse carina:** [0] complete; [1] absent; [2] vestigial or partially developed.
- 125. Presence of longitudinal carina between anterior and posterior transverse carinae of propodeum:** [0] complete; [1] absent; [2] vestigial or partially developed.
- 126. Presence of longitudinal carina posterior to posterior transverse carina of propodeum:** [0] complete, reaching petiolar foramen; [1] absent; [2] vestigial or partially developed.
- 127. Presence of longitudinal carina near dorsal surface of propodeal spiracle (lateral view):** [0] absent; [1] present.
- 128. Presence of a longitudinal carina between anterior transverse carina and crests or apophyses of propodeum:** [0] entirely absent; [1] present, even if weak.
- 129. Shape of first metasomal tergite:** [0] short and triangular, length/(maximum width - minimum width) less than 4.0; [1] regular, somewhat elongate, $\lg/(w_{\max} - w_{\min})$ 4.0–6.0; [2] long and slender, $\lg/(w_{\max} - w_{\min})$ over 6.0.

- 130. Ventrolateral outline of first metasomal segment:** [0] somewhat angled, giving petiole ventrally a somewhat prismatic shape; [1] approximately rounded, giving petiole ventrally a somewhat cylindrical shape.
- 131. Angle between petiole and postpetiole:** [0] postpetiole distinctly bent in ventral direction, strongly angled with petiole; [1] postpetiole not distinctly bent, at most forming very slight angle with petiole.
- 132. Presence of median depression on T1:** [0] absent; [1] present.
- 133. Presence of median posterior depression on T1:** [0] absent; [1] present.
- 134. Presence of anterolateral tooth at first metasomal tergite:** [0] absent; [1] present, even if vestigial.
- 135. Position of spiracle of first metasomal tergite:** [0] beyond middle; [1] at middle or nearly so.
- 136. Projection of spiracle of first metasomal tergite in dorsal view:** [0] not prominent; [1] prominent.
- 137. Differentiation of dorsolateral carina of first metasomal tergite:** [0] complete, even if much weaker on basal portion; [1] very weak or distinct only near base or above the spiracle; [2] completely absent.
- 138. Differentiation of median dorsal carina of first metasomal tergite:** [0] distinct until the spiracle; [1] represented only by weak, often incomplete longitudinal ridge; [2] completely absent.
- 139. Differentiation of ventrolateral carina of first metasomal tergite:** [0] complete, even if basal portion much weaker than apical one; [1] very weak or distinct only near base; [2] completely absent
- 140. Shape of apical portion of T1 in dorsal view:** [0] broadener towards apex, or margins parallel; [1] subapically distinctly wider than posterior margin, somewhat inflated.
- 141. Shape of thyridium:** [0] subcircular; [1] distinctly longer than wide; [2] distinctly wider than long.
- 142. Length of individual tergites for T7–8, in lateral view:** [0] of similar length or shorter than individual tergites for T5–6; [1] distinctly longer than T5–6.
- 143. Differentiation of intersegmental membrane between T7–8:** [0] indistinct or if distinct, very short and hardly distinguishable; [1] distinct and long, making limit between the borders of T7–8 hardly distinguishable (see Fig. 11).
- 144. Ovipositor thickness in profile:** [0] thick, stout; [1] moderately slender; [2] very slender, hair-like, usually long and contorted.
- 145. Ovipositor shape in lateral view:** [0] straight or nearly so; [1] distinctly downcurved; [2] distinctly upcurved.
- 146. Ovipositor compression:** [0] conspicuously compressed; [1] approximately cylindrical; [2] distinctly depressed.
- 147. Conspicuousness between first gonapophyses:** [0] distinct, both gonapophyses apparently somewhat fused, tubular; [1] indistinct, gonapophyses distinctly individualized and often separated in dried specimens.
- 148. Shape of ovipositor tip:** [0] cylindrical or compressed in the same way of basal portion; [1] distinctly depressed; remainder of ovipositor cylindrical. See also character 154.
- 149. Presence of tiny punctures throughout ovipositor dorsal valve:** [0] absent; [1] present.
- 150. Differentiation of nodus of ovipositor dorsal valve:** [0] tall, giving triangular shape to apex; [1] nodus weak or not evident, apex not triangular.
- 151. Presence of notch of ovipositor dorsal valve:** [0] present; [1] absent.
- 152. Presence of apical v-shaped sulcus at ovipositor dorsal valve:** [0] absent; [1] present before apical teeth of ovipositor ventral valve (Fig. 45 in Tedesco & Aguiar 2013).
- 153. Presence of subapical compression on ovipositor ventral valve:** [0] absent; [1] present before apical teeth (Fig. 45 in Tedesco & Aguiar 2013).
- 154. Pointing of ovipositor tip:** [0] blunt or only moderately pointed; [1] ending in a long and narrow point. See also character 148.
- 155. Presence of apical rounded foldings at ovipositor dorsal valve:** [0] absent; [1] present (as in *Baryceros* Gravenhorst; see Fig. 183 in Townes 1970).
- 156. Presence of notch-like marks at apex of ovipositor dorsal valve:** [0] absent; [1] present (as in *Lamprocryptus* Schmiedeknecht; see Fig. 203 in Townes 1970).
- 157. Presence of apical ridges at ovipositor dorsal valve:** [0] absent, even if serrations or notch marks present (Figs 279–281); [1] with 3–5 distinct blunt ridges (as in many species of *Messatoporus*; see Figs 282–288); [2] with distinct pointed ridges (as in *Stenarella* Szépligeti; see Fig. 279 in Townes 1970).
- 158. Prominence of ventral valve subapically:** [0] with a distinct swelling; [1] without a distinct swelling.
- 159. Differentiation of apical lobe of ovipositor ventral valve:** [0] absent, ventral valve apically not projected dorsally; [1] present, ventral valve apically projected dorsally, partially overlapping dorsal valve; [2] ventral valve apically expanded to cover entire tip as a sheath.

160. Differentiation of teeth of ventral valve tip: [0] present along entire tip; [1] weak and restricted to the very tip, or serrations absent.

161. Orientation of apical teeth on ovipositor ventral valve: [0] distinctly inclivous; [1] approximately vertical; [2] distinctly reclivous.

162. Shape of individual teeth (=parallel carinae) on apex of ventral valve: [0] uniformly arched; [1] conspicuously arched or bent towards base, forming a dentiform, triangular structure.

A final matrix with 21,060 character-state data points was obtained (Table 2). Searches with all *K* values yielded only one most parsimonious tree each. Consistency Index (CI) was always 0.05, and the Retention Index (RI) varied between 0.45–0.47 (Table 3). The recovered trees have relatively few differences in topology, at least for *Messatoporus* and its closely related groups (Fig. 17). All analyses recovered the species of *Messatoporus* as a monophyletic group, in a clade supported by 7–11 synapomorphies, seven of them present in all trees (Table 4). All recovered synapomorphies correspond to highly homoplasious characters (Ci 0.04–0.20), and some of those undergo reversal within the *Messatoporus* clade (e.g. character-states 26:1, 84:1). Most of the features traditionally used to define *Messatoporus* were not recovered as synapomorphies of the genus, but instead support more inclusive groups. Some of the synapomorphies, however, are relatively constant in all species of the genus and are therefore reasonable diagnostic features (e.g. 6:1, 102:1, 108:2, 135:1—see Table 4). The consensus tree topology inside *Messatoporus* was almost entirely collapsed; because of this, and because the internal phylogeny of the species of the genus was discussed in detail in the Analysis 2, it is not shown in Figure 17.

Species currently classified in the subtribe Osprynchotina were always recovered in a single clade that also included *Dotocryptus* Brèthes, currently classified within Cryptina. This clade was supported by 6–8 synapomorphies, four of which were present in all trees (Fig. 17). Four synapomorphies correspond to ovipositor features (145:2, 146:0, 148:1 and 158:1), including one non-homoplasious synapomorphy (148:1, ovipositor tip distinctly more depressed than subapical portion). In fact, the ovipositor tip morphology is fairly constant and characteristic among species of Osprynchotina, presumably adapted to drill and oviposit in mud nest cells. Observations from *Photocryptus* Viereck (Schrottky 1915) indicate that females use the ovipositor as a drill to dig into the clay of the host nests. Accordingly, species of the subtribe have the ovipositor moderately long to very long, apically depressed, with the ventral valve usually with strong teeth, and which often partially (*Iaria* Cheesman) or completely (*Acroricnus* Ratzeburg), *Messatoporus*, *Osprynchotus* Spinola and *Photocryptus*) overlaps the dorsal valve as a lobe or sheath. In another large group of cryptine wasps, the Gabuniina, the ventral valve also partially overlaps the dorsal valve. The fact that gabuniines are mostly parasitoids of wood boring insects, and use their stout ovipositors to penetrate wood, support the hypothesis that this feature may aid the female wasp in perforating the host substrate. Species of some genera of Osprynchotina also have the dorsal valve with rounded creases (*Sphecotonus* Seyrig and *Picardiella* Lichtenstein, not evaluated), ridges (*Messatoporus*) or pointed hooks (*Stenarella* Szépligeti).

The ovipositor of *Nematopodius* Gravenhorst (not evaluated), on the other hand, differs greatly from all other groups of the subtribe. It is very short, compressed, with a distinct nodus, dorsal valve having a triangular apex, and ventral valve not overlapping the dorsal one. Moreover, *N. formosus* Gravenhorst is the only osprynchotine species recorded attacking hosts other than aculeate wasps species; it was recorded as a parasitoid of buprestid and scolytid beetles (Orbtl 1948). It is likely that *Nematopodius* does not form a monophyletic group with the remaining Osprynchotina.

Similar to almost all Osprynchotina, species of *Dotocryptus* attack aculeate wasps which build mud nests, with records from *Hypodynerus* spp. (Vespidae, Eumeninae—according to Townes 1970), and share many morphological features with the genera of that subtribe, particularly in mandible and ovipositor shape.

The results recovered herein differ from those obtained by Laurenne *et al.* (2006) and Quicke *et al.* (2008), in which the evaluated genera of Osprynchotina were not recovered as a monophyletic group. Both of these works recovered *Messatoporus* as the sister group of *Photocryptus*, but only one species of each genus was included in their analyses. Species of *Acroricnus*, *Stenarella* and *Iaria*, as well as of *Nematopodius* and *Picardiella* (not evaluated), were scattered in a large clade including representatives of over 25 genera. Although Gauld (1984) regarded the Osprynchotina as a monophyletic group (see also Introduction), Laurenne *et al.* (2006) consider that the long and slender mandible and elongate dorsal tooth is probably a convergent character related to the utilization of aculeate nests, and hypothesise that its phylogenetic significance is subjective when compared to characters such as areolet shape and form of first metasomal tergite. In the present analyses, a long mandible (7:1) was not

recovered as a synapomorphy of Osprynchotina—in fact, two of the evaluated species of the subtribe did not present this feature. It is noteworthy that the mandible of species of Osprynchotina sometimes seems much longer than it really is because of its triangular, tapered apex. Townes (1970) evaluated the mandible length in proportion with its width on midlength. When the mandible is tapered, however, this ratio will be inevitably larger, even if the mandible is short, proportionally to its basal width. For that reason, the basal width of mandible should be preferred, at least in this case, as an indicator of the mandible relative length.

Most characters supporting the osprynchotine clade are related to ovipositor shape. Although characters regarding both mandible and ovipositor, being highly “adaptive” (i.e., putatively more directly related to habits and host use), could be more prone to convergent evolution, the clade is additionally supported by other, presumably more “sound” synapomorphies.

The results provide strong support for the monophyly of *Messatoporus*. They also indicate that *Dotocryptus* belongs in fact to Osprynchotina, and that *Nematopodius* does not fit in the subtribe as cladistically redefined here, but the precise taxonomic delimitation of the subtribe requires a more extensive study, preferably with concatenate morphological and molecular data.

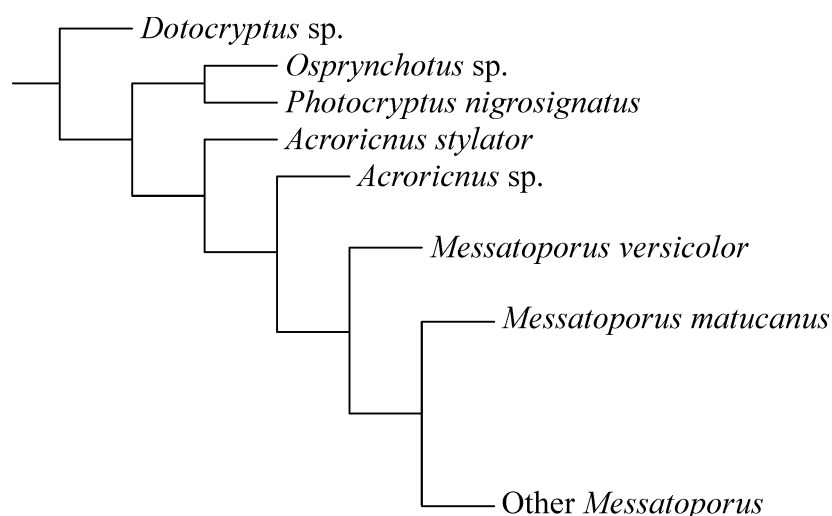


FIGURE 17. Strict consensus of clades containing species of *Messatoporus* and closely related taxa, according to results obtained in Analysis 1, with implied weighting searches using values of the concavity constant of 1-6. Numbered circles represent synapomorphies, with the respective character and state number. Black circles represent non-homoplasious synapomorphies; autapomorphies are not shown.

Analysis 2. Internal Phylogeny and Character Evolution

The full character set used for the second analysis is presented below, listed approximately from the anterior to the posterior region of the body. Characters with asterisks (*) were adopted from the Analysis 1.

- 1. Clypeal shape centrally** [0] regular, straight; [1] slightly to distinctly concave, sometimes forming a large pit.
- 2. Shape of apical area of clypeus medially** [0] straight (Fig. 146); [1] concave (Fig. 139); [2] convex.
- 3. Projection of apical area of clypeus sublaterally** [0] only slightly projected (Fig. 140); [1] strongly projected, forming distinct triangular lobes (Fig. 142).
- 4. Shape of apical area of clypeus** [0] regular, not invaginated (Fig. 141); [1] distinctly invaginated, concave on midlength (Fig. 140).
- 5. Distinctness of ventral tooth of mandible** [0] distinct, even if much shorter than dorsal tooth (Fig. 145); [1] indistinct or distinguishable only as a very short lobe.
- 6. Shape of ventral tooth of mandible** [0] triangular; [1] apically somewhat rhomboid; [2] apically subquadrate; [-] n/a, ventral tooth indistinct.
- 7. Shape of sorsal tooth of mandible in anterior view** [0] projected upwards; [1] not projected upwards.
- 8. Swelling of supra-clypeal area near antenna** [0] normal, not swollen; [1] slightly swollen, convex; [2] distinctly swollen, forming a low, rounded tubercle.

- 9. Thickness of apical 0.3 of flagellum** [0] uniform, subapical flagellomeres not distinctly flattened; [1] strongly flattened and widened (Fig. 263).
- 10. Width of apex of apical flagellomere** [0] much narrower than base, flagellomere distinctly tapered (Fig. 34); [1] about as wide as base, flagellomere not tapered (Fig. 34).
- 11. Surface sculpturing of supra-antennal area dorsad of antennal socket** [0] not striate; [1] transversely striate, even if weakly.
- 12. Presence of median carina on supra-antennal area** [0] indistinct or represented only by a depression or weakly smoother area; [1] distinct, even if weak or ventrally fading.
- 13. Shape of dorsal portion of occipital carina** [0] uniformly arched; [1] bell shaped or slightly acuminate.
- 14. Extension of occipital carina** [0] meeting hypostomal carina, even if very weak; [1] fading out before meeting hypostomal carina.
- 15. Surface sculpturing of pronotum** [0] without distinct longitudinal wrinkles; [1] with distinct, even if weak wrinkles.
- 16. Development of epomia** [0] complete, distinct both along and after diverging from pronotal collar; (Fig. 5) [1] distinct only after diverging from pronotal collar, or absent.
- 17. Extension of epomia** [0] short, ending far from dorsal margin of pronotum; [1] long, ending close from dorsal margin of pronotum; [2] absent.*
- 18. Shape of epomia after diverging from pronotal collar** [0] approximately straight; [1] distinctly curved; [-] n/a, epomia absent.
- 19. Surface sculpturing of mesoscutum** [0] shiny; [1] mat.*
- 20. Mesoscutum convexity in lateral view** [0] moderately convex (Fig. 48); [1] strongly convex (Fig. 46).
- 21. Mesoscutum outline in lateral view** [0] uniformly convex (Fig. 39); [1] posteriorly somewhat flattened (Fig. 37).
- 22. Mesoscutum shape in dorsal view** [0] subcircular (Fig. 156); [1] distinctly ovoid (Fig. 154).
- 23. Notaulus impression** [0] absent or very weak, not distinctly dividing mesoscutum; [1] moderate, narrow and slightly dividing mesoscutum; [2] deep, wide, distinctly dividing mesoscutum in three lobes.*
- 24. Surface sculpturing over notaulus** [0] uniformly smooth or punctate with mesoscutum (Fig. 154); [1] with distinct longitudinal wrinkles (Fig. 153).*
- 25. Middle portion of notaulus** [0] parallel or subparallel (Fig. 154); [1] distinctly convergent posteriorly (Fig. 157).*
- 26. Surface sculpturing of scuto-scutellar groove** [0] with longitudinal wrinkles, even if very weak (Fig. 161); [1] not wrinkled (Fig. 153).
- 27. Sculpturing of portion of mesopleuron dorsad to hypoepimeron** [0] distinctly striate; [1] smooth.*
- 28. Shape of epicnemial carina** [0] almost straight or more or less uniformly curved; [1] distinctly sinuous or irregular (Figs 130–132).
- 29. Length of epicnemial carina** [0] complete, reaching subtegular ridge; [1] reaching about 0.60–0.85 of distance to subtegular ridge (Fig Figs 130–132); [2] reaching only 0.2 of distance to subtegular ridge, after that represented by a wrinkled sulcus.
- 30. Width of sternaulus** [0] uniform, apical 0.25 as basal portion; [1] apical 0.25 distinctly wider than basal portion (Fig. 130).
- 31. Position of anterior half of sternaulus** [0] placed laterally, with the same orientation of posterior half; [1] placed somewhat ventrally, posteriorly changing to occupy lateral position.*
- 32. Surface sculpturing over sternaulus** [0] uniformly smooth or punctate with mesopleuron; [1] with distinct transverse wrinkles.*
- 33. Presence of wrinkles on mesopleural suture** [0] present, even if weak [1] absent.
- 34. Sculpturing of mesosternum medially** [0] without transverse wrinkles or depressions; [1] with short transverse wrinkles [2] with a longitudinal series of depressions.
- 35. Differentiation of median portion of posterior transverse carina of the mesothoracic venter** [0] short, sometimes very weak; [1] moderately long; [2] absent.
- 36. Shape of median portion of posterior transverse carina of the mesothoracic venter** [0] straight; [1] arched forwards, somewhat v-shaped [2] distinctly arched backwards; [-] n/a, median portion absent.*
- 37. Metapleuron sculpturing** [0] variously sculptured but without distinct rugulosities or wrinkles; [1] at least dorsally covered with the same wrinkling pattern of propodeum, however less regular; [2] rugulose.

- 38. Differentiation of juxtacoxal carina** [0] completely absent; [1] represented at least by very short ridges.
- 39. Wrinkling on transverse sulcus of propodeum** [0] without longitudinal wrinkles; [1] with longitudinal wrinkles, even if weak or distinct only in some parts of transverse sulcus
- 40. Aspect of fore tibia of female** [0] not or only weakly swollen apically, not or only weakly constricted basally; [1] distinctly swollen, and basally constricted.*
- 41. Position of greatest swelling on fore tibia** [0] at median portion, tibia with oval aspect; [1] at subapical portion or continuous, tibia conic-like; [-] n/a, tibia not swollen.*
- 42. Differentiation of bristles on female tibiae** [0] apex of dorsal face of tibiae with numerous, long bristles; [1] apex of dorsal face of tibiae with only few small bristles.
- 43. Hind coxa sculpturing** [0] without punctures, even if coriarius or colliculate; [1] with weak to moderately strong punctures separated by more than their own diameter; [2] with weak to moderately strong punctures separated by about their own diameter.
- 44. Presence of bristles on mesal lobe of pre-apical tarsi** [0] without a cluster of bristles; [1] with a distinct cluster of bristles.
- 45. Differentiation of cluster of bristles at fore lobe of pre-apical tarsi** [0] distinct and represented by numerous bristles; [1] reduced to only three or four bristles.
- 46. Median outline of anterior transverse carina of propodeum** [0] straight; [1] slightly arched forwards; [2] slightly arched backwards.
- 47. Posterior sculpturing over anterior transverse carina of propodeum** [0] uniformly sculptured with propodeum; [1] with distinct longitudinal wrinkles.*
- 48. Surface of anterior area of propodeum, sculpturing at central portion** [0] uniformly sculptured with remaining anterior area; [1] with a cluster of dense punctures; [2] weakly strigulate or rugulose.
- 49. Presence of longitudinal carina around spiracle of propodeum** [0] entirely absent; [1] in lateral view, dorsally present.*
- 50. Relative strength of propodeal wrinkles** [0] anterior and posterior transverse wrinkles more or less uniform, or anterior wrinkles slightly weaker than posterior ones; [1] posterior wrinkles distinctly stronger than anterior ones.
- 51. Spacing of propodeal wrinkles** [0] closely to moderately widely spaced, with distinct non-wrinkled surface between each wrinkle; [1] wrinkles very closely spaced, area between each wrinkle very short; [2] wrinkles anteriorly very closely spaced, gradually getting more widely spaced posteriorly.
- 52. Shape of propodeal wrinkles** [0] more or less straight, slightly curved or somewhat sinuous; [1] all wrinkles distinctly arched backwards; [2] only anterior wrinkles distinctly arched backwards; [3] only posterior wrinkles distinctly arched backwards; [4] anteriorly and posteriorly slightly sinuous, median wrinkles medially strongly arched forwards, bell-shaped.
- 53. Differentiation of posterior transverse carina of propodeum** [0] distinct, complete, not forming distinct sublateral crests; [1] distinct only as very weak to moderately strong sublateral crests; [2] only faintly suggested as a stronger wrinkle; [3] entirely absent.
- 54. Distinctness of point of union of veins 1m-cu and 1-Rs+M, differentiation** [0] clearly visible; [1] visible but slight; [2] indistinct, veins totally continuous.
- 55. Position of bulla at fore wing crossvein 1Rs+M** [0] placed on basal 0.25; [1] on basal 0.4; [2] on midlength.
- 56. Length of fore wing crossvein 1m-cu** [0] about as long as vein 1-Rs+M; distinctly shorter than vein 1-Rs+M [1]; distinctly longer than vein 1-Rs+M [2]; [-] n/a, limit between veins indistinct.*
- 57. Shape of crossvein 1m-cu** [0] more or less uniformly curved; [1] irregular, sinuous or angled.
- 58. Angle between fore wing crossvein 1cu-a and vein M+Cu** [0] approximately 90°; [1] distinctly obtuse; [2] distinctly acute.*
- 59. Shape of fore wing crossvein 1cu-a** [0] straight; [1] convex (or posterior half slightly curved); [2] concave.*
- 60. Shape of fore wing vein 4-Rs** [0] slightly to distinctly sinuous; [1] basally straight or irregular, apically upcurved.
- 61. Pigmentation of fore wing vein 4-M** [0] tubular [1] nebulous; [2] spectral.
- 62. Shape of fore wing vein 4-M** [0] sinuous or irregular; [1] slightly curved backwards; [2] straight.
- 63. Position of bulla of fore wing crossvein 2m-cu** [0] midlength; [1] mostly on posterior half.
- 64. Relative length of fore wing vein 3-M** [0] about as long as vein 2-M; [1] distinctly shorter than vein 2-M; [2] distinctly longer than vein 2-M.

- 65. Relative length of fore wing crossvein 3r-m** [0] about as long as crossvein 2r-m; [1] distinctly shorter than crossvein 2r-m.
- 66. Presence of fore wing crossvein 3r-m** [0] present, even if spectral or very weak; [1] absent.
- 67. Position of fore wing crossvein 3r-m and 2r-m** [0] parallel or subparallel; [1] distinctly convergent towards anterior margin.
- 68. Angle between hind wing veins 1-M and Cu-a** [0] straight; [1] distinctly obtuse.
- 69. Angle between hind wing veins Cua and Cub** [0] straight; [1] distinctly obtuse.
- 70. Shape of hind wing cell R1 basally** [0] somewhat trapezoidal, hind wing veins 1-Rs and 2-Rs forming a distinct angle; [1] pointed or lanceolate, hind wing veins 1-Rs and 2-Rs continuous or nearly so.*
- 71. Presence of hind wing vein 1-R1 (the short section of R1 detached from wing margin)** [0] distinct; [1] not differentiated.*
- 72. Pigmentation of hind wing vein 2-Rs** [0] entirely tubular or nebulous, though apically weak; [1] tubular, apically spectral, reaching wing margin; [1] tubular, apically spectral, not reaching wing margin.
- 73. Shape of hind wing vein Cub** [0] concave, straight or only very slightly convex; [1] distinctly convex, even if sinuous.*
- 74. Shape of first metasomal tergite** [0] approximately cylindrical; [1] distinctly depressed.
- 75. Ventrolateral outline of first metasomal tergite** [0] rounded; [1] angled.
- 76. Pilosity of first metasomal tergite** [0] placed mostly at lateral portions, dorsal surface usually glabrate; [1] more or less uniformly distributed among dorsal and lateral portions.
- 77. Prominence of spiracle of first metasomal tergite** [0] only slightly prominent; [1] distinctly prominent.
- 78. Distinctness of median depression at first metasomal tergite** [0] absent or very shallow; [1] distinct.
- 79. Shape of median depression at first metasomal tergite** [0] subcircular; [1] elongate.
- 80. Presence of median posterior depression at first metasomal tergite** [0] absent; [1] present, even if very shallow.
- 81. Presence of lateral depressions at first metasomal segment** [0] absent; [1] very shallow; [2] distinct.
- 82. Dorsal width of subapical portion of T1** [0] narrower or about as wide as posterior margin, T1 uniformly widened towards apex; [1] distinctly wider than posterior margin, somewhat inflated.*
- 83. Thyridium shape** [0] distinctly longer than wide; [1] about as long as wide.
- 84. Pilosity at metasomal tergites 2–8** [0] uniformly distributed at ventral and dorsal regions; [1] laterally more pilose than dorsally.
- 85. T7–8 length in lateral view** [0] of similar size or shorter than T5–6; [1] distinctly longer than T5–6.*
- 86. Differentiation of intersegmentar membrane between T7–8** [0] indistinct or if distinct, very short and hardly distinguishable; [1] distinct and long, making limit between T7–8 hardly distinguishable.*
- 87. Ovipositor width** [0] moderately stout [1] slender.
- 88. Ovipositor shape** [0] approximately straight, even if appearing slightly sinuous; [1] slightly to distinctly upcurved [2] slightly to distinctly downcurved.
- 89. Ovipositor outline in frontal view apically** [0] almost cylindrical or only slightly depressed; [1] distinctly depressed.
- 90. Presence of ridges on apex of ovipositor dorsal valve** [0] ridges absent; [1] 3–5 distinct ridges present.
- 91. Spacing of apical teeth of ovipositor ventral valve** [0] more closely spaced than basal teeth, sometimes almost indistinct; [1] widely spaced and distinct.
- 92. Ovipositor surface sculpturing anterior to first tooth of ventral valve** [0] minutely rugulose; [1] not rugulose.
- 93. Number of teeth of ovipositor ventral valve** [0] 4; [1] 5; [2] 6; [3] 7; [4] 8; [5] 9; [6] 10; [7] 11; [8] 12; [9] 13.
- 94. Color of orbital band** [0] complete; [1] narrowly interrupted near dorsal margin of eye; [2] broadly interrupted, absent at most of posterior margin of eye.
- 95. Color of pronotal collar** [0] yellow or whitish; [1] orange; [2] black.
- 96. Color of dorsal margin of pronotum** [0] yellow or whitish; [1] orange; [2] black.
- 97. Color of subalar ridge** [0] yellow or whitish; [1] orange; [2] black.
- 98. Presence of whitish or yellow subcircular spot on mesoscutum** [0] present; [1] absent.
- 99. Extension of yellow mark on mesopleuron** [0] distinctly separated from yellow mark on subtegular ridge; [1] connected with yellow mark on subtegular ridge, even if narrowly; [-] yellow mark on mesopleuron absent.
- 100. Color of dorsal division of metapleuron** [0] yellow or whitish; [1] orange; [2] black.

- 101. Presence of triangular or subcircular yellow spots on anterior area of propodeum** [0] present; [1] absent.
- 102. Color pattern on basal 0.2 of hind tibia** [0] with the same color as rest of tibia; [1] whitish, even if rest of tibia orange or black.
- 103. Color pattern of hind coxa** [0] variously marked with black and whitish; [1] entirely or mostly orange; [2] entirely yellow or whitish.
- 104. Color of metasomal tergites 5–8** [0] basally black, dark brown or orange, apically yellow; [1] entirely black; [2] entirely orange.

Topology

A final matrix with 9,568 character-state data points was obtained (Table 5). Searches with all *K* values yielded one most parsimonious tree each, CI 0.07–0.08, RI 0.39–0.43 (Table 5). The relationships recovered varied much according to different *K* values (Figs 18–30). The consensus tree for all values of *K* has 56 collapsed nodes. In spite of these considerable differences, some common points were found in all analysis, and are discussed below. The trees recovered with each *K* value tested are referred to as *K*1, *K*2, *K*3, etc.

In all trees, the basalmost species of the genus were *M. versicolor* **sp. nov.** and *M. matucanus* **sp. nov.** In *K*1–2, most species of the genus appear divided into two distinct clades, the largest of them with 60–61 species, and the smallest one with 18–21 species. The species comprising the small clade are more or less morphologically uniform, whereas the most dramatic structural variation is found among species of the large clade. In *K*3–6, the species in the smaller clade appear scattered in a grade of successive species or smaller clades. In all trees, *M. M. advenus* **sp. nov.** and *M. badius* **sp. nov.** were always placed basally, although their exact position varied (see Figs 18–30).

In spite of those differences in the basal clades, in all trees a large monophyletic group was recovered, defined mainly by the presence of three to five ridges on the dorsal valve of the ovipositor (hence termed “Ridges” group; Figs 283–288). Another 1–7 characters also support this clade, but these changed among different values of *K*. This feature may have evolved one (in *K*1–2), two (in *K*3) or three (in *K*4–6) times within *Messatoporus*. In *K*1–2, the basalmost species of the “Ridges” group is *M. paradoxus* **sp. nov.**, a species that shows most plesiomorphic features which appear in the basal clades of the genus (see below), but bears the ridges in the ovipositor dorsal valve. In this species, the ridges are very small, almost indistinct, which can mean that they represent either an early development of the ridges that are encountered in the other species, or maybe an independent evolution of that feature. In fact, in *K*3–6, *M. paradoxus* appears as one of the basalmost species of the genus, usually closely related to *M. badius* and *M. advenus*. In *K*3, all of the other species with ridges on the dorsal valve are grouped together in a single clade containing 59 species. In *K*4–6, however, *M. xanthogaster* **sp. nov.** and *M. anepomius* **sp. nov.** were recovered among the basal species of the genus, as sister groups of *M. andinus* **sp. nov.**

In *K*4–6, *M. variegatus* was always recovered as sister to the “ridges” group; other species that were close to that group were *M. antennator* Kasparyan & Ruíz, *M. discoidalis*, *M. jalapa* Kasparyan & Ruíz, *M. tenuiorbis* **sp. nov.**, *M. tibialis* Kasparyan & Ruíz and *M. semialbiventris* **sp. nov.** In *K*3, however, *M. andinus* was sister to the “ridges” group, followed by *M. variegatus*; in *K*1–2, however, it was recovered among the basalmost species of the genus. In *K*1–3, *M. antennator* was recovered among the “ridges” group; as the female of *M. antennator* was not coded, it is unknown whether it has ridges on the dorsal valve of the ovipositor.

In *K*1–2, *M. paradoxus* was the basalmost species of the “ridges” group, followed by *M. xanthogaster* and *M. anepomius*. In *K*3–6, the basalmost position is occupied by *M. longitergus* **sp. nov.**, followed by *M. caxiuanensis* **sp. nov.** and *M. maculipes* Kasparyan & Ruíz. The remaining species of the “ridges” group are characterized by a distinctive synapomorphy, the T7–8 enlarged, in lateral view distinctly longer than T5–6. In *K*1–3, this feature appears only once, and suffer two reversions: in *M. albiaterartus* **sp. nov.** (Fig. 49) and in the base of the clade that groups *M. longitergus*, *M. maculipes* and *M. caxiuanensis*. In *K*4–6, that state is hypothesised to have evolved twice, because *M. xanthogaster* and *M. anepomius* are recovered separated from the remaining species of the “ridges” group (Fig. 31). In those trees, however, *M. longitergus*, *M. maculipes* and *M. caxiuanensis* are recovered at the base of the “Ridges” group, so that this feature suffers a single reversion (Fig. 31).

The enlarged T7–8 is a singular character state that is typical of the species of Gabuniina, a monophyletic group (Aguiar 2005b; Laurenne *et al.* 2006), apparently not related to the Osprynchotina. In fact, a distinct and somewhat gradual transition can be observed along the *Messatoporus* tree, from species which are similar to the other Osprynchotina up to a considerably different morphotype, which shows several convergent similarities with species of Gabuniina.

Some of these changes are shown by the characters used in the analysis. In several clades, there are transitions from the typically slender ovipositor that seems to be the ancestral trait among *Messatoporus* to a stouter ovipositor, more alike those encountered in most gabuniines (Fig. 32). The inflated fore tibia seems to be an ancestral feature in *Messatoporus*, although it undergoes a number of reversals along the tree. Species at the base of the tree show a slightly inflated tibia, its width gradually increasing towards the apex. But in a large apical group, the fore tibia is strongly and abruptly swollen, somewhat oval, reaching its maximum width on midlength – another feature found in most Gabuniina (Fig. 33). After appearing in this large clade, this character has a single reversion, but otherwise it is constant in all members of the group.

Some other similarities with the Gabuniina are not among the characters coded for Analysis two: the more apical species in the “ridges” group tend to have subcylindric body (see, for example *M. allomeros* **sp. nov.**, Fig. 70), gena somewhat inflated (Fig. 261), subspherical head and T1 shorter and stouter than in the basal species of the genus (e.g. Fig. 70).

However, there are also conspicuous differences between the two groups that make it clear that these similarities do represent convergences. For example, all Gabuniina have the clypeus distinctly convex and mandible short (e.g. in *Distictus* Townes, MLW 1.00–1.50; Santos & Aguilar 2008), with the ventral tooth longer than dorsal one, or rarely teeth of equal length. The female fourth tarsomeres are not, or only weakly bilobed; and when bilobed, the lobes are subequal. The ovipositor is distinctly compressed, always straight. In *Messatoporus*, even in the most gabuniine-like species, these character states are radically different. The clypeus is almost flattened or very weakly convex and the mandible is long (although not so long as in the basalmost species), with the dorsal tooth much longer than ventral one. The female fourth tarsomeres are strongly bilobed, with the mesal lobe much longer than the lateral one. And the ovipositor is cylindric, apically slightly to distinctly depressed. The results of the Analysis 1 reinforce these observations.

The significance of these convergences seem to be related to evolutionary pressures for host location and substrate perforation. Both Gabuniina and Osprynchotina attack hosts concealed inside hard materials. The species of Gabuniina are parasitoids of xylophagous Coleoptera and Lepidoptera, and must locate and reach hosts within wood. Species of *Messatoporus* must drill into mud nests of aculeate wasps, which are often dense and hard (Hanson & Menke 2006). Therefore, it is indeed expected that the two groups have developed similar, however slightly different, adaptations. The enlarged T7–8, for example, seems to accommodate specialized ovipositor muscles (Aguiar 2005b), which are necessary to drill into any hard substrate. The inflated fore tibia houses a specialized subgenital organ, which plays an important role in detecting concealed hosts by vibrational sounding (Meyhöfer & Casas, 1999; Fischer *et al.* 2001; Vilhelmsen *et al.*, 2001). Active host searching is often performed by tapping the substrate with a highly modified, flattened, hammer-like apical flagellomere (see Laurenne *et al.* 2009 for a revision). These antennal modifications are found in many groups of Cryptinae, and have evolved independently several times (Laurenne *et al.* 2009). A modified last flagellomere is found in all *Messatoporus*, and apparently in all Osprynchotina. In the basal species of *Messatoporus*, the apical flagellomere is distinctly tapered, at the apex narrower than at base. In at least two apical clades of *Messatoporus*, the apical flagellomere is even more distinctive, its apex wide, the whole flagellomere having a somewhat spatular shape (Fig. 34).

The successive evolution of derived features apparently associated with locating and reaching hosts may indicate a tendency of progressive use of more concealed hosts in harder and denser substrates. To test that hypothesis it would be necessary to investigate how host usage is correlated with nest hardness and whether putatively apical species show preference for (or are the only ones able to) attacking harder or thicker nests. An initial evaluation of this hypothesis can be done by comparing the only two species for which the host record is reasonable extensive: the two Nearctic species *M. compressicornis* and *M. discoidalis*. Fortunately, these two species do represent fairly distinct morphotypes, *M. discoidalis* being part of the basal grade species with ancestral features for the abovementioned characters, and *M. compressicornis* being a typical representative of the gabuniine-like group, showing derived specializations. Namely, *M. discoidalis* has the ovipositor slender, its dorsal

valve without ridges, T7–8 about as long as T5–6, fore tibia gradually inflated and somewhat conical, gena narrow and regular, T1 long and apex of apical flagellomere distinctly tapered. Conversely, *Messatoporus compressicornis* has the ovipositor moderately stout, with distinct ridges on dorsal valve, T7–8 distinctly longer than T5–6, fore tibia abruptly inflated, somewhat fusiform, gena slightly inflated, T1 short and apex of apical flagellomere not tapered.

The host records of the two species are notably dissimilar: although both species are known to attack more than one host, which means that they are not strictly host-specific (see item Biology and natural history, below), they do not attack the same species: *M. discoidalis*, as far as known, parasitizes only pompilids from Ceropalini and Ageniellini, whereas *M. compressicornis* is known to attack an eumenine (*Ancistrocerus*) and a crabronid (*Trypoxylon*). As expected, the pompilid mud cells are less thick and dense than those of eumenines and crabronid wasps (Rogério P. Martins, personal communication). This evidence is consistent with the proposed hypothesis, but much more biological data are required for further testing.

Some other trends observed in the character evolution have less apparent meaning. A large apical group of *Messatoporus*, for example, have the antenna subapically flattened and widened. This feature appears more or less frequently in other groups of Cryptinae, such as *Diplohimas* Townes, *Tricentrum* Townes, and *Cryptanura* Brullé, but its adaptive significance is unknown. In *M. compressicornis* and closely related species, the antenna is strongly flattened and widened, in a degree not observed in any other cryptine group (Fig. 35).

Taxonomic remarks

In general, species that appear superficially quite similar were recovered as closely related in the analysis, although not necessarily as sister-groups. For example, the very similar *M. lissonotus* and *M. paralissonotus* **sp. nov.** were recovered in K1–3 as a paraphyletic grade in relation to the clade (*M. compressicornis* (*M. nigriscapus* **sp. nov.** (*M. keraiopetalus* **sp. nov.** + *M. depressifrons* **sp. nov.**))). In K4–5, those species were even less closely related. In the same way, the group including *M. mesosternalis* and the very similar *M. semiaurantigaster* **sp. nov.**, *M. orientalis* **sp. nov.**, *M. occidentalis* **sp. nov.** and *M. basiflavus* **sp. nov.** (see below – *M. mesosternalis*, Comments) was not recovered as a strictly monophyletic group, but usually sharing a clade with other species such as *M. grandis* Kasparyan & Ruíz and *M. euryoikos* **sp. nov.**. That may indicate that the general structure and color pattern shared by those five species represent ancestral features of the clade, conserved in those species but modified in the later ones.

The considerable variation among species of *Messatoporus* (see item “Variability” below) can lead to the impression that the genus should be divided in two or more supra-specific taxa – i.e., genera or subgenera. Indeed, the degree of dissimilarity observed in the genus is large even considering it is highly speciose. Other genera, like *Polycyrtus* Spinola, although more speciose than *Messatoporus*, are rather uniform morphologically. At the same time, some large genera of Cryptinae, with high morphological diversity, are undoubtedly artificial, like *Lymeon* Förster and *Diapetimorpha* Viereck. The monophyly and identity of *Messatoporus*, however, is well supported (see Analysis 1), and the genus remains a fairly recognizable group (see item Diagnosis, below). This is reinforced by the observation that specimens of the genus are rarely misdetermined in most collections. Besides, the pattern of morphological modification of its species seems to be clear, with gradual transitions through the various morphotypes. Furthermore, the topology recovered in the present analysis does not allow the division of the species in more than one distinctly recognizable monophyletic group. With this, any attempt of separating the species currently under *Messatoporus* in two or more genera would be meaningless, producing either paraphyletic or polyphyletic groups, or groups that would hardly be recognizable or morphologically cohesive.

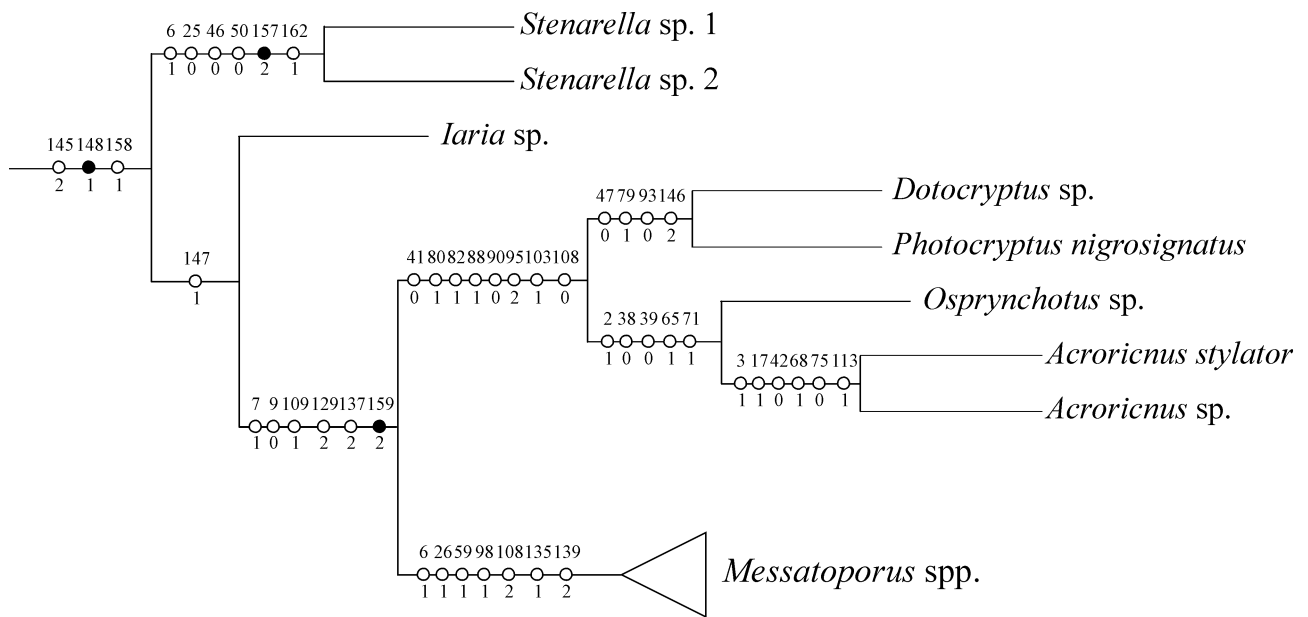
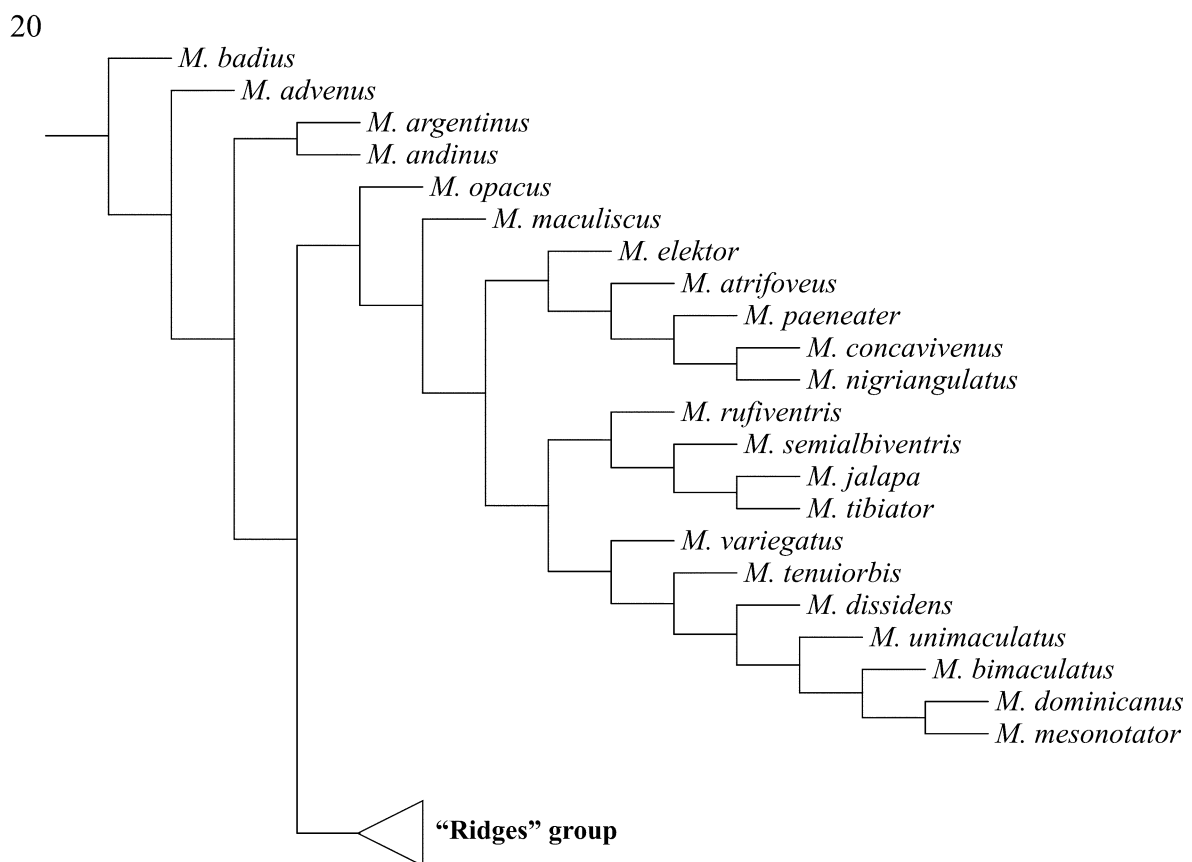
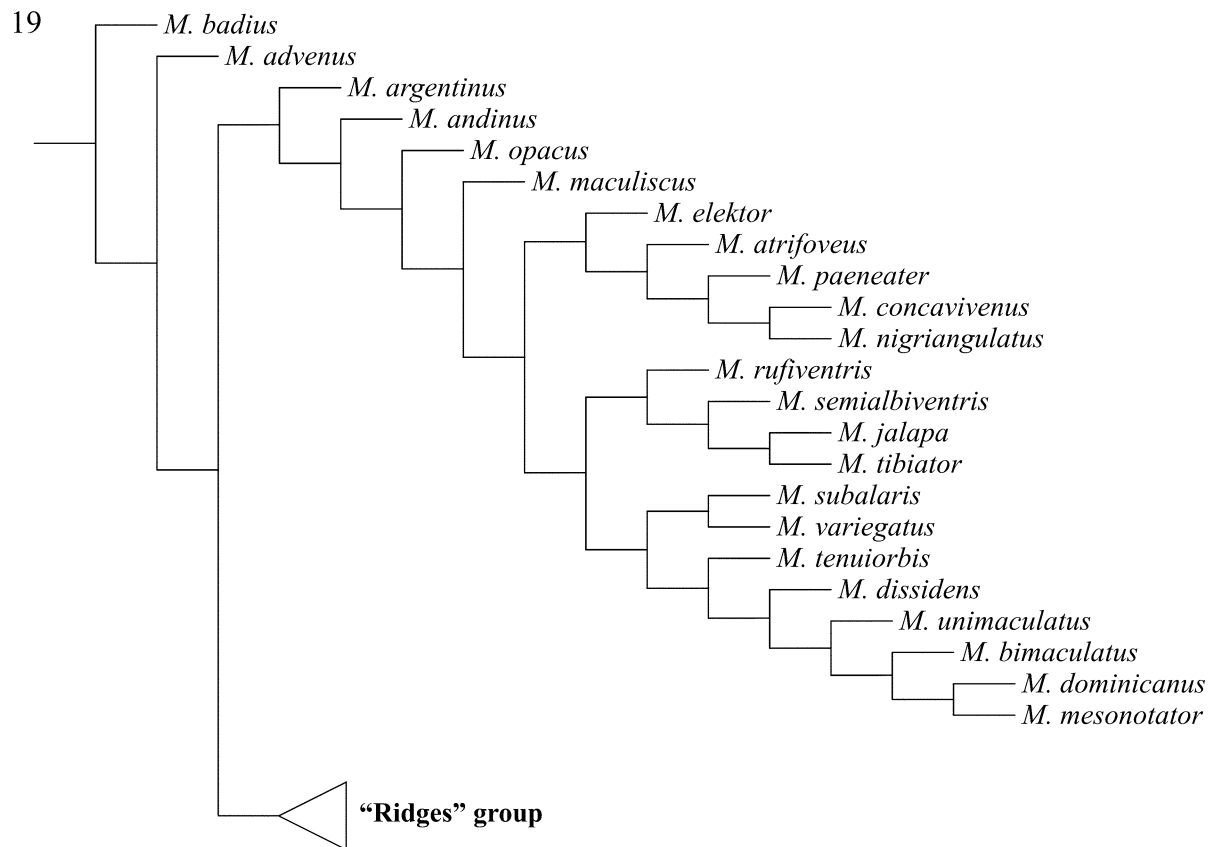


FIGURE 18. Topology recovered for outgroup taxa and the basalmost species of *Messatoporus* recovered in Analysis 2 with all *K* values.



FIGURES 19–20. Basal groups of *Messatoporus*. 19, Tree from K1. 20, Tree from K2.

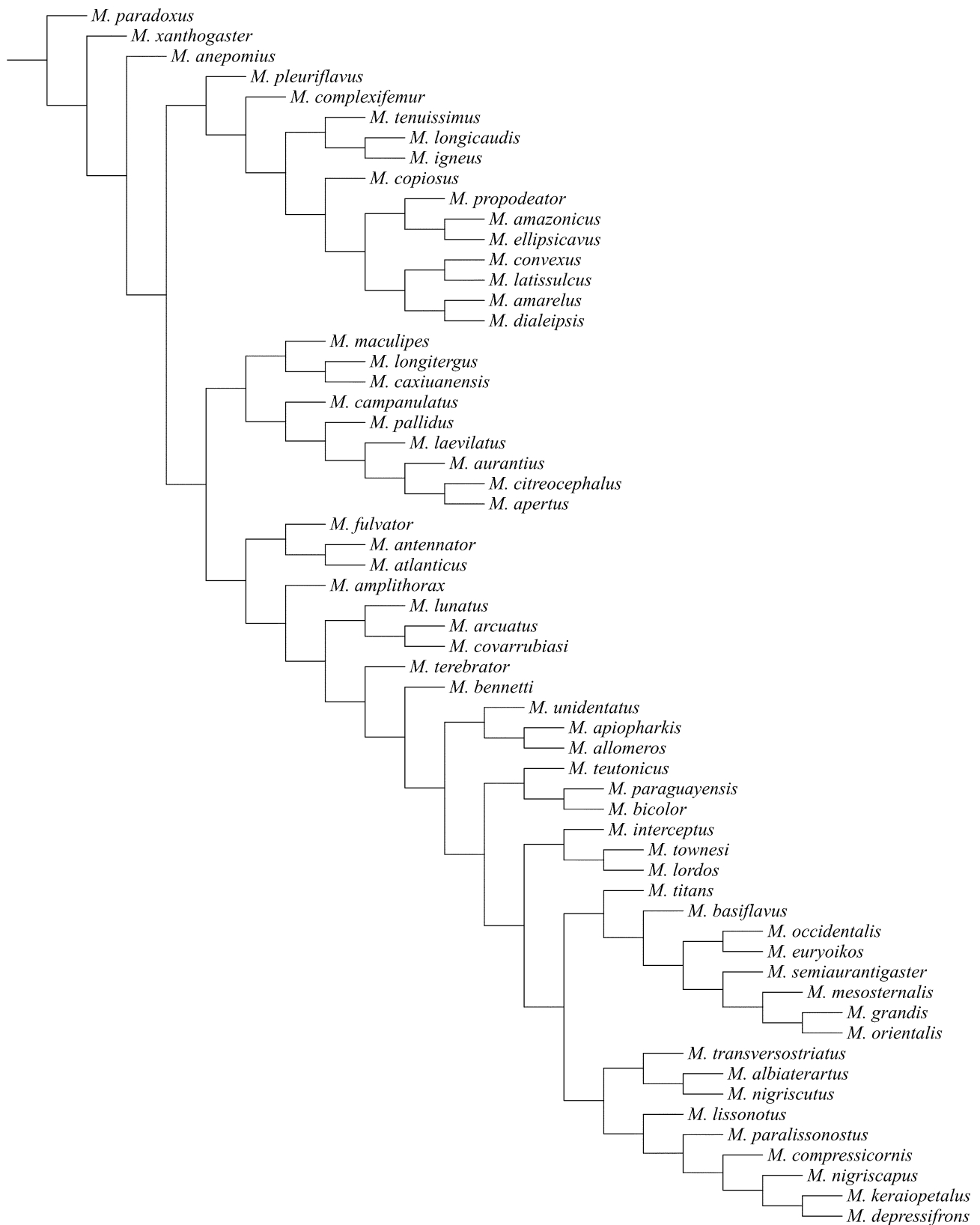


FIGURE 21. Species of *Messatoporus* from the “ridges” group, obtained from K1.

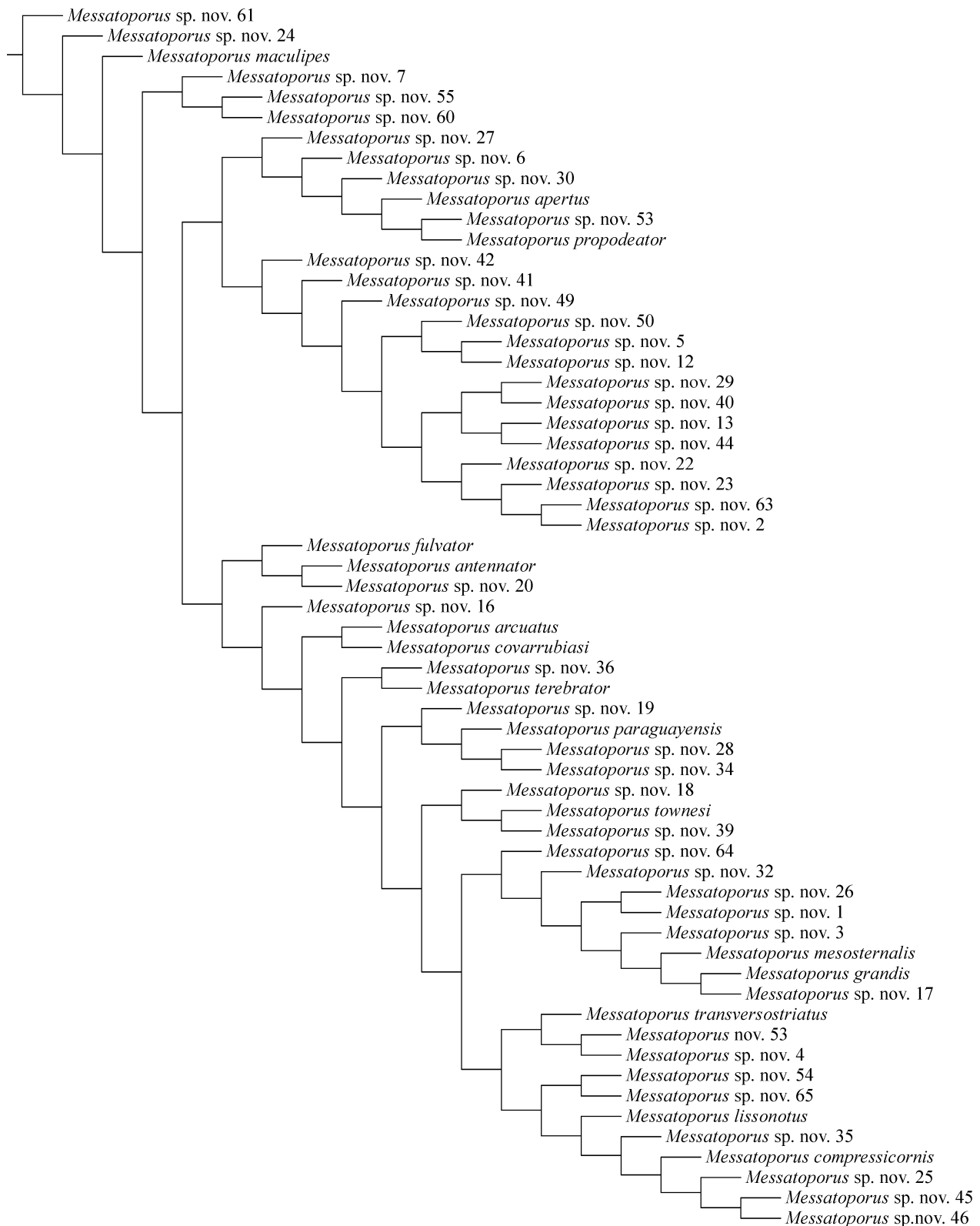
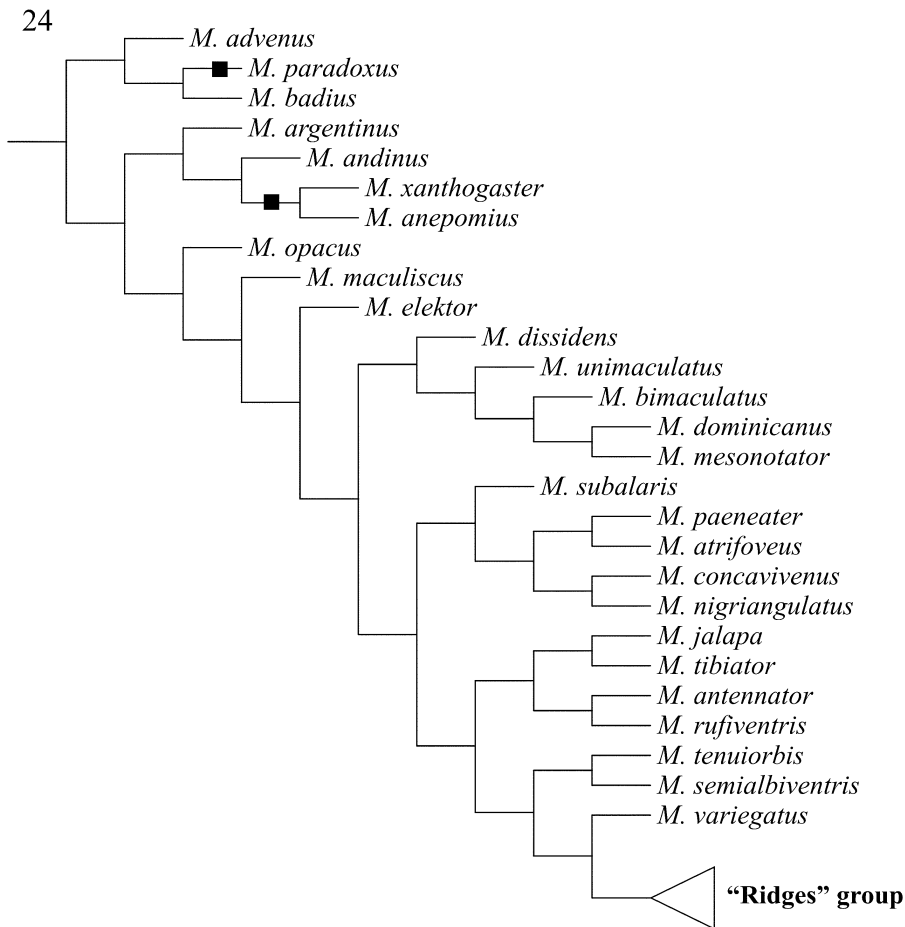
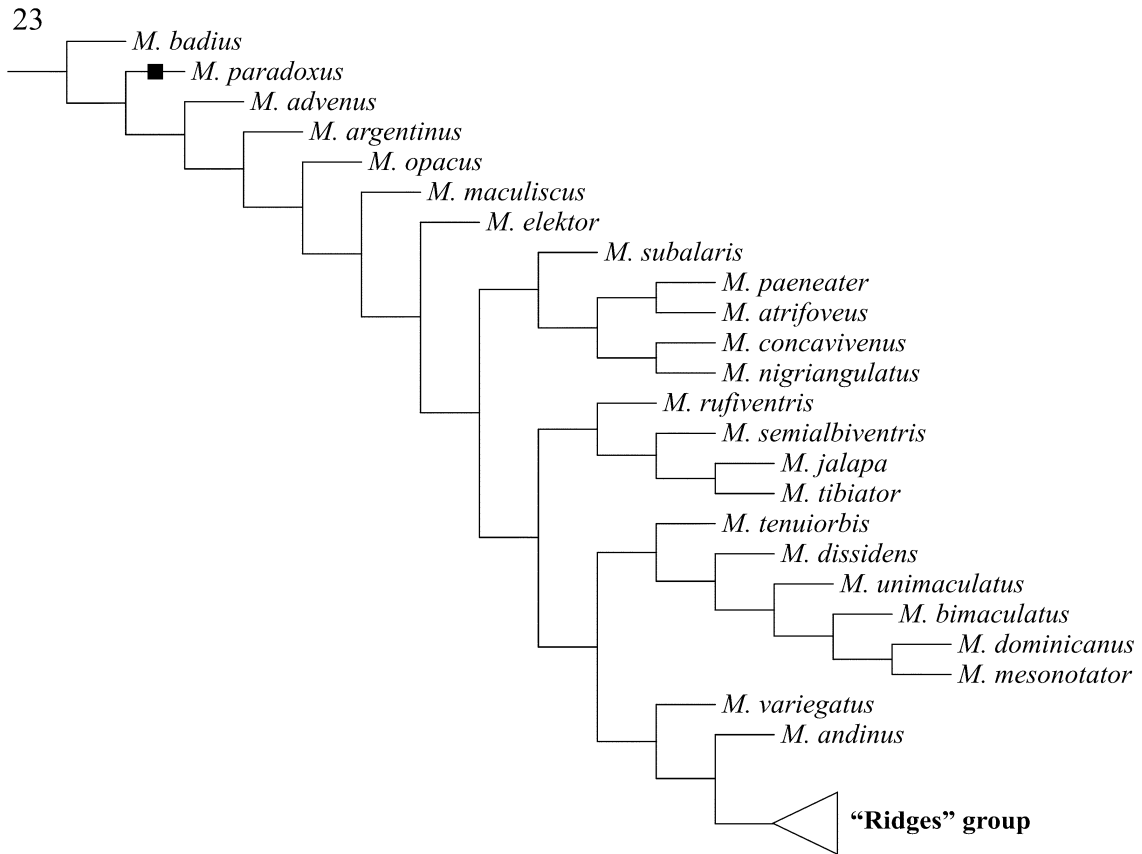


FIGURE 22. Species of *Messatoporus* from the "ridges" group, obtained with *K2*.



FIGURES 23–24. Basal groups of *Messatoporus*. **23,** Tree from K3. **24,** Tree from K4. The black square indicates a separate evolution of the ridges on dorsal valve of ovipositor.

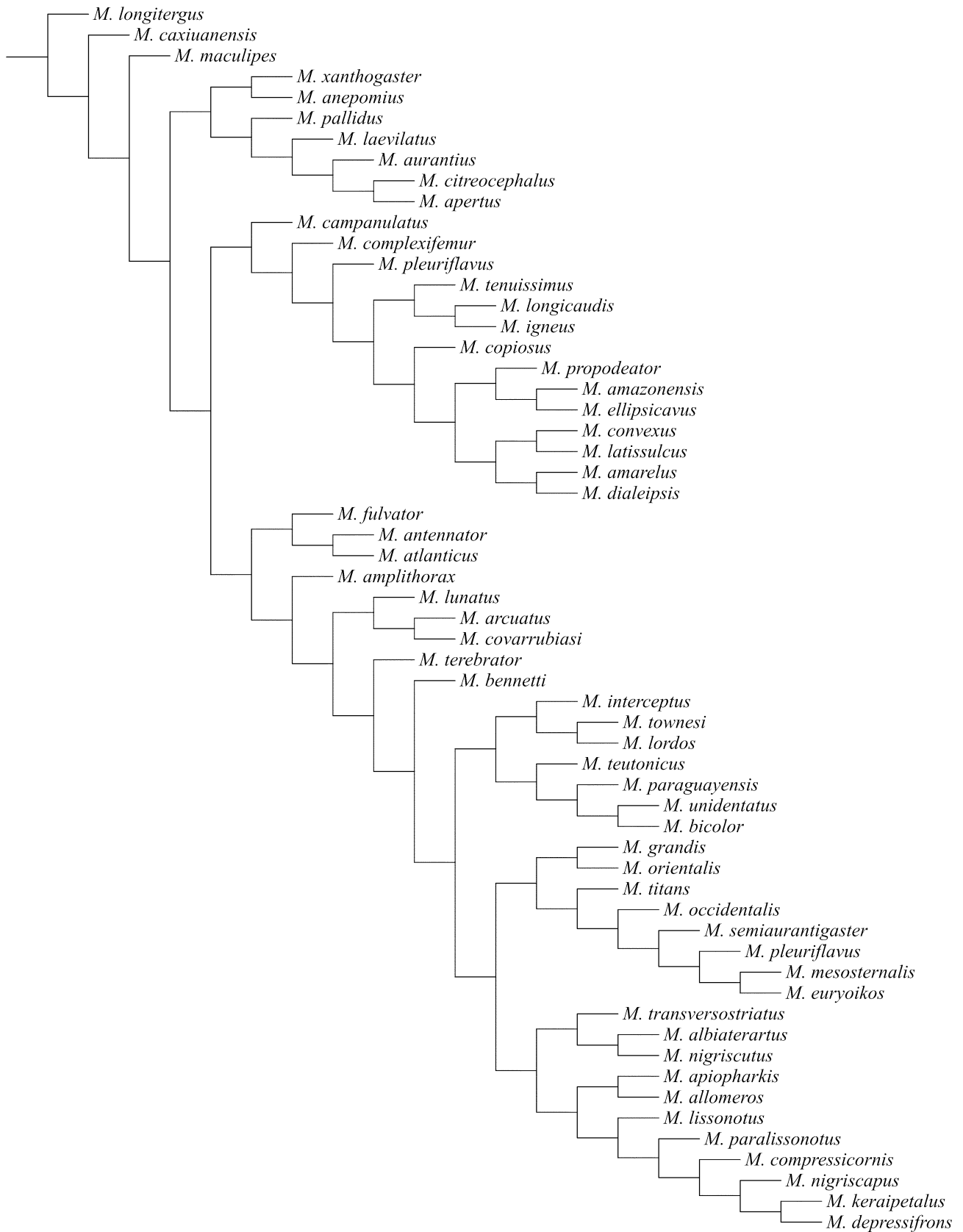


FIGURE 25. Species of *Messatoporus* from the "ridges" group, obtained with K3.

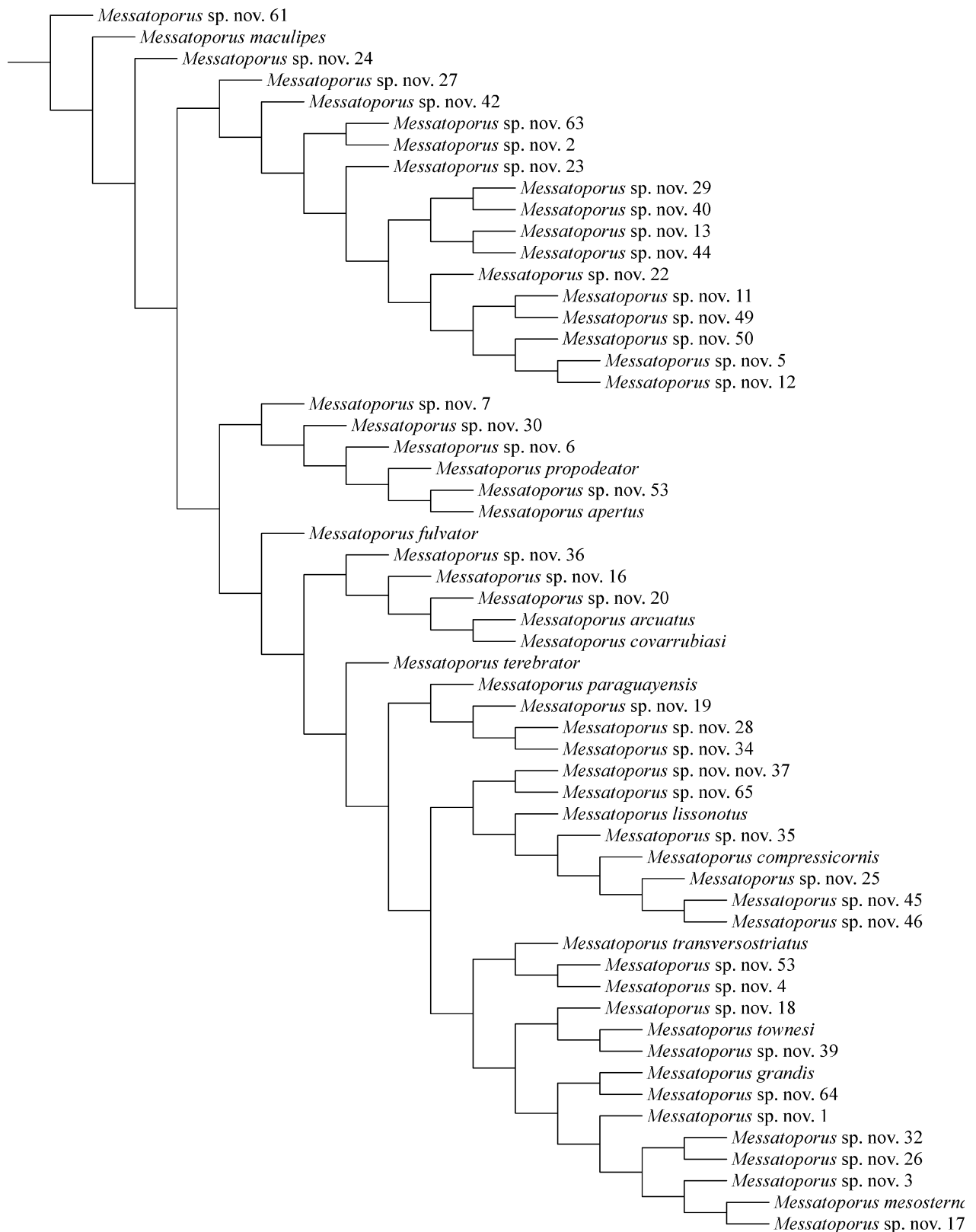
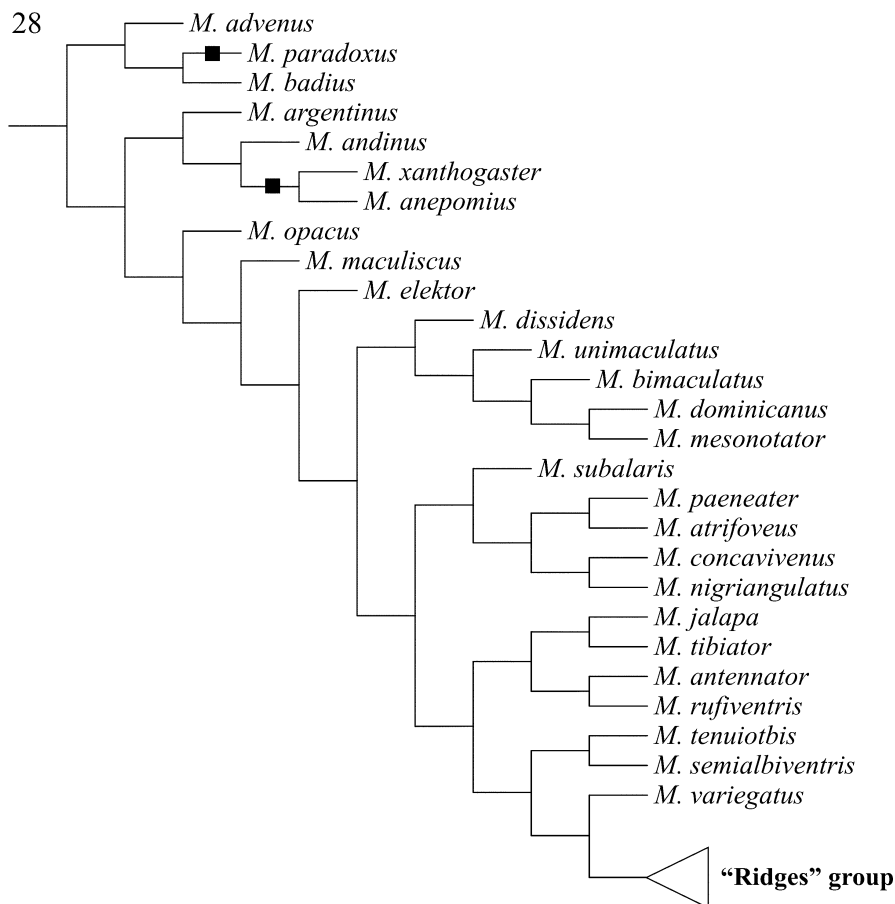
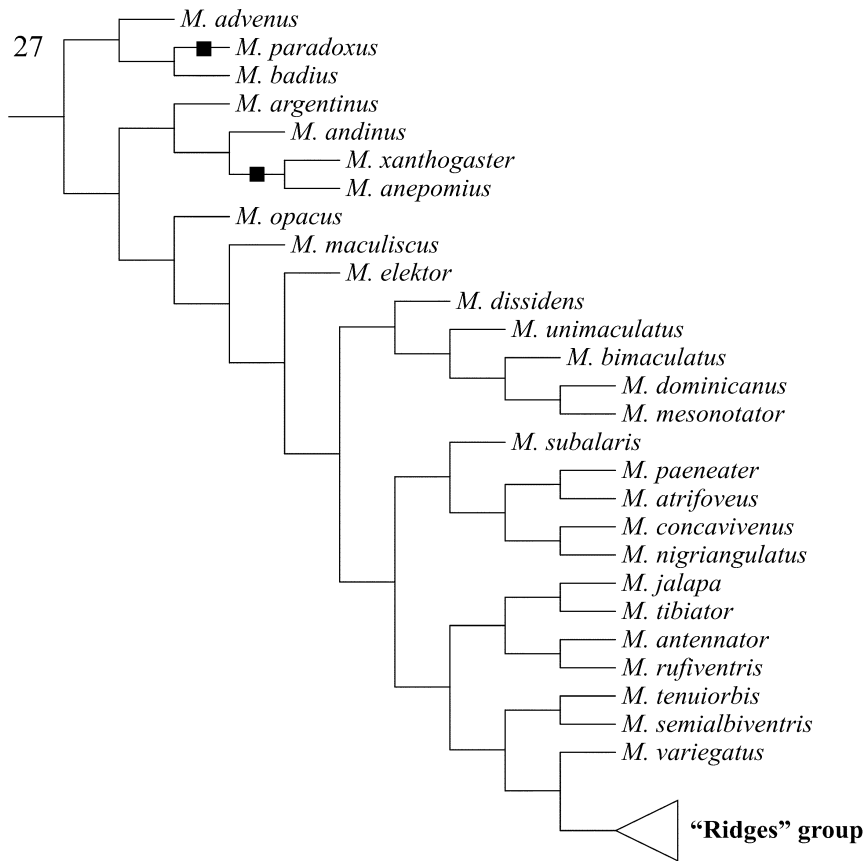


FIGURE 26. Species of *Messatoporus* from the “ridges” group, obtained with K4.



FIGURES 27–28. Basal groups of *Messatoporus*. **27,** Tree from K5. **28,** Tree from K6. The black square indicates a separate evolution of the ridges on dorsal valve of ovipositor.

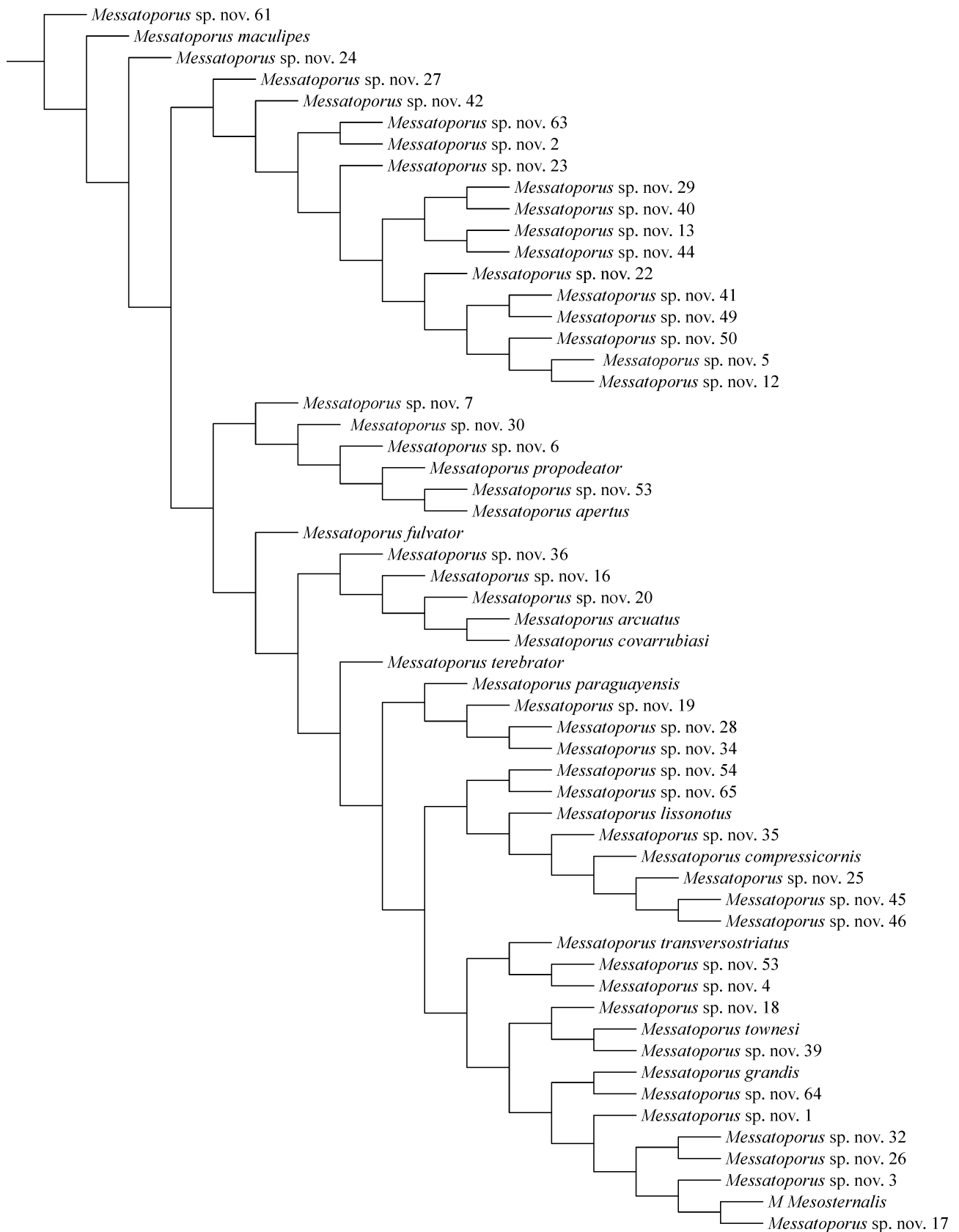


FIGURE 29. Species of *Messatoporus* from the "ridges" group, obtained with K5.

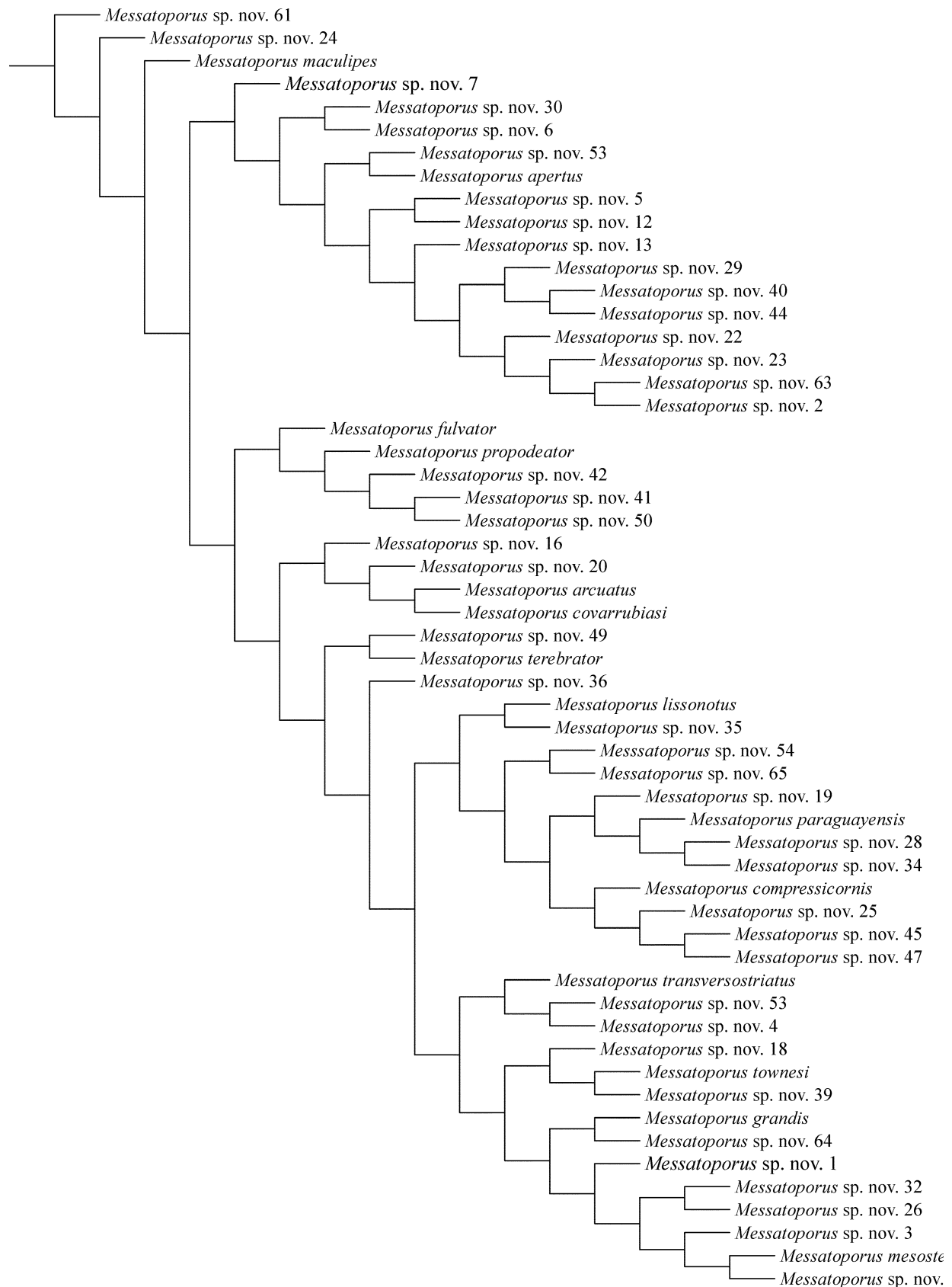


FIGURE 30. Species of *Messatoporus* from the "ridges" group, obtained with K6.

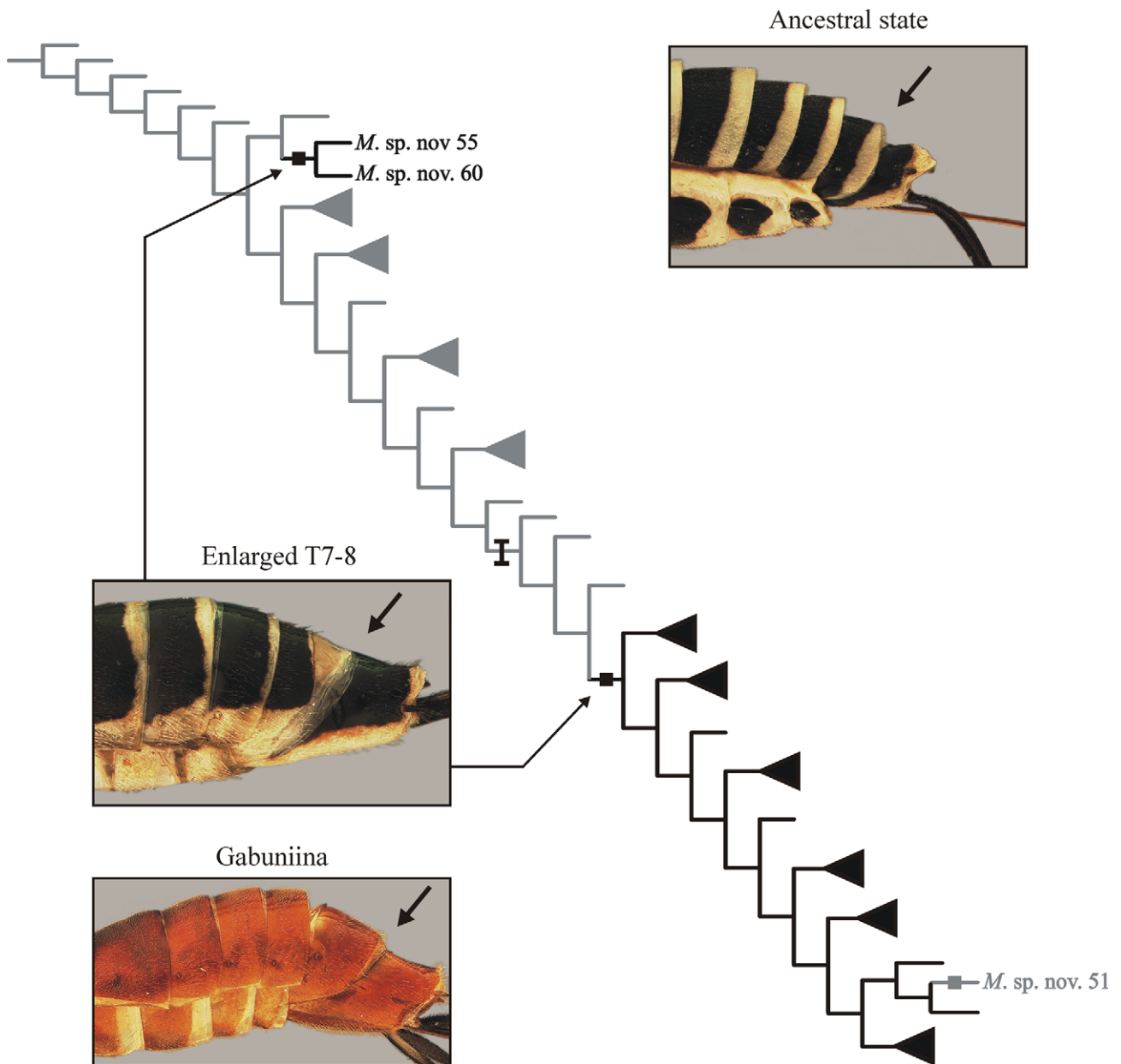


FIGURE 31. Schematic representation of the phylogeny of *Messatoporus* showing evolution of the character 85 in Analysis 2. Gray branches represent the ancestral state displayed at top right. The enlarged T7–8 (black branches) is a convergence with *Gabuniina* and may have evolved one or two times (black squares), with one reversion to the ancestral state (gray square). Triangles indicate clades with more than one terminal taxon; the black dumbbell marks the “Ridges” group. The tree displayed in the figure was obtained from searches with *K4*.

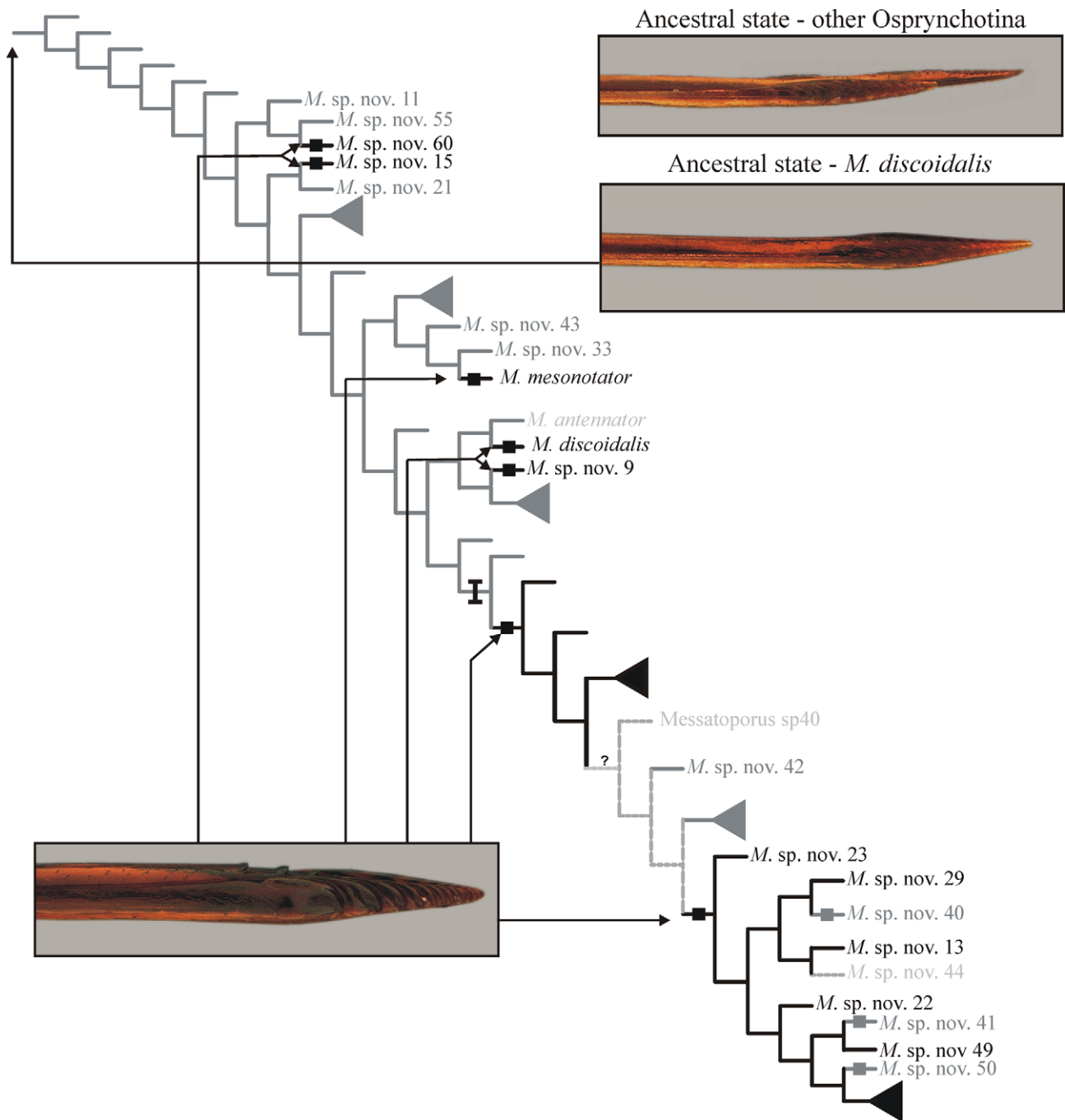


FIGURE 32. Schematic representation of the phylogeny of *Messatoporus* showing evolution of the character 87 in Analysis 2. Gray branches represent the ancestral state displayed at top right. The stouter, thicker ovipositor (black branches) evolved several times (black squares) within *Messatoporus*, and suffered many reversions (gray squares). Triangles indicate clades with more than one terminal taxon; the black dumbbell marks the “Ridges” group; dotted branches indicate uncertainty about the state. The tree displayed in the figure was obtained from searches with *K*4.

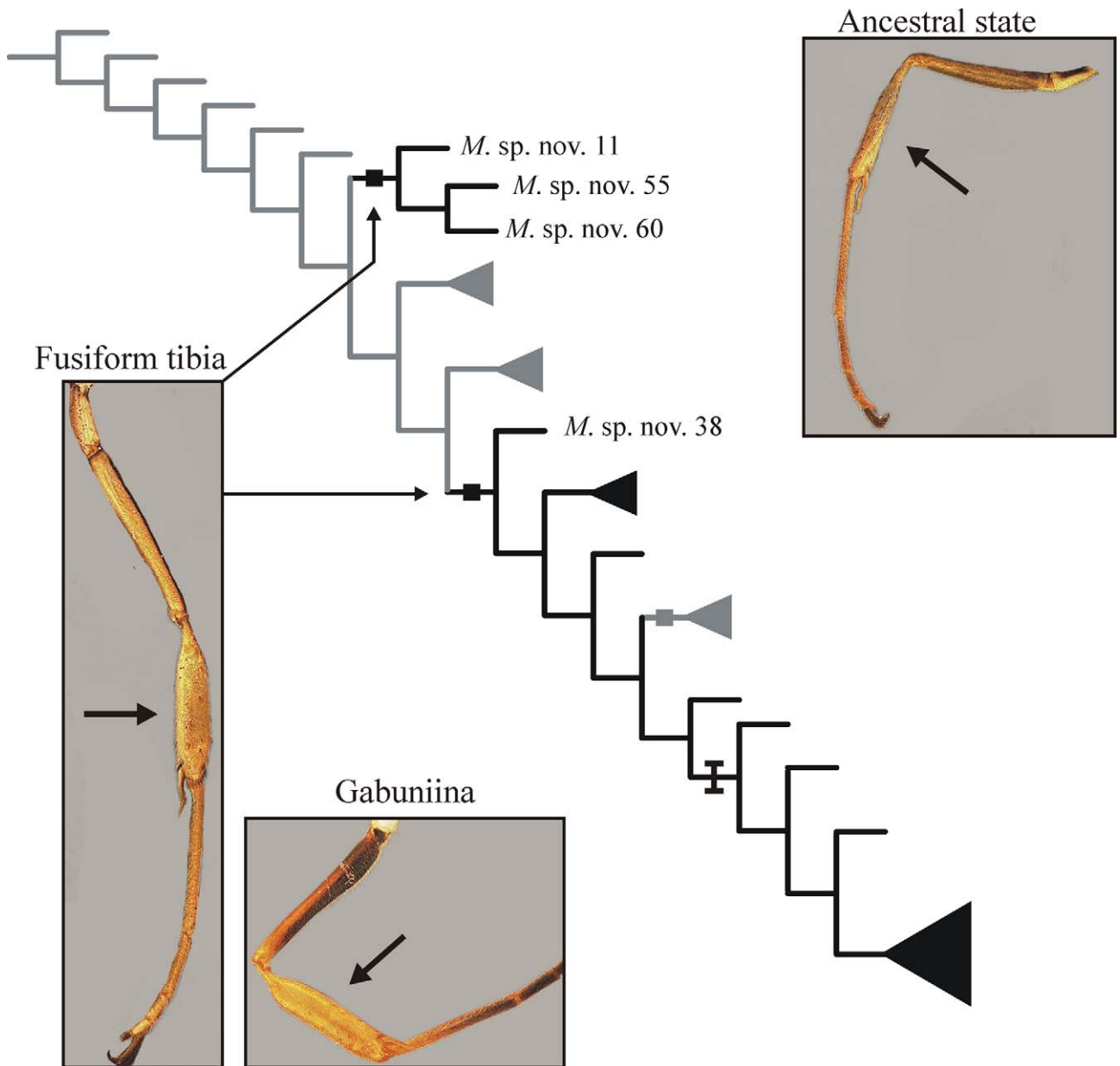


FIGURE 33. Schematic representation of the phylogeny of *Messatoporus* showing evolution of the character 41 in Analysis 2. Gray branches represent the ancestral state displayed at top right. The strongly swollen, fusiform fore tibia (black branches) is a convergence with Gabuniina and may have evolved one or two times (black squares), with one reversion to the ancestral state (gray square). Triangles indicate clades with more than one terminal taxon; the black dumbbell marks the “Ridges” group; dotted branches indicate uncertainty about the state. The tree displayed in the figure was obtained from searches with K4.

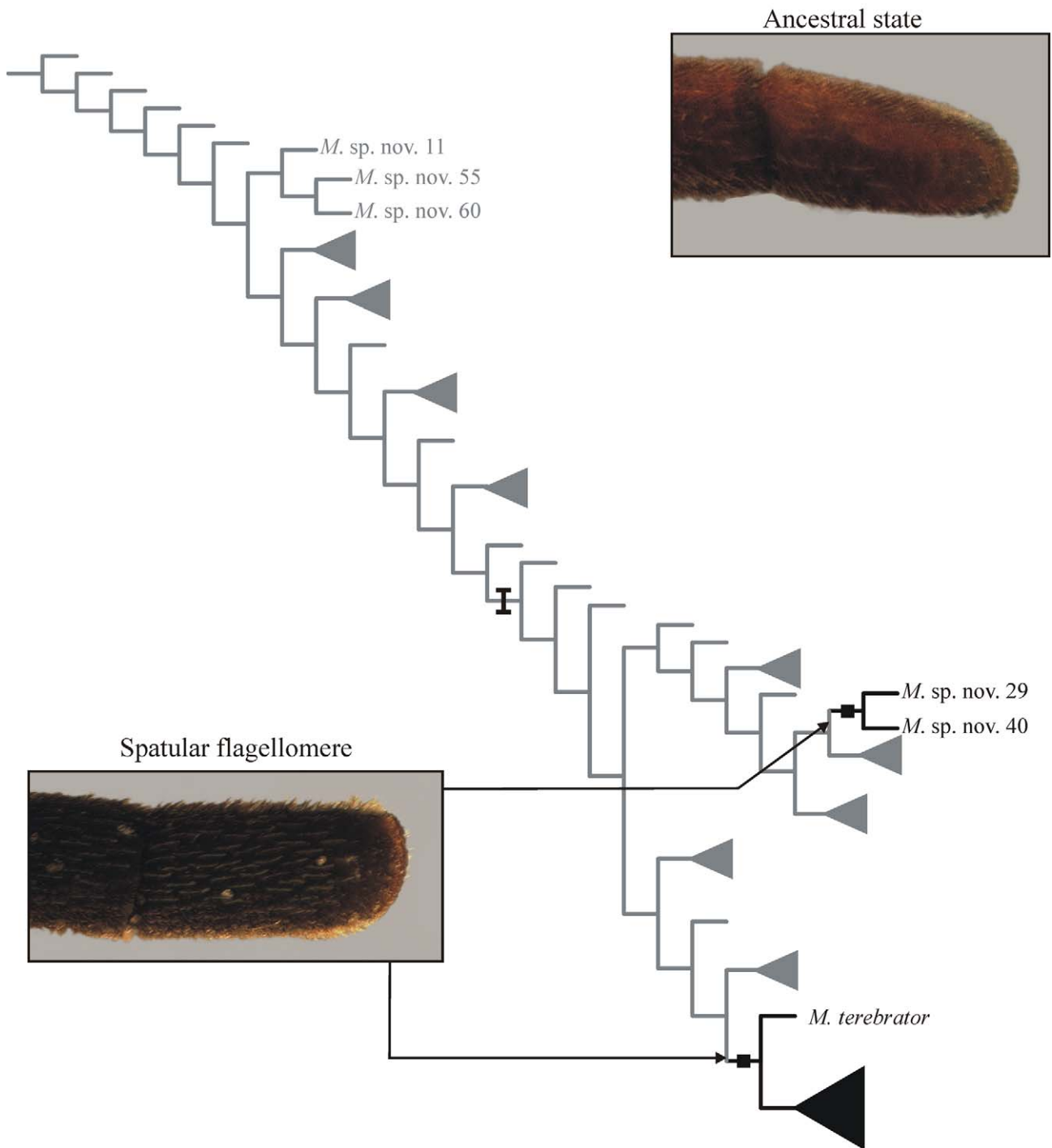


FIGURE 34. Schematic representation of the phylogeny of *Messatoporus* showing evolution of the character 10 in Analysis 2. Gray branches represent the ancestral state displayed at top right. The modified, apically wide and spatular apical flagellomere (black branches) is a distinctive character of *Messatoporus* and evolved twice (black squares), with no reversions to the ancestral state. Triangles indicate clades with more than one terminal taxon; the black dumbbell marks the “Ridges” group. The tree displayed in the figure was obtained from searches with *K4*.

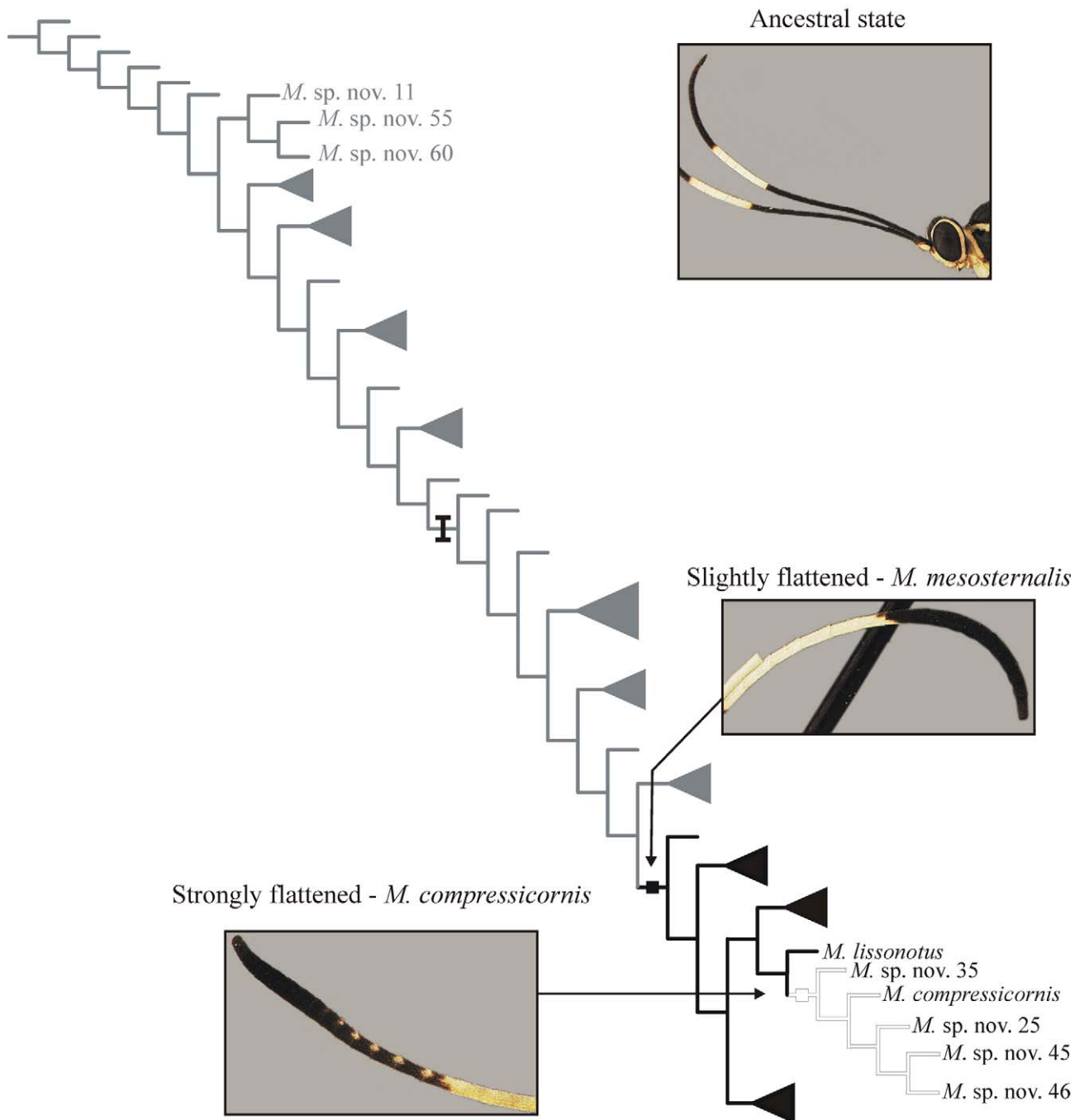


FIGURE 35. Schematic representation of the phylogeny of *Messatoporus* showing evolution of the character 9 in Analysis 2. Gray branches represent the ancestral state displayed at top right. A slightly subapically flattened and widened (black branches) is a found in many groups within Cryptinae. It evolved a single time (black square) in *Messatoporus*, with a second modification to a strongly flattened antenna in the compressicornis group (white square and white branches). Triangles indicate clades with more than one terminal taxon; the black dumbbell marks the “Ridges” group. The tree displayed in the figure was obtained from searches with *K4*.

Taxonomy

Messatoporus Cushman

Messatoporus Cushman, 1929:8–9. Description, figure, keyed. Type species: *Mesostenus discoidalis* Cresson, by original designation.

Diagnosis. All *Messatoporus* can be recognized by the following combination of characters: ovipositor basally cylindrical, apically depressed, with ventral valve completely enclosing dorsal valve as a sheath (Figs 279–288); spiracle of first abdominal tergite placed approximately on midlength (Figs 8–9); transverse sulcus at base of propodeum long and shallow (Figs 7, 162–206); mandible long, strongly tapered towards apex, with ventral tooth much shorter than dorsal one or indistinct (Figs 3–4); posterior area of propodeum almost always transversely wrinkled (Figs 162–206); fourth tarsomeres with distinct, long mesal lobe, lateral side without distinct lobe; anterior margin of propodeum concave (Figs 7, 170–203); apical area of clypeus laterally projected as triangular lobes (Figs 2, 139–152); median dorsal carina of T1 absent (Fig. 7).

Female. Fore wing 4.3–14.9 mm long. Body usually slender and shiny. HEAD. Mandible long to very long, MLW 1.34–2.65, its apex much narrower than base, MWW 0.24–0.57; dorsal tooth much longer than ventral one and usually projected upwards, ventral tooth sometimes almost indistinct. Palpi densely pilose. Malar space usually very narrow, MSM 0.15–0.47. Clypeus wide, CHW 1.75–3.09, in front view almost rectangular to distinctly triangular, CWW 1.08–6.14, almost entirely flattened to moderately convex, often basally slightly convex and apically flattened; sublateral corners slightly to distinctly projected in triangular lobes; apical margin medially straight or concave, never distinctly convex, without median teeth, often very sharp and raised. Supra-clypeal area dorsally with moderately strong, somewhat U-shaped protuberance. Antenna with 21–30 flagellomeres; flagellum usually slightly enlarged towards apex, sometimes strongly widened and flattened subapically; apical flagellomere blunt, flattened, with a cluster of short and apically flattened structures. Supra-antennal area ventrally slightly to distinctly concave, usually with weak median line or carina or with median depression. Occipital carina strong, sharp, usually uniformly curved, apically usually fading out before reaching hypostomal carina, sometimes meeting hypostomal carina but usually apically weak or faint. Temple and gena in lateral view very narrow to moderately wide.

THORAX. Dorsal margin of pronotum regular, not swollen; epomia almost indistinct to strong (absent in *M. anepomius* **sp. nov.** and *M. longitergus* **sp. nov.**), usually ending far from dorsal margin of pronotum. Mesoscutum usually strongly convex, subcircular to ovoid, 1.06–1.46 × as long as wide, almost always shiny and with fine to almost indistinct punctures; notaulus long, reaching 0.64–0.87 of mesoscutum length, weakly to deeply impressed, posterior apex always weakly impressed and joining in U-shape; surface over sternaulus smooth or with weak and short longitudinal wrinkles. Epicnemial carina usually reaching at least 0.6 of distance to subtegular ridge (except in *M. bennetti* **sp. nov.**). Sternaulus sinuous, complete, even if weaker at posterior 0.25, with or without vertical wrinkles. Median portion of posterior transverse carina of the mesothoracic venter indistinct to moderately long. Hind margin of metanotum without teeth like projections. Transverse furrow at base of propodeum very shallow, connected to median portion of the dorsal division of metapleuron forming long transverse sulcus, 0.46–1.16 × as long as anterior area of propodeum, medially without distinct longitudinal wrinkles. Juxtacoxal carina absent or represented only by very short ridges. Pleural carina absent. Fore tibia usually weakly to distinctly swollen. All fourth tarsomeres with distinct and long mesal lobe, apically with distinct cluster of bristles; lateral side without distinct lobe.

PROPODEUM: Moderately short to moderately long, 1.02–1.44 × as long as wide, almost always shiny, laterally more pilose than medially. Anterior margin centrally concave. Spiracle usually very elongate, rarely elliptic, SWL 2.00–7.4. Longitudinal carinae absent. Anterior transverse carina complete, strong, either straight or slightly arched forwards or backwards. Posterior area of propodeum with distinct, closely spaced transverse wrinkles. Posterior transverse carina usually completely absent or distinct as faint to moderately strong sublateral crests, sometimes distinguishable as a stronger wrinkle or rarely complete.

WINGS: Hyaline. Fore wing vein 1-Rs+M with bulla placed ventrally or centrally; ramellus absent (except only suggested in *M. unidentatus* **sp. nov.**); crossvein 1cu-a arising far from 1M+Rs, basad by 0.20–0.67 of its own length; vein 2Cua 0.18–0.83 × as long as crossvein 2cu-a (usually 0.3–0.5); bulla at crossvein 2m-cu moderately short, occupying 0.14–0.32 of its length, placed medially to posteriorly; cell 1+2Rs small to medium sized, APH 0.37–1.45 (usually 0.5–0.8), usually about as long as wide, rarely distinctly taller or wider, AWH 0.65–1.69, pentagonal; crossvein 3r-m at least partly spectral or rarely not differentiated; crossveins 2r-m and 3r-m (when present) parallel, subparallel or distinctly but weakly convergent, both veins usually about the same size; vein 4-Rs distinctly shorter than vein 4-M. Hind wing vein 1-M+Cu apically strongly convex; vein Cua much shorter to much longer than crossvein cu-a, HW1C 0.68–2.25; crossvein 1r-m with bulla at ventral 0.3; veins 1-Rs and 2-Rs distinctly angled, cell R1 trapezoidal; vein Cub distinct and tubular, its apical 0.5 almost always distinctly convex, rarely slightly convex or straight; vein 2-1A reaching at least 0.7 of distance to wing margin.

METASOMA: T1 very short to very long, about 0.29–0.53 × as long as T2–8, always very slender, T1LW 2.51–5.07, apex almost as wide to distinctly wider than base, T1WW 1.18–2.37 (usually 1.40–1.90), approximately cylindrical to strongly compressed, without basolateral tooth, often with dorsal median depression just posterior to spiracle, sometimes also with lateral ad posterior median depressions; spiracle of T1 near its midlength, placed on basal 0.42–0.57, slightly to distinctly prominent; median dorsal carina completely absent; Dorsolateral carina absent, but traceable as faint line dividing dorsal and lateral portions; ventrolateral carina usually completely absent or traceable as a faint line, rarely distinct, though weak. Hairs on T2–8 always associated with small punctures. T2 usually short, rarely moderately long, T2LW 0.87–2.67, usually distinctly triangular, T2WW 1.31–2.87; thyridium minutely rugulose, slightly to distinctly longer than wide, rarely about as wide as high; T2 sometimes with a small depression just posterior to thyridium. T7–8 usually slightly to distinctly longer than T5–6, in species with more slender ovipositor T7–8 about as long as T5–6. Ovipositor moderately long to very long, OST 0.60–2.50 (usually 0.60–1.35), slender to moderately stout, almost always straight, rarely slightly up or downcurved, scarcely punctate, basally cylindrical, apically slightly to distinctly depressed; apex of ovipositor blunt, without nodus or notch; dorsal valve without ridges or with 3–5 weak to moderately strong ridges; ventral valve apically dilated and overlapping dorsal valve as a lobe, with 4–12 weak to distinct teeth; surface in between teeth densely microsculptured.

Males. Generally similar to the respective females; for most species, males can be recognized with the key to females provided in this work. Morphological secondary sexual differences are usually more or less uniform within Cryptini, and apply to the males of *Messatoporus* as follows. General body size almost always smaller than respective females; however, the largest male specimens of a given species can be larger than the smallest females. Antenna with significantly more flagellomeres than in female, each flagellomere usually shorter and wider than in females; white band of flagellum starting more apically and usually covering more articles than in females of the same species; more frequently than in females, males have some or all flagellomeres of the white band only dorsally white; apical flagellomere apically pointed, without hammer-like structures. Transverse sulcus usually slightly longer than in female. Propodeum smaller, less strongly convex, propodeal wrinkles and sublateral crests, when present, usually weaker than in female. Spiracle of propodeum usually less distinctly elongate, SWL about 2.0–4.0. Fore tibia regular, not inflated. First metasomal segment more slender, T1LW about 4.4–6.7, and less triangular, T1WW about 1.1–1.8. T2–7 much more slender than in females, metasomal sternites almost always collapsed in dead specimens; apical tergites never wider than subapical ones. All those features must be understood as already implicit at the section “Male” of each species descriptions, unless otherwise indicated. For that reason, most differences listed at those sections refer to color patterns.

Male color patterns are usually similar to females, except for some important exceptions. Whitish or yellow marks on mesosoma are often more extensive, particularly on pronotum, mesopleuron and mesosternum (*M. euryoikos*, Figs 51, 128), but, in *M. semialbiventris* **sp. nov.** (Figs 93, 117), the male has reduced yellow marks. Fore and mid legs usually with less conspicuous blackish marks. In some species (e.g. *M. euryoikos* **sp. nov.**, Fig. 51, 128; *M. semiaurantigaster* **sp. nov.**, Figs 105, 129, *M. dissidens* **sp. nov.**), the metasoma of females is mostly or entirely orange or fuscous, whereas the male metasoma has a distinct banded pattern.

Inter-specific variation. Species of *Messatoporus* have a wide array of variation in both general morphology and color patterns. Most body proportions are highly variable among species, as exemplified by the wide ranges of biometric ratios in the item “Female.” Also, some characters usually employed as “generic characters” among Cryptinae are rather variable in *Messatoporus*, such as shape and stoutness of the epomia, propodeal spiracle shape, areolet size and relative width, relative length of hind wing veins 1Cu and 1cu-a and presence/absence of apical ridges on ovipositor dorsal valve. However, the apparent high variability suggested by the total ranges can be partially misleading – most characters are fairly constant among most species of the genus, with only some outlier species for each character.

Although the general morphology varies much between species, it is usually remarkably similar among specimens of a given species. Most of intra-specific occurs in color patterns, often associated with a large distribution range (see below). It is important to note, however, that there may be two kinds of color differences: differences in the tonality color and differences in the pattern itself.

Differences in the tonality are very common and seem to be due, at least partially, to differences in collecting methods, preserving medium, and especially in the time elapsed between collecting and mounting the specimen. Specimens mounted or dried shortly after collected are usually lighter and brighter, whereas specimens which

remained years or even decades in alcohol seem usually pale or darkened. *M. semiaurantigaster* **sp. nov.** is a good example. Some specimens which were mounted some months after collected have whitish (236,223,184) and bright orange (230,159,051) spots and marks, while specimens immersed in alcohol for 4–9 years before mounted have the same spots and marks in buff (224,196,124) and dark orange (206,120,056) tones. It is difficult to settle clearly which differences in tonality are due to specimen condition and which ones are real variations, unless there are specimens for which both collecting and drying date is known. For that reason, and to enable reliable identification regardless of specimen condition, differences in color tones were almost always not considered for taxonomic purposes (i.e., for species delimitation), but are described in the Variation item of species descriptions.

Sometimes, however, differences are not observed as tonalities within a same color (e.g. dark vs. light yellow), but as more distinct *pattern* changes. Some examples are as follows. The U-shaped mark at the mesoscutum is often reduced or almost indistinct; sometimes it is medially interrupted (Fig. 160), leaving small longitudinal dashes separated from the subcircular spot on mesoscutum, or even those dashes may be indistinct. Small lateral dashes on the mesoscutum are also sometimes present, but those are frequently reduced or indistinct in some or most specimens of the same species. The central mark of the mesopleuron can also vary considerably in size within the same species (e.g. Figs 133–137), and can be connected or not to a second dorsal mark on the hypopleuron (e.g. Figs 107–108). The area over the sternaulus, dividing the mesopleuron and mesosternum, can be entirely black in some species and only partially black in others (e.g. Figs 81–82). The arc-shaped posterior mark on propodeum, particularly when narrow, can be dorsally indistinct, leaving two separate posterior marks. Orange tones on legs sometimes turn to dark brown or blackish in some specimens. All those variations, although interpreted as “real” intraspecific variation, seem to have little importance to species delimitation. Those changes are almost always continuous, and frequently found in different specimens from the same locality which are otherwise almost indistinct.

Biology. Most aspects of the biology of *Messatoporus* remain widely unknown. Including information on previously known hosts, the new records presented herein corroborate the notion that species of *Messatoporus* are specialized parasitoids of mud nesting aculeate wasps. All known records are from species of Crabronidae, Pompilidae and Eumeninae (Vespidae). The species with the most host records, *M. discoidalis*, attacks six species from all the three families. This relatively low host specificity is expected for idiobiont ectoparasitoids, such as most Cryptinae (Gauld 2006). However, according to the late Ian D. Gauld (personal communication), most Ichneumonidae, even if not strictly host-specific, should not be promptly considered as “generalists”, since they usually attack hosts in specific environments, or hosts with specific morphological traits.

Although it may be consequence of sampling bias or just coincidence, it is noteworthy that there is no record of *Messatoporus* attacking nests of *Sceliphron* Klug. In *Photocryptus*, by contrast, a related genus for which the host records are slightly more extensive, almost all species with known host records attack nests of *Sceliphron* (see Aguiar and Santos 2009 for a revision).

Sampling. Most of the specimens examined in the present work were collected with Malaise traps. In part, that may be due to the fact that Malaise traps are the most commonly used sampling tool for Hymenoptera. However, it also agrees with the findings of Aguiar and Santos (2010), suggesting that Malaise traps outperform Moericke (yellow pan) traps in collecting *Messatoporus*. According to those data, 29.1 Moericke trap-days are needed to sample as many female specimens as one Malaise trap-day (89 Möricke traps to match one Malaise trap in both male and female specimens).

In fact, specimens of *Messatoporus* are usually found in a significant proportion of Malaise trap samples, at least in tropical forests (personal observation, each sample usually corresponding to seven trap-days). That, allied to the large number of specimens of the genus usually available in collections (see Material and Methods), may indicate that *Messatoporus* is indeed an abundant taxon.

The efficiency of other sampling methods for *Messatoporus* was not tested. The label information of many of the examined specimens does not state the collecting method, but some specimens were reared directly from mud nests or from trap-nests.

Distribution and biodiversity. *Messatoporus* occurs nearly throughout the Americas, from southern Canada to southern Argentina. There are now records from almost all countries in continental America; the exceptions are Belize, Nicaragua, French Guyana and Chile; the lack of records in all but the latter is probably simply due to lack of sampling. There are also species occurring in Cuba, Haiti, Dominican Republic, Puerto Rico and Trinidad. Because sampling effort in the Neotropical Region has been irregular and fragmentary, it is sometimes hard to

detect accurately patterns of distribution and diversity, because better sampled areas tend to produce strongly biased information. Still, some general observations can be made analyzing the available records.

Species of *Messatoporus* usually have a wide distribution. *Messatoporus transversostriatus* and *M. euryoikos* **sp. nov.**, for example, are recorded from all South America, from Panama to Argentina or southern Brazil. *Messatoporus arcuatus* is found from northeastern Mexico to Panama, and *M. discoidalis*, the most widely distributed species of the genus, from southern Canada to Costa Rica, encompassing almost all USA and Mexico. Some other species appear to be more restricted, e.g. occurring only at north of South America (from Amazon Basin to Panama), or on its eastern side (*M. copiosus*, Fig. 316). Some species, like *M. andinus* **sp. nov.**, are clearly Andean, occurring only above 1800 m in Peru, Colombia and Ecuador.

There are still many species which are known just from one locality, but those species are usually also represented by only one or a few specimens. Therefore, it is difficult to distinguish if those particular species have a small geographic range or if they are just less common species which were not collected in other areas because of insufficient sampling effort. Future studies and more collecting trips at Neotropical Region are likely to mitigate this problem.

The wide distribution range of many species of *Messatoporus*, combined with the large species richness of the genus, means that many different species can be found in a single area. Seven species of *Messatoporus* were recorded just from Parque Estadual do Rio Doce, a 35,974 ha state park at southeastern Brazil which was sampled with over 4,000 Malaise trap-days. At southern Bahia, extensive sampling of several close agro-forestry properties found ten species of the genus. Although it is likely that some of those species were not permanent residents of each area, those data strongly indicate that several species of *Messatoporus* can occur at the same area. That raises relevant questions about niche partition, host exploitation and interspecific competition. As expected for most Cryptinae and supported by the available data (see above, "Biology"), species of *Messatoporus* seem not to be host-specific, but to attack a wide range of hosts. How do different species diverge on their host use, in order to keep their ecological niches at least partially distinct? For *Photocryptus*, a very close genus, there is at least one record of two species attacking the same nest (Aguiar & Santos 2009), suggesting competition among different species. That is probably the case with *Messatoporus*, but it is also clear that some niche differentiation must occur.

It is also worth noting that phylogenetically close species do not usually seem to occur in sympatry. In some cases, they do occur in distinct parapatry, with the ranges of two species adjacent or close to each other but not significantly overlapping. This seems to be the case, for example, of *M. lissonotus* and *M. paralissonotus* **sp. nov.**; the former species occur in most of South America, from southern Brazil to Ecuador, whereas the later is recorded from Panama. The very close species *M. propodeator* Kasparyan & Ruíz and *M. amazonensis* **sp. nov.** do also occur in distinct parapatry, the former extending from northeastern Mexico to Costa Rica, whereas *M. amazonensis* is recorded from northern South America, from Northern Colombia to Central Brazil.

The situation seems to be at least partially similar to the group of very close species including *M. mesosternalis*, *M. semiaurantigaster* **sp. nov.**, *M. orientalis* **sp. nov.**, *M. occidentalis* **sp. nov.** and *M. basiflavus* **sp. nov.** These five species have almost non-overlapping records. *Messatoporus mesosternalis* is recorded from Mexico to Costa Rica; *M. basiflavus* is known only from the type locality in Panama; *M. occidentalis* is widely distributed at western South America. At the eastern portion of the continent, *M. orientalis* is recorded from northern Argentina to southeastern Brazil, in the highlands of Espírito Santo state. *Messatoporus semiaurantigaster*, for its turn, is recorded mainly from the lowlands of Espírito Santo, and Bahia, with a single record in southern Brazil (Figs 345, 349, 351, 361).

Key to species of *Messatoporus* Cushman

Although the following key is intended to work with both males and females, it may be inaccurate for the male specimen of a species for which the male is currently unknown.

- | | | |
|------|---|----|
| 1 | Hind coxa mostly yellow to mostly or entirely black, without distinct orange marks | 2 |
| - | Hind coxa with distinct bright to dark orange marks, usually covering most of its surface | 50 |
| 2(1) | Postscutellum black or orange (Figs 154–157) | 3 |
| - | Postscutellum yellow or whitish (Figs 158–159) | 36 |
| 3(2) | Scape ventrally entirely black, dark brown or orange (Figs 139, 144) | 4 |

-	Scape ventrally with a very small to large yellow or whitish spot, rarely light brown (Figs 143, 145)	16
4(3)	Orbital band interrupted (Fig. 55) or complete but very narrow near dorsal margin of eye (Fig. 61)	5
-	Orbital band complete and wide even at dorsal margin of eye (Fig. 63)	11
5(4)	Mandible of female at least partially yellow or orange (Fig. 140–148)	6
-	Mandible of female entirely black or dark brown Figs 139, 149).	8
6(5)	Hind tibia black at least on apical 0.5; mesosternum black; mesopleuron without yellow marks or with two subcircular yellow marks (Figs 91–92, 96–98,); flagellum more or less uniform (Fig. 258).	7
-	Hind tibia entirely yellow (as in Fig. 220); mesosternum mostly yellow; mesopleuron with large yellow mark, connected to yellow subalar ridge; (Fig. 77) flagellum distinctly widened and flattened subapically (Fig. 35)	<i>Messatoporus grandis</i> Kasparyan & Ruíz
7(6)	Subalar ridge black (Fig. 91); dorsal margin of pronotum partially yellow (Figs 93–94); ovipositor moderately stout, dorsal valve with five moderately strong ridges; cluster of bristles at mesal lobe of hind t4 distinct and represented by numerous bristles (Fig. 266); fore wing vein 3-M distinctly shorter than vein 2-M (as in Fig. 251)	<i>Messatoporus bennetti</i> sp. nov.
-	Subalar ridge marked with yellowish (Figs 92–95); dorsal margin of pronotum entirely black (Figs 91–92); ovipositor very slender, dorsal valve without ridges; cluster of bristles at mesal lobe of hind t4 small, reduced to 3–4 bristles (Fig. 265); fore wing vein 3-M about as long as vein 2-M (as in Fig. 243)	<i>Messatoporus paeneater</i> sp. nov.
8(5)	Hind tibia mostly black or dark brown (Figs 221–222); dorsal margin of pronotum black or dark brown (Figs 89–91); mesopleuron and propodeum entirely black or dark brown	9
-	Hind tibia entirely yellow (as in Fig. 220); dorsal margin of pronotum yellow; mesopleuron with large yellow marks connected to yellow subalar ridge (Fig. 76); propodeum with arc-shaped yellow mark (as in Fig. 196)	<i>Messatoporus covarrubiasi</i> Kasparyan & Ruíz
9(8)	Propodeal wrinkles vestigial, most of posterior area of propodeum areolate-rugulose (Figs 162–164); areolet small to moderately small, APH 0.75–0.87; cluster of bristles at mesal lobe of hind t4 distinct and represented by numerous bristles (as in Fig. 266); fore wing vein 3-M distinctly shorter than vein 2-M (as in Fig. 251)	10
-	Propodeal wrinkles distinct, moderately strong and closely spaced (as in Fig. 181); areolet moderately large, APH 1.45; cluster of bristles at mesal lobe of hind t4 small (as in Fig. 265), reduced to 3–4 bristles; fore wing vein 3-M about as long as vein 2-M (as in Fig. 243)	<i>Messatoporus bicolor</i> sp. nov.
10(9)	Posterior transverse carina of propodeum distinct as moderately strong sublateral crests (Figs 89, 161); ovipositor dorsal valve with 3–5 very weak ridges (Fig. 281)	<i>Messatoporus paradoxus</i> sp. nov.
-	Posterior transverse carina of propodeum entirely absent, not forming sublateral crests (Figs 90, 162); ovipositor dorsal valve without ridges (as in Fig. 279).	<i>Messatoporus badius</i> sp. nov.
11(4)	Mesosternum with extensive yellow marks, never entirely black	12
-	Mesosternum entirely black	13
12(11)	Subalar prominence yellow (Fig. 66); anterior area of propodeum with sublateral yellow marks (Fig. 186); hind femur entirely blackish; hind tibia entirely yellow (as in Fig. 220)	<i>Messatoporus titans</i> sp. nov.
-	Subalar prominence black (Fig. 122); anterior area of propodeum without sublateral yellow marks; hind femur mostly bright orange; hind tibia basal 0.3 whitish, apical 0.7 blackish.	<i>Messatoporus subalaris</i> sp. nov.
13(11)	Hind tibia entirely yellow or almost so; mesopleuron with a large central mark that is medially narrower (Figs 53, 98).	14
-	Hind tibia mostly blackish or brown (Figs 230, 234); mesopleuron with one or two small subcircular marks (Figs 97, 99)	15
14(13)	T2–7 orange, even if with sparse blackish or yellowish marks (Fig. 53); ovipositor long, OST 1.91, dorsal valve with five moderately strong teeth (as in Fig. 286); yellow mark at mesoscutum subcircular.	<i>Messatoporus lordos</i> sp. nov.
-	T2–7 black with posterior yellow stripes (Fig. 98); ovipositor short, OST 0.60, dorsal valve without teeth (as in Fig. 279); yellow mark at mesoscutum U-shaped (as in Fig. 261).	<i>Messatoporus unimaculatus</i> sp. nov.
15(13)	Body very slender (Fig. 99); metapleuron entirely whitish; mesopleuron of female with a single whitish mark placed ventrally; ovipositor dorsal valve with four moderately strong teeth	<i>Messatoporus tenuissimus</i> sp. nov.
-	Body moderately stout (Fig. 97); metapleuron mostly black; mesopleuron of female with two yellow marks; ovipositor dorsal valve without ridges.	<i>Messatoporus bimaculatus</i> sp. nov.
16(3)	Epomia complete, <i>even if weak</i> , distinct both along the pronotal collar and after diverging from it (Fig. 5).	17
-	Epomia incomplete, distinct only after diverging from pronotal collar, or epomia indistinct	27
17(16)	Orbital band interrupted (Figs 56, 81).	18
-	Orbital band complete and wide even at dorsal margin of eye (Figs 59, 82)	21
18(17)	Mesopleuron with a large central yellow mark (Figs 81, 121)	19
-	Mesopleuron without distinct central mark, entirely black or orange except for subalar ridge (Figs 93, 119)	20
19(18)	T2–7 orange, even if with sparse blackish marks (Fig. 121); mandible basally yellow; hind tibia whitish on basal 0.25, on apical 0.75 gradually changing from light brown to blackish; hind femur bright to dark orange	<i>Messatoporus concavivenuis</i> sp. nov.
-	T2–7 blackish with anterior yellow stripe; mandible entirely blackish; hind tibia entirely yellow, though apically darker; hind femur dark brown (Fig. 220).	<i>Messatoporus atlanticus</i> sp. nov.
20(18)	Mesoscutum (Fig. 158) and mesopleuron almost entirely black (Fig. 93); pronotum surface with distinct, even if weak wrinkles; T1 dorsally yellowish or whitish on basal 0.2–0.4	<i>Messatoporus semialbiventris</i> sp. nov.
-	Mesoscutum and mesopleuron mostly bright orange; pronotum mostly whitish; pronotum surface without distinct longitudinal wrinkles; T1 dorsally black, brown or orange on basal 0.2 (Fig. 119)	<i>Messatoporus igneus</i> sp. nov.
21(17)	Posterior transverse carina of propodeum distinct as weak to moderately strong sublateral crests	22
-	Posterior transverse carina of propodeum entirely absent or only faintly suggested, not forming sublateral crests	24

22(21)	Posterior margin of T2–5 yellow or whitish (Fig. 114); hind tibia not entirely yellow; cluster of bristles at mesal lobe of hind t4 small, reduced to 3–4 bristles (as in Fig. 265)	23
-	Posterior margin of T2–5 blackish (Fig. 75); hind tibia entirely yellow (Fig. 237); cluster of bristles at mesal lobe of hind t4 distinct and represented by numerous bristles (as in Fig. 266).	<i>Messatoporus arcuatus</i> (Cresson)
23(22)	White band at antenna of male reaching subapical flagellomere (Fig. 264); hind second trochanter black; posterior margin of mesopleuron black.	<i>Messatoporus antennator</i> Kasparyan & Ruíz
-	White band at antenna of male reaching subapical flagellomere; hind second trochanter orange, sometimes with dorsoposterior blackish mark; posterior margin of mesopleuron with distinct yellowish spot dorsally to hypopimeron.	<i>Messatoporus tibiator</i> Kasparyan & Ruíz
24(21)	T4–7 orange, even if with sparse blackish marks	25
-	T4–7 black or dark brown, with distinct apical yellow or whitish stripes	26
25(24)	Mesoscutum bright to dark orange (Fig. 154); pronotum and metapleuron almost entirely or entirely whitish (Fig. 83); pronotum without distinct longitudinal wrinkles; fore wing crossvein 3r-m absent, cell 1+2Rs open (Fig. 250); ovipositor dorsal valve with five moderately strong ridges (as in Fig. 286).	<i>Messatoporus copiosus</i> sp. nov.
-	Mesoscutum black; pronotum and metapleuron mostly black (Fig. 100); pronotum with weak and short wrinkles at ventral half of dorsal margin; fore wing crossvein 3r-m present, though spectral, cell 1+2Rs closed; ovipositor dorsal valve without ridges (as in Fig. 279)	<i>Messatoporus dissidens</i> sp. nov.
26(25)	Dorsal margin of mesopleuron black; epicnemium black (Fig. 108); propodeum with subcircular yellowish mark, without posterior black spot (Fig. 201); hind femur mostly bright orange (Fig. 228).	<i>Messatoporus variegatus</i> (Szépligeti)
-	Dorsal margin of mesopleuron yellow; epicnemium mostly yellowish; propodeum with arc-shaped yellowish mark, with posterior black spot; hind femur mostly blackish.	<i>Messatoporus femorator</i> Kasparyan & Ruíz
27(15)	Central whitish or yellow mark on mesopleuron not connected to whitish or yellow mark at subalar ridge (Fig. 81).	28
-	Central whitish or yellow mark on mesopleuron connected to whitish or yellow mark at subalar ridge (Figs 82, 110)	33
28(27)	T4–7 orange, even if with sparse blackish marks (Figs 84, 106); fore wing crossvein 3r-m absent, cell 1+2Rs open (Fig. 250); hind wing vein Cub almost straight, very slightly convex (Fig. 259).	29
-	T4–7 blackish or dark brown, with posterior yellow or whitish stripes; fore wing crossvein 3r-m present, even if weak and spectral, cell 1+2Rs closed; hind wing vein Cub distinctly convex on posterior half, otherwise straight (Fig. 254).	30
29(28)	Mesoscutum black; T2–3 bright orange, T2 with posterior whitish stripe; mesopleuron dorsally black; pronotum almost entirely whitish (Fig. 106).	<i>Messatoporus amazonensis</i> sp. nov.
-	Mesoscutum orange; T2–3 anteriorly dark brown; T2 posteriorly orange and whitish, T3 posteriorly whitish; mesopleuron dorsally orange; pronotum mostly black, collar and dorsal margin whitish (Fig. 84)	<i>Messatoporus ellipicavus</i> sp. nov.
30(28)	Mesoscutum with subcircular yellow spot (Fig. 157); anterior area of propodeum without sublateral yellowish marks; fore wing vein 3-M about as long as vein 2-M.	31
-	Mesoscutum with U-shaped yellow mark (Fig. 161), <i>or</i> anterior area of propodeum with sublateral yellowish marks (Fig. 202); fore wing vein 3-M distinctly longer or shorter than vein 2-M (Fig. 247)	32
31(30)	Hind femur marked with yellowish, black and brown (Fig. 214); T1 dorsally black on basal 0.4; propodeum posteriorly with triangular whitish mark, without posterior blackish spot	<i>Messatoporus complexifemur</i> sp. nov.
-	Hind femur entirely orange; T1 dorsally whitish on basal 0.4; propodeum with posterior blackish spot	<i>Messatoporus propodeator</i> Kasparyan & Ruíz
32(30)	Anterior area of propodeum without sublateral yellowish spots; mesoscutum with U-shaped yellow mark (Fig. 161); ovipositor dorsal valve without ridges (as in Fig. 279); posterior transverse carina of propodeum distinct as weak sublateral crests (Fig. 195).	<i>Messatoporus jalapa</i> Kasparyan & Ruíz
-	Anterior area of propodeum with sublateral yellowish spots (as in Fig. 202); mesoscutum with subcircular yellowish spot; ovipositor dorsal valve with four moderately strong ridges; posterior transverse carina of propodeum entirely absent, not forming sublateral crests.	<i>Messatoporus campanulatus</i> sp. nov.
33(27)	Anterior area of propodeum with sublateral ovoid or triangular yellowish marks (Figs 198, 202)	34
-	Anterior area of propodeum without sublateral ovoid or triangular yellowish marks	35
34(33)	Mandible of female basally yellow; mark at posterior area of propodeum subcircular, without posterior blackish spot near insertion of T1 (Fig. 201); ovipositor dorsal valve without ridges (as in Fig. 279)	<i>Messatoporus atrifoveus</i> sp. nov.
-	Mandible of female entirely black or dark brown; mark at posterior area of propodeum arc-shaped, with posterior blackish spot near insertion of T1 (Fig. 198); ovipositor dorsal valve with five moderately strong ridges (as in Fig. 286)	<i>Messatoporus maculipes</i> Kasparyan & Ruíz
35(33)	Hind femur entirely bright orange (Fig. 233); mandible entirely black; dorsal margin of mesopleuron black (Fig. 82); hind tibia blackish on apical 0.6	<i>Messatoporus caxiuanensis</i> sp. nov.
-	Hind femur with extensive blackish marks; mandible basally yellow; dorsal margin of mesopleuron yellow; hind tibia blackish on apical 0.2	<i>Messatoporus femorator</i> Kasparyan & Ruíz
36(2)	Epomia complete, <i>even if weak</i> , distinct both along the pronotal collar and after diverging from it (Fig. 5).	37
-	Epomia incomplete, distinct only after diverging from pronotal collar, or epomia indistinct	44
37(36)	Orbital band interrupted or complete but very narrow near dorsal margin of eye (Figs 103–104)	38
-	Orbital band complete and wide even at dorsal margin of eye (Fig. 106)	41
38(37)	Dorsal margin of pronotum at least partially yellow or whitish; T1 dorsally yellowish or whitish at anterior 0.2–0.4; fore wing vein 3-M about as long as vein 2-M	39
-	Dorsal margin of pronotum entirely black; T1 dorsally black at anterior 0.2–0.4; fore wing vein 3-M distinctly longer or shorter than vein 2-M	40

- 39(38) Flagellum more or less uniform, not enlarged subapically (as in Fig. 262); mesosternum mostly black; T7–8 about as long as T5–6 (Fig. 94); ovipositor dorsal valve without ridges (as in Fig. 279) *Messatoporus andinus* **sp. nov.**
- Flagellum strongly widened and flattened subapically (as in Fig. 263); mesosternum mostly yellow; T7–8 distinctly longer than T5–6 (Fig. 72); ovipositor dorsal valve with four weak to moderately strong ridges. . . *Messatoporus nigricapax* **sp. nov.**
- 40(38) Hind tibia apically black (Fig. 226); T4–7 of female orange (Fig. 105); hind femur bright orange; hind t5 blackish (Fig. 226); propodeum of female posteriorly with one arc-shaped, though medially narrow, yellow mark (Fig. 191); hind tibia of male blackish on apical 0.7–0.8. *Messatoporus semiaurantigaster* **sp. nov.**
- Hind tibia of female entirely yellow (Fig. 220); T4–7 black or dark brown, with distinct posterior yellow stripes (Fig. 104); hind femur dark brown; hind t5 whitish (Fig. 220); propodeum with two sublateral small marks (Fig. 183); hind tibia of male blackish on apical 0.2 *Messatoporus orientalis* **sp. nov.**
- 41(37) Flagellum strongly flattened and widened at sub-apical 0.3 (Fig. 263); ovipositor moderately stout, dorsal valve with moderately strong ridges; hind tibia of female entirely yellow or blackish up to apical 0.2 (Figs 225–226) 42
- Flagellum more or less uniform (Fig. 262), not flattened and widened at subapical 0.3; ovipositor slender, dorsal valve without ridges; hind tibia of female blackish on apical 0.6–0.8 (Figs 231–234) 43
- 42(41) Hind femur entirely orange; fore and mid femora entirely orange; ovipositor dorsal valve with five ridges (Fig. 284)
. *Messatoporus compressicornis* Cushman
- Hind femur dorsally deep yellow, ventrally black (as in Fig. 237); fore and mid femora dorsally with longitudinal brown stripes; ovipositor dorsal valve with four ridges. *Messatoporus keraipetalus* **sp. nov.**
- 43(41) Metapleuron almost entirely yellow or whitish; about 0.50 of surface of hind coxa yellow; mesosternum mostly yellow or whitish; propodeum without distinct sublateral crests (Fig. 108) *Messatoporus variegatus* (Szépligeti)
- Metapleuron mostly black; about 0.05 of surface of hind coxa yellow; mesosternum mostly black; propodeum with distinct sublateral crests (Fig. 94) *Messatoporus andinus* **sp. nov.**
- 44(36) Hind tibia not entirely yellow, variously marked with black, brown, or orange. 45
- Hind tibia entirely yellow or almost, even if with blackish mark at extreme base (Figs 225–226) 47
- 45(45) Scape ventrally black, brown or orange (Figs 138–139, 144); propodeum with moderately strong sublateral crests 46
- Scape ventrally with a small to large yellow or whitish spot (Figs 143, 145); propodeum without distinct sublateral crests, or with very weak crests *Messatoporus mesonotator* Kasparyan & Ruíz
- 46(45) Mesopleuron mostly black, with or without two small subcircular yellow spots; pronotum centrally black, yellow only at collar and dorsal margin; mesoscutum black; hind coxa almost entirely black or dark brown (Fig. 94)
. *Messatoporus andinus* **sp. nov.**
- Mesopleuron mostly yellow, black only at scrobe and near sternaulus, with sparse orange marks; pronotum almost entirely yellow; mesoscutum orange; hind coxa entirely yellow (Fig. 112) *Messatoporus versicolor* **sp. nov.**
- 47(44) Mesosternum black; dorsal margin of pronotum black (Figs 101–105) 48
- Mesosternum mostly yellow; dorsal margin of pronotum with narrow yellow line. 49
- 48(47) Hind femur dorsally bright yellow, ventrally black (Fig. 239); orbital band complete; T1 laterally black at anterior 0.8 (Fig. 103); ventral tooth of mandible distinct, though short *Messatoporus mesosternalis* Kasparyan & Ruíz
- Hind femur entirely orange (as in Figs 209–212); orbital band shortly interrupted at dorsal margin of eye; T1 laterally yellow (Fig. 55); ventral tooth of mandible indistinct *Messatoporus unidentatus* **sp. nov.**
- 49(47) Hind femur entirely orange (as in Figs 225, 227); T2–8 orange (Fig. 52); fore wing vein 3-M distinctly shorter than 2-M (as in Fig. 251) *Messatoporus apiopharkis* **sp. nov.**
- Hind femur dorsally bright yellow, ventrally blackish (Fig. 237); T2–8 black, with posterior yellow stripes (Fig. 73); fore wing vein 3-M about as long as 2-M (as in Fig. 243) *Messatoporus depressifrons* **sp. nov.**
- 50(1) Scape ventrally black, brown or orange (Figs 138–139, 144) 51
- Scape ventrally with a small to large yellow or whitish spot (Figs 143, 145) 74
- 51(50) Orbital band interrupted or complete but very narrow near dorsal margin of eye, or absent (Figs 103–104, 260) 52
- Orbital band complete and wide even at dorsal margin of eye, even if narrower than at most of gena (Fig. 106, 261) 63
- 52(51) Mandible of female at least partially yellow or orange (Figs 140–148). 53
- Mandible of female entirely black or dark brown (Fig. 139, 149) 57
- 53(52) Ovipositor dorsal valve with 3–5 very weak to moderately strong ridges; fore tibia strongly inflated; cluster of bristles at mesal lobe of hind t4 distinct and represented by numerous bristles 54
- Ovipositor dorsal valve without ridges; fore tibia not or only slightly inflated; cluster of bristles at mesal lobe of hind t4 small, reduced to 3–4 bristles. 56
- 54(53) Mesosoma orange; hind tibia not entirely yellow; T2–8 black with posterior whitish stripes 56
- Mesosoma mostly black; hind tibia entirely yellow; T2–8 orange, even if with sparse blackish marks (Fig. 54).
. *Messatoporus teutonicus* **sp. nov.**
- 55(54) Fore tibia and tarsus light orange or yellowish; supra-clypeal area yellow; propodeal wrinkles strong, moderately widely spaced; posterior whitish stripes at T2–4 subcircular *Messatoporus lissonotus* (Cameron)
- Fore tibia and tarsus whitish; supra-clypeal area orange; propodeal wrinkles weak and very closely spaced; posterior whitish stripes at T2–4 not subcircular. . . *Messatoporus citreocephalus* **sp. nov.**
- 56(54) Head, meso- and metasoma mostly orange; orbital band complete; orbital band complete (Fig. 113); propodeal wrinkles not developed, most of posterior area of propodeum areolate-rugulose (Fig. 162) *Messatoporus advenus* **sp. nov.**
- Head, meso- and metasomal mostly black (Fig. 95); orbital band incomplete; propodeal wrinkles developed.
. *Messatoporus matucanus* **sp. nov.**

57(52)	Propodeum with blackish marks, or entirely black brown (Figs 162–164, 174–206); fore wing vein 3-M distinctly longer or shorter than vein 2-M (Fig. 251)	58
-	Propodeum entirely orange (Figs 165–173) or with whitish marks; fore wing vein 3-M about as long as vein 2-M (Fig. 243)	61
58(57)	Mesopleuron with central yellow mark; dorsal margin of pronotum and metapleuron extensively marked with yellow	59
-	Mesopleuron without central yellow mark; dorsal margin of pronotum and metapleuron not marked with yellow	60
59(58)	Orbital band complete; T2 anteriorly with sublateral ovoid yellow marks, sometimes connected; T1 laterally laterally marked with blackish (Fig. 68); ovipositor dorsal valve with five ridges	<i>Messatoporus amplithorax</i> sp. nov.
-	Orbital band shortly interrupted at dorsal margin of eye; T2 anteriorly without sublateral ovoid yellow marks; T1 laterally yellow; ovipositor dorsal valve with three ridges (Fig. 69)	<i>Messatoporus interceptus</i> sp. nov.
60(58)	T2–8 black with posterior yellow or whitish stripes (Fig. 50); hind tibia entirely yellow; ovipositor dorsal valve with five moderately strong ridges	<i>Messatoporus nigriscutus</i> sp. nov.
-	T2–8 brown, anteriorly darker (Fig. 90); tibia not entirely yellow; ovipositor dorsal valve without ridges (as in Fig. 279)	<i>Messatoporus badius</i> sp. nov.
61(57)	T4–7 black or dark brown, with or without yellow or whitish stripes; pronotum mostly blackish (Figs 49, 88); hind femur mostly black or dark brown (Fig. 213, 240); ovipositor dorsal valve with four moderately strong ridges	62
-	T4–7 orange, even if with sparse blackish marks; pronotum mostly pale yellow or whitish (Fig. 40); hind femur bright orange (as in Figs 207–212); ovipositor dorsal valve with three very weak ridges	<i>Messatoporus longitergus</i> sp. nov.
62(61)	Mesoscutum bright orange; hind coxa with apical blackish mark (Fig. 88); propodeal wrinkles very closely spaced, posterior transverse carina entirely absent (as in Fig. 169–170); supra-clypeal area mostly blackish.	<i>Messatoporus anepomius</i> sp. nov.
-	Mesoscutum black; hind coxa entirely orange (Fig. 49); propodeal wrinkles moderately widely spaced, posterior transverse carina distinct as moderately strong sublateral crests (Fig. 165); supra-clypeal area entirely whitish or yellow.	<i>Messatoporus albiaterartus</i> sp. nov.
63(51)	Propodeum of female and male with blackish marks, or entirely black; mesopleuron with one or two small to large central marks	64
-	Propodeum of female without blackish marks; propodeum of male rarely with anterior area black; mesopleuron without distinct central mark, entirely black or orange except for subalar ridge (rarely mesopleuron with small dorsal yellowish mark)	70
64(63)	Flagellum more or less uniform or only slightly enlarged subapically (Fig. 262)	65
-	Flagellum slightly to strongly widened and flattened subapically (Figs 35, 263)	69
65(64)	Postscutellum yellow (Figs 158–159)	66
-	Postscutellum black (Figs 155–157)	68
66(65)	Dorsal margin of pronotum yellow (Figs 64, 112); ovipositor dorsal valve without ridges (Fig. 279); T7–8 of females about as long or shorter than T5–6 (Figs 64, 112)	67
-	Dorsal margin of pronotum black (Fig. 101); ovipositor dorsal valve with four moderately strong ridges (as in Fig. 279); T7–8 of females longer than T5–6 (Fig. 101)	<i>Messatoporus basiflavus</i> sp. nov.
67(66)	Mesoscutum black; pronotum centrally black; mesopleuron black with large C-shaped yellow mark; propodeum without sublateral crests (Fig. 64)	<i>Messatoporus lunatus</i> sp. nov.
-	Mesoscutum bright orange; pronotum almost entirely yellow; mesopleuron almost entirely yellow, with sparse orange and blackish marks; propodeum with moderately strong sublateral crests (Fig. 112)	<i>Messatoporus versicolor</i> sp. nov.
68(65)	Mandible basally yellow (Fig. 140); anterior area of propodeum with sublateral yellow spots (Fig. 185); pronotum mostly black (Fig. 67); yellow marks at posterior area of propodeum not connected (Fig. 185)	<i>Messatoporus transversostriatus</i> (Spinola)
-	Mandible entirely black (as in Fig. 139); anterior area of propodeum without sublateral yellow spots pronotum mostly yellow (Fig. 63); yellow marks at posterior area of propodeum connected in a single arc-shaped mark (as in Fig. 197)	<i>Messatoporus terebrator</i> Kasparyan & Ruíz
69(64)	Dorsal margin of pronotum yellow (Figs 115–116); hind tibia entirely yellow or light orange (as in Fig. 207); T1 dorsally yellowish or whitish on basal 0.25	<i>Messatoporus townesi</i> Alayo & Tzankov
-	Dorsal margin of pronotum black (Fig. 102); hind tibia black on apical 0.25 (Fig. 229); T1 dorsally black on basal 0.25	<i>Messatoporus occidentalis</i> sp. nov.
70(63)	Mandible of female at least partially yellow, orange or light brown (Figs 140–148); posterior transverse carina of propodeum complete or distinct as weak to moderately strong sublateral crests (Figs 44, 46, 87)	71
-	Mandible of female entirely black or dark brown (Figs 139, 149); posterior transverse carina of propodeum entirely absent, not forming sublateral crests (Figs 42, 86)	73
71(70)	Mesoscutum and pronotum mostly or entirely orange or light brown (Figs 153–154); posterior transverse carina of propodeum incomplete or distinct only as sublateral crests	72
-	Mesoscutum and pronotum mostly black (Fig. 44); posterior transverse carina of propodeum complete	<i>Messatoporus paraguayensis</i> (Szépligeti)
72(71)	Pronotum, dorsal and ventral divisions of metapleuron and propodeum with bright yellow marks; T7–8 about as long as T5–6 (Fig. 87); ovipositor dorsal valve without ridges (as in Fig. 279)	<i>Messatoporus argentinus</i> sp. nov.
-	Pronotum, dorsal and ventral divisions of metapleuron and propodeum without bright yellow marks; T7–8 longer than T5–6 (Fig. 46); ovipositor dorsal valve with four moderately strong ridges (as in Fig. 185)	<i>Messatoporus paralissonotus</i> sp. nov.

- 73(70) Pronotum almost entirely pale yellow or whitish; T2–8 entirely orange; hind coxa, trochanter and femur orange (Fig. 42); occipital carina fading out far from hypostomal carina *Messatoporus pallidus* **sp. nov.**
- Pronotum bright yellow at collar and dorsal margin, centrally orange, ventrally black; T2–8 marked with bright yellow, orange and dark brown; hind coxa with apical dark brown mark (Fig. 86); hind trochanters and femur entirely dark brown; occipital carina meeting hypostomal carina, though apically weak. *Messatoporus xanthogaster* **sp. nov.**
- 74(50) Hind tibia not uniformly yellow, variously marked with black, brown, or orange; ovipositor dorsal valve usually without ridges 75
- Hind tibia entirely yellow or almost so, even if with blackish mark at extreme base (Figs 225–227); ovipositor dorsal valve with three to five ridges. 86
- 75(74) Orbital band interrupted or complete but very narrow near dorsal margin of eye (Figs 103–104) 76
- Orbital band complete and wide even at dorsal margin of eye (Fig. 106) 81
- 76(75) Dorsal margin of pronotum at least partially yellow or whitish (Figs 48–49, 96–100) 77
- Dorsal margin of pronotum entirely black or orange (Figs 36–39, 101–105) 79
- 77(76) Hind coxa entirely orange (Fig. 210); postscutellum black (Figs 155–157). 78
- Hind coxa posteriorly pale yellow, usually with narrow blackish line between orange and yellow areas (Fig. 61); postscutellum pale yellow (Fig. 159). *Messatoporus opacus* **sp. nov.**
- 78(77) Mesopleuron with a central yellow mark (Fig. 57); hind femur dark brown (Fig. 213); transverse sulcus of propodeum moderately long, 0.64 × as long as anterior area (Fig. 178); subalar ridge with distinct yellow or whitish mark *Messatoporus maculiscus* **sp. nov.**
- Mesopleuron without central yellow mark (Fig. 120); hind femur orange; transverse sulcus of propodeum very long, 1.00 × as long as anterior area; subalar ridge without distinct yellow mark *Messatoporus dialeipsis* **sp. nov.**
- 79(76) T4–7 orange, even if with sparse blackish marks; pronotum surface without distinct longitudinal wrinkles (Figs 36, 39); ovipositor dorsal valve with 3–5 moderately strong ridges 80
- T4–7 black or dark brown, with distinct apical yellow or whitish stripes; pronotum surface with distinct, even if weak wrinkles (Figs 45, 56); ovipositor dorsal valve without ridges *Messatoporus tenuiorbis* **sp. nov.**
- 80(79) Fore wing 7.28–10.50 mm long; T2–8 entirely orange or with weak fuscous or blackish marks (Fig. 36); cluster of bristles at mesal lobe of hind t4 distinct and represented by numerous bristles (as in Fig. 266); fore wing crossvein 3r-m present, even if spectral or very weak, cell 1+2Rs closed. *Messatoporus apertus* (Taschenberg)
- Fore wing 4.75–5.58 mm long; T2–8 with distinct anterior dark brown marks (Fig. 39); cluster of bristles at mesal lobe of hind t4 small, reduced to 3–4 bristles (as in Fig. 265); fore wing crossvein 3r-m absent, cell 1+2Rs open (as in Fig. 250) *Messatoporus amarelus* **sp. nov.**
- 81(75) Central whitish or yellow mark of mesopleuron not connected to whitish or yellow mark on subalar ridge (Figs 57, 62). . . . 82
- Central whitish or yellow mark of mesopleuron connected to whitish or yellow mark on subalar ridge (Figs 59, 60). . . . 84
- 82(81) Propodeum and mesopleuron with usually extensive blackish marks; ovipositor dorsal valve without ridges; mesoscutum black with subcircular or U-shaped mark; T2–8 either orange or blackish with posterior yellow stripes 83
- Propodeum and mesopleuron without blackish marks; ovipositor dorsal valve with four moderately strong ridges; mesoscutum bright orange to brown, with subcircular spot; T2–8 almost entirely orange. *Messatoporus fulvator* Kasparyan
- 83(82) Hind tarsus blackish, with dorsal whitish mark at t3–4; hind coxa entirely orange; arc-shaped mark on propodeum very narrow (Fig. 194); T2–8 always black with posterior yellow or whitish stripes. *Messatoporus dominicanus* **sp. nov.**
- Hind tarsus whitish except base of t1; hind coxa almost always with blackish and/or yellowish marks; arc-shaped mark on propodeum moderately wide; T2–8 orange or black with posterior yellow or whitish marks *Messatoporus discoidalis* (Cresson)
- 84(81) Anterior area of propodeum with blackish marks; T1 mostly orange or yellow, with dorsal blackish mark (Fig. 60); hind femur entirely orange (Figs 207–212). . . . 85
- Anterior area of propodeum orange; T1 mostly black (Fig. 59); hind femur blackish on apical 0.4 (as in Figs 224, 226) *Messatoporus nigriangulatus* **sp. nov.**
- 85(84) Postscutellum black (as in Figs 155–157); hind coxa entirely orange; pronotum with posterior blackish mark (Fig. 60) *Messatoporus elektor* **sp. nov.**
- Postscutellum yellow (as in Figs 158–159); hind coxa with dorsal blackish mark; pronotum entirely whitish. *Messatoporus rufator* Kasparyan & Ruíz
- 86(74) Propodeum with blackish marks, or entirely black (Figs 174–206); mesopleuron with central yellow mark; wrinkles on pronotum distinct 87
- Propodeum entirely orange (Figs 165–172); mesopleuron orange, without central yellow mark (Figs 36–50); wrinkles on pronotum absent or vestigial. 91
- 87(86) Postscutellum black or orange (Figs 155–157); dorsal margin of pronotum yellow or whitish. 90
- Postscutellum yellow or whitish (Figs 158–159); dorsal margin of pronotum black (Fig. 58) *Messatoporus pleuriflavus* **sp. nov.**
- 88(87) T4–7 black or dark brown, with distinct apical yellow or whitish stripes (Fig. 70) 89
- T4–7 orange, even if with sparse blackish marks (Fig. 51) *Messatoporus euryoikos* **sp. nov.**
- 89(88) Central whitish or yellow mark on mesopleuron not connected to whitish or yellow mark on subalar ridge (Fig. 70). . . . 90
- Central whitish or yellow mark on mesopleuron connected to whitish or yellow mark on subalar ridge (as in Figs 76–77). . . . *Messatoporus kerzhneri* Kasparyan & Ruíz
- 90(89) Flagellum more or less uniform or only slightly enlarged subapically; fore wing crossvein 3r-m absent, cell 1+2Rs open (as in Fig. 250) *Messatoporus zonatus* (Cresson)

- Flagellum somewhat widened and flattened subapically (Fig. 35); fore wing crossvein 3r-m present, even if spectral or very weak, cell 1+2Rs closed *Messatoporus allomeros* **sp. nov.**
- 91(86) T2–8 black with posterior whitish or yellow stripes (Figs 47–48) 92
- T2–8 orange or brownish, even if with sparse blackish marks (Figs 37–38, 43) 93
- 92(91) Pronotum, mesoscutum and postscutellum mostly or entirely black (Fig. 47); scutellar carina, scutellum, tegula and subalar ridge mostly or entirely whitish (as in Fig. 159); sternaulus medially indistinct *Messatoporus convexus* **sp. nov.**
- Pronotum, mesoscutum and postscutellum entirely orange (as in Fig. 153); scutellar carina, scutellum, tegula and subalar ridge orange; sternaulus complete *Messatoporus latissulcus* **sp. nov.**
- 93(91) Mesoscutum and pronotum entirely orange; ovipositor slightly to strongly upcurved (Fig. 265); transverse sulcus on base of propodeum 0.64–0.8 × as long as anterior area (Fig. 166) 94
- Mesoscutum and pronotum mostly black (Fig. 43); ovipositor straight (as in Fig. 266); transverse sulcus on base of propodeum 1.13 × as long as anterior area. *Messatoporus laevilatus* **sp. nov.**
- 94(93) Ovipositor very long, OST 2.50 (Fig. 269); mesoscutum very strongly convex (Fig. 38); fore tibia not distinctly swollen. *Messatoporus longicaudis* **sp. nov.**
- Ovipositor moderately long, OST 1.20; mesoscutum moderately convex (Fig. 37); fore tibia distinctly swollen (as in Fig. 33, bottom) *Messatoporus aurantius* **sp. nov.**

Species descriptions

In all synonymic lists, all nomenclatural acts are marked by an asterisk in the left margin.

Messatoporus advenus Santos, **sp. nov.**

(Figs 113, 162, 289)

Female. Fore wing 10.75 mm. HEAD: Mandible densely covered with long hairs; MLW 2.19; MWW 0.39; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.23. Clypeus basally convex, apically abruptly flattened, centrally straight; CHW 2.39; CWW 1.91; apical area medially straight, laterally slightly projected, its margin regular, not raised. Antenna with 28 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, with moderately dense punctation, distinctly striate near antennal sockets, ventrally and around ocelli slightly concave, median line distinguishable only as a rugulose area. Occipital carina uniformly curved, fading out on a distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, shiny, punctate-rugulose, with moderate striation along posterior margin and collar; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, 1.32 × as long as wide, densely covered with short hairs, mat, densely punctulate; notaulus reaching about 0.74 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge strongly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, slightly arched forwards. Transverse sulcus on base of propodeum very wide, about 0.83 × as long as anterior area of propodeum, strongly rugulose; metapleuron punctate-rugulose, without transverse wrinkles, densely covered with very short hairs; juxtacoxal carina represented by very short ridges. Fore tibia not distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa basally foveolate-areolate, apically punctate, interior face minutely rugulose.

PROPODEUM: 1.07 × as long as wide, mat, densely pilose; anterior area punctate-foveolate; spiracle elongate, SWL 6.67; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles vestigial, most of posterior area areolate-rugulose; posterior transverse carina distinct, medially interrupted, forming weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.44 of its own length; vein 2Cua 0.65 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.79, pentagonal,

about as high as wide, AWH 1.03; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, 3r-m distinctly longer; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M spectral, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.4; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.96 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.42 \times$ as long as T2–8, approximately cylindrical, ventrolaterally angled, uniformly, densely pilose; T1LW 4.98; T1WW 1.55; spiracle on 0.49 of its length, slightly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina weak. T2LW 1.6; T2WW 2.73; thyridium longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriaceous, densely and uniformly pilose. OST 0.76; ovipositor slender, slightly sinuous, basally cylindrical, apically distinctly depressed; dorsal valve without ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head bright orange and bright yellow, mesosoma bright orange, pale yellow and dark brown, metasoma bright orange. Head: bright orange (186,072,024); clypeus, malar space, supra-clypeal area and complete orbital band, bright yellow (246,230,113); scape light brown; apical 0.5 of mandible, pedicel and flagellum blackish; f6–13 entirely white, f5 and f14 mostly white. Mesosoma: orange, dorsally brownish (152,063,037), ventrally bright; pronotal collar, scutellar carina, tegula, subalar ridge, central mark on mesopleuron, dorsal division of metapleuron and small posterior mark on metapleuron, pale yellow (226,192,082); propodeum sparsely marked with dark brown (062,039,022); legs apically lighter; apical 0.5 of hind t1 and t2–4 bright yellow. Metasoma: bright orange; anterior 0.4 of T1 and S1 dark brown; T5–5 with sparse blackish marks.

Male. Unknown.

Comments. Similar to *M. longitergus* sp. nov., from which it can be differentiated by having a generally larger size, with fore wing 10.75 mm long (vs. 6.48 mm long); pronotum almost entirely orange (vs. almost entirely 6.48); supra-antennal area, occiput and mesoscutum mostly orange (vs. dark brown); scape ventrally orange (vs. dark brown); fore wing vein 3r-m distinctly longer than 2r-m, 2-M distinctly longer than 3-M (vs. 2r-m and 3r-m, as well as 2-M and 3-M, about the same size); clypeus centrally straight (vs. concave). Also structurally very similar to *M. versicolor* sp. nov., from which it can be readily isolated by the body almost entirely orange (vs. extensively marked with pale yellow and black). *Messatoporus versicolor* have the pronotum and mesopleuron mostly pale yellow, mesosternum and anterior area of propodeum black and T3–7 black with posterior pale yellow stripes. The two species can be additionally isolated by the posterior transverse carina complete and forming distinct sublateral crests in *M. versicolor* (vs. medially interrupted and forming very weak crests in *M. advenus*).

Biology. Unknown.

Etymology. From the Latin *advena*, meaning “stranger”, “foreigner”; in reference to its dissimilarity from most other species and from the general definition of the genus, e.g. lacking the propodeal wrinkles.

Material examined. Holotype ♀ from MEXICO, Oaxaca, Vila Hermosa, 96.5 km SW of Tuxtepec, 1450 m, 20.X.1962, Townes & Townes (AEIC). Pinned. Tip of left antenna missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in southeastern Mexico (Fig. 289).

***Messatoporus albiaterartus* Santos, sp. nov.**

(Figs 49, 165, 240, 290)

Female. Fore wing 9.1 mm. HEAD: Mandible densely covered with long hairs; MLW 2.19; MWW 0.35; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth somewhat rhomboid. MSM 0.29. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.29; CWW 2.64; apical area medially convex, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, impunctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, with slight median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, shiny, densely punctate, with moderate striation along posterior margin and collar; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal

margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, ovoid, $1.27 \times$ as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 0.68 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, almost straight; sternaulus moderately strong, wide and shallow at posterior 0.25, weakly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, distinctly arched forwards. Transverse sulcus at base of propodeum moderately wide, about $0.69 \times$ as long as anterior area of propodeum, very weakly rugulose; metapleuron densely punctate, ventrally also rugulose, without transverse wrinkles, densely covered with very short hairs; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: $1.31 \times$ as long as wide, shiny, moderately pilose; anterior area moderately punctate; spiracle elongate, SWL 6.25; anterior transverse carina medially slightly arched backwards. Propodeal wrinkles anteriorly faint, posteriorly strong, moderately widely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina distinct as moderately strong crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.43 of its own length; vein 2Cua $0.52 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.62, subquadratic, distinctly wider than high, AWH 1.28; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M spectral, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.99; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.83 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.37 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 4.17; T1WW 1.87; spiracle on 0.53 of its length, slightly prominent; median depression elongate, distinct; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.6; T2WW 1.71; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, with small, shallow foveae, moderately and uniformly pilose except glabrate postero-dorsal area in T2–3. Ovipositor moderately stout, slightly upcurved, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 12 teeth, widely spaced; surface anterior to first tooth rugulose.

Color: Head black, mesosoma black and bright orange, metasoma black and whitish. Head: black; mandible dark brown; palpi ferruginous; clypeus, labrum, supraclypeal area and complete orbital band, whitish (230,219,178); f7–10 entirely white, f6 and 11 partially white. Mesosoma: bright orange (195,082,041); pronotum mostly black, pronotal collar and narrow dorsal margin connected, buff (215,188,123); propleuron laterally whitish; mesoscutum and scutellum centrally, black; scutellar carina, scutellum laterally, axillar carina, tegula, subalar ridge and epicnemium dorsally, whitish; fore and mid legs light orange towards apex, fore t5 and mid t3–5 brownish; hind second trochanter medially black; hind femur black except extreme base; hind tibia black, dorsally white on basal 0.6; basal 0.4 of hind t1 black, t2–5 white. Metasoma: black; T1 laterally orange, dorsally orange at anterior margin, gradually changing to black at anterior 0.4; T1–7 with posterior whitish stripes, expanding laterally at T2–7, T–8 only with lateral whitish marks; S2–6 whitish with lateral blackish marks.

Male. Fore wing 12.18 mm long. Similar to female, except for the following: mandible whitish except apex; yellowish marks on pronotum slightly more extensive; dark area of pronotum brownish instead of black; postscutellum whitish; metapleuron dorsally covered with the same wrinkling of propodeum, however less regular; juxtacoxal carina slightly stouter; cell 1+2Rs much wider than high, AWH 1.37, veins 2-M and 3-M about same length; blackish dorsal area of T1 almost reaching anterior margin.

Variation. Epicnemium and part of mesosternum sometimes pale yellow. Color tones varying from dark (153,064,044) to light orange (218,149,059), and from light yellow (221,199,131) to brownish (170,125,081).

Comments. Similar to *M. nigriscutus* **sp. nov.**, from which it can be isolated mainly by having propodeum entirely orange (vs. anterior area and part of posterior area black); collar pale yellow or whitish (vs. pronotum entirely black); mesopleuron dorsally orange (vs. black); orbital band complete (vs. widely interrupted near dorsal margin of eye); and hind tibia mostly blackish, with whitish marks (vs. entirely bright yellow). Also somewhat similar to *M. convexus* **sp. nov.**, from which it can be differentiated mainly by the orbital band complete (vs. widely interrupted at gena); propodeal wrinkles moderately widely spaced (vs. very closely spaced); posterior transverse carina of propodeum distinct as moderately strong sublateral crests (vs. entirely absent); hind femur and tibia mostly blackish (vs. hind femur orange, hind tibia deep yellow).

Biology. Unknown.

Etymology. From the Latin words *albus*, meaning “white”, *ater*, meaning “black” and *artus*, meaning “limb”; in reference to the mostly black and whitish hind leg.

Material examined. 2 ♀♀, 5 ♂♂. Holotype ♀ from COSTA RICA, Alajuela, Peñas Blancas, 700 m, V.1987, E.Cruz. Pinned. In good shape.

Paratypes: 1 ♀ from COSTA RICA, Alajuela, Peñas Blancas, 700 m, VI.1987, E.Cruz; 1 ♂, same data except 7.VII.1987. 1 ♂ from COSTA RICA, Escazú 22.V.1987, Townes & Townes; 1 ♂, same data except 23.V.1987; 1 ♂, same data except 25.V.1987; 1 ♂, same data except 26.V.1987 (AEIC).

Distribution. Recorded from two localities in Costa Rica (Fig. 290).

***Messatoporus allomeros* Santos, sp. nov.**

(Figs 70, 196, 291)

Female. Fore wing 11.12 mm. HEAD: Mandible densely covered with long hairs; MLW 1.93; MWW 0.44; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.28. Clypeus almost entirely flattened, centrally concave; CHW 2.5; CWW 2.71; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, very weakly striate near antennal sockets, ventrally and around ocelli distinctly concave, with slight median line. Occipital carina dorsally acuminate, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrate, shiny, scarcely punctate, ventrally with strong wrinkles; epomia strong, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.21 \times$ as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, anteriorly densely punctate, posteriorly almost impunctate; notaulus reaching about 0.73 of mesoscutum length, deeply impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.81 \times$ as long as anterior area of propodeum, asperous; metapleuron moderately punctate, without transverse wrinkles, covered with moderately dense, very short hairs; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.11 \times$ as long as wide, shiny, moderately pilose; anterior area sparsely punctate, with a median cluster of punctures; spiracle elongate, SWL 5.33; anterior transverse carina medially slightly arched backwards. Propodeal wrinkles strong, closely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina faintly suggested as a stronger wrinkle.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.6 of its own length; vein 2Cua $0.7 \times$ as long as crossvein

2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.67, subquadratic, about as high as wide, AWH 1.11; crossvein 3r-m partially spectral, 2r-m and 3r-m subparallel, 3r-m distinctly longer; vein 3-M almost indistinct; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.19; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.97 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.34 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 2.86; T1WW 1.81; spiracle on 0.55 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 0.95; T2WW 2.04; thyridium about as long as wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriarius, moderately and uniformly pilose. OST 1.69; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 5 teeth, widely spaced; surface anterior to first tooth rugulose.

Color. Head, meso- and metasoma black and whitish. Head: black; clypeus, basal 0.3 of mandible, mouthparts, supra-clypeal area, ventral spot at scape and orbital band shortly interrupted at malar space, whitish (225,214,156); f7–12 entirely white, f6 almost entirely white, f13 with small white spot. Mesosoma: black; pronotal collar, dorsal margin of pronotum, propleuron, central spot on mesoscutum, scutellar carina, scutellum except posterior 0.15, axillar carinae, tegula, subalar ridge, central mark on mesopleuron, mesosternum, dorsal division of metapleuron, metapleural triangle, transverse sulcus medially, metapleuron except small posterior spot and arc-shaped, subquadratic mark on propodeum, whitish; fore coxa whitish, fore first trochanter whitish with small orange mark; fore second trochanter, femur, tibia and t1–4 light yellow, femur dorsally with longitudinal orange stripe; fore and mid t5 blackish; mid coxa whitish, mesal face with longitudinal orange stripe on apical 0.8; mid trochanters and femur dorsally bright orange, ventrally deep yellow; mid tibia and t1 deep yellow, t2–4 dark fuscous; hind coxa anteriorly light orange, posteriorly whitish with lateral mark extending on apical 0.8; hind trochanters and femur bright orange with dorsal yellow marks; hind tibia deep yellow, hind tarsus gradually turning from deep yellow to whitish. Metasoma: black; T1 whitish, dorsally black at median 0.3, laterally at median 0.4; S1 whitish; T2–7 with posterior whitish stripe not reaching posterior margin, also extending laterally on T4–7; S2–6 whitish, with progressively smaller blackish lateral marks; T8 laterally whitish, dorsally with oblique whitish marks.

Male. Unknown.

Variation. Specimen from Suriname with fore wing 8.70 mm long; mandible whitish except apex; mesopleuron dorsad to anterior 0.4 of sternaulus and mesosternum ventrad to posterior 0.25 of sternaulus; anterior margin of metapleuron black; yellow mark on propodeum arc-shaped, not subquadratic; longitudinal stripe at fore femur blackish; ovipositor slightly upcurved.

Comments. More similar to *M. amplithorax* sp. nov., from which it can be differentiated by the central mark on mesopleuron ventrally wider (vs. distinctly S-shaped); area over sternaulus whitish (vs. black); mid and hind coxa mostly yellow, with extensive orange marks (vs. almost entirely orange); yellow mark on propodeum distinctly arc-shaped (vs. medially interrupted and forming two distinct lateral marks); scape with whitish ventral spot (vs. entirely black); mandible basally whitish (vs. entirely black); ovipositor straight, dorsal valve with four moderately strong ridges (vs. slightly upcurved, dorsal valve with five ridges); and T2 without basal yellowish spots. Also similar to *M. transversostriatus*, from which it can be isolated by the absence of yellowish spots at anterior area of propodeum; mid and hind coxa mostly yellow (vs. entirely orange); yellow mark on propodeum arc-shaped; T1 short, about $0.34 \times$ as long as T2–8 (vs. moderately long, $0.42 \times$ as long as T2–8), and stouter, T1LW 2.86 (vs. 4.12); ovipositor longer, OST 1.69 (vs. 1.31), dorsal valve with four ridges (vs. five).

Biology. Unknown.

Etymology. From the Greek words *alloios*, meaning “of another kind”, and *meros*, meaning “thig”; in reference to the unique color pattern of the hind coxa.

Material examined. 2 ♀♀. Holotype ♀ from COLOMBIA, Bolivar, SFF Colorados, Diana, 150 m, 2–16.XII.2000, Malaise trap, EDeulufeut (AEIC). Pinned. Right fore leg apicad to first trochanter missing; otherwise in good shape.

Paratype: 1 ♀ from SURINAME, Nickerie, baruba Kreek, km 1609, on the way to Amotopo, 17–29.IX.1980, Malaise trap, Hoogmoed & Paats, [prinzalrbos? 100 m] (RMNH).

Distribution. Recorded from lowlands of central Colombia and northern Suriname (Fig. 291).

***Messatoporus amarelus* Santos, sp. nov.**

(Figs 39, 167, 211, 276, 292)

Female. Fore wing 5.58 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 2.12; MWW 0.5; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.29. Clypeus basally evenly convex, apically gradually flattened or basally convex, apically abruptly flattened, centrally concave; CHW 2.2; CWW 2.44; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance distinctly longer than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia very weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, subcircular, $1.14 \times$ as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.65 of mesoscutum length, weakly impressed (apically faint), surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina complete, reaching subalar ridge, distinctly sinuous; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture without wrinkles. Mesosternum medially with short transverse wrinkles (very weak); median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about $0.74 \times$ as long as anterior area of propodeum, impunctate; metapleuron sparsely and finely punctate, without transverse wrinkles, sparsely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.03 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elliptic, SWL 2.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles weak, very closely spaced, central wrinkles complete, anterior and posterior ones medially faint, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.38 of its own length; vein 2Cua $0.29 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.58, pentagonal, about as high as wide, AWH 0.88; crossvein 3r-m absent; vein 3-M about as long as 2-M; 4-Rs straight, apically slightly upcurved; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.85; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.86 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.35 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally densely pilose; T1LW 3.7; T1WW 1.38; spiracle on 0.52 of its length, slightly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.42; T2WW 2.19; thyridium about as long as wide, without small circular depression just behind it; T2–8 smooth between punctures, densely and uniformly pilose. OST 1.25; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with three moderately strong ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma mostly orange, metasoma fuscous and ferruginous. Head: black; f10–13 entirely white, 9 and 14 partially white; scape and pedicel ventrally ferruginous; clypeus, mandible except apex, palpi, supra-clypeal area and orbital band broadly interrupted at temple, whitish. Mesosoma: bright orange (212,119,052); collar whitish; central lobe of mesoscutum and anterior area of propodeum light brown (142,076,048); fore and mid tibiae yellow, tarsi fuscous; hind tibia basal 0.8 yellow, changing to blackish on apical 0.2; hind tarsus white except basal 0.6 of T1 and most of t5, blackish. Metasoma: ferruginous and T1 ferruginous, medially fuscous; T2–8 anteriorly fuscous, posteriorly yellow (235,203,056), posterior tergites almost entirely fuscous.

Male. Fore wing 4.75–5.35 mm long. Similar to female, except for the following: tones of orange at mesoscutum and propodeum generally darker (165,079,045); scape ventrally whitish; antenna with 23–24 flagellomeres; orbital band extending at most of gena; pronotum sparsely marked with blackish; central lobe of mesoscutum, scutellum posteriorly, postscutellum, anterior area of propodeum and median 0.5 of T1 dorsally, dark brown; mid first trochanter with dorsal blackish mark.

Variation. Second female with fore wing 6.09 mm long; flagellomere 9 entirely white, 8 partially white; scape and pedicel ventrally whitish; brown marks at mesosoma very weak.

Comments. Similar to *M. apertus*, from which it can be differentiated mainly by having generally smaller size, fore wing 4.75–5.58 mm (vs. 7.28–10.50); T2–8 with distinct basal dark brown marks (vs. entirely orange or with weak fuscous or blackish marks); cluster of bristles at mesal lobe of hind t4 small, reduced to 3–4 bristles (vs. distinct, represented by numerous bristles); and fore wing crossvein absent (vs. present, though spectral). It does also resemble *M. aurantius* **sp. nov.**, from which it can be separated by the ovipositor straight (vs. slightly upcurved); hind tibia apically blackish (vs. entirely yellowish); and epomia epicnemial carina complete (vs. epomia distinct only after diverging from collar and epicnemial carina reaching about 0.6 of distance to subtegular ridge).

Biology. Unknown.

Etymology. Latinized form of the Portuguese word *amarelo*, meaning “yellow”; in reference to the partially yellow metasoma, and also to the type locality name, *Pau Amarelo* (yellow wood).

Material examined. 2 ♀♀, 6 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Cariacica, Reserva Biológica de Duas Bocas, Pau Amarelo, Pt. 19, 23–25.X.2005, yellow pans, APAGuiar *et al* (UFES). Mounted on triangle point. Right mid leg apicad to coxa missing; otherwise in good shape.

Paratypes: 1 ♀ from BRAZIL, Espírito Santo, Cariacica, Reserva Biológica de Duas Bocas, Pau Amarelo, Pt. 13, 23–25.X.2005, yellow pans, APAGuiar *et al.* (UFES). 1 ♂ from BRAZIL, Paraná, Colombo, Embrapa Br476 km 20, 23.III.1987, Malaise trap, PROFAUPAR; 1 ♂, same data except Guarapuava, Estação de águas Santa Clara, 10.XI.1986; 1 ♂, same data except 16.III.1986; 1 ♂, same data except 17.III.1986; 1 ♂, same data except 3.XI.1986; 1 ♂, same data except 8.XII.1986 (DZUP).

Distribution. Atlantic Forest in southern and southeastern Brazil (Fig. 292).

***Messatoporus amazonensis* Santos, sp. nov.**

(Figs 9, 106, 200, 208, 293)

Female. Fore wing 5.94 mm. HEAD: Mandible densely covered with long hairs; MLW 2; MWW 0.35; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.16. Clypeus almost entirely flattened, centrally straight; CHW 2.54; CWW 3; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, very weakly striate restricted to ventral corner; epomia very weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, ovoid, 1.27 × as long as wide, glabrate, shiny, minutely punctulate; notaulus reaching about 0.67 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, distinctly sinuous; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about 1.04 × as long as anterior area of propodeum, very weakly rugulose; metapleuron sparsely and finely punctate, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with external face changing from basally foveolate-areolate to apically coriarius, internal face with sparse and fine punctures.

PROPODEUM: $1.26 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elliptic, SWL 3.00; anterior transverse carina medially straight. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, anterior and posterior wrinkles complete, central ones incomplete and overlapped, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.46 of its own length; vein 2Cua $0.25 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.729, pentagonal, about as high as wide, AWH 0.98; crossvein 3r-m absent; vein 3-M about as long as 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.01; vein Cub almost straight, very slightly convex, forming straight angle with Cua; vein 2-1A reaching 0.74 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.34 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.95; T1WW 1.45; spiracle on 0.49 of its length, distinctly prominent; median depression elongate, very shallow; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent. T2LW 1.75; T2WW 1.71; thyridium longer than wide, without small circular depression just behind it; T2–8 smooth between punctures, densely and uniformly pilose. OST 0.69; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma black and whitish; metasoma mostly orange. Head: black; clypeus, mandible except apex, mouthparts, supra-clypeal area, scape and pedicel ventrally and complete orbital band, whitish (233, 222, 178); scape and pedicel dark brown; flagellum dark brown, blackish towards apex, ventrally lighter; f8–14 entirely white, f7 and f15 partially white. Mesosoma: black; pronotum except small mark at posterior margin midlength, propleuron, subcircular spot on mesoscutum, scutellar carina, scutellum except posterior 0.05, tegula, subalar ridge, dorsal portion of hypopleuron, most of ventral portion of mesopleuron, mesosternum, dorsal division of metapleuron, transverse sulcus except longitudinal median line, metapleuron, metasternum and arc-shaped mark on propodeum, whitish; fore and mid tibia and fore trochanters whitish; fore femur and tibia ventrally whitish, dorsally orangish with narrow brown line; mid trochanters sparsely marked with whitish and brown; mid femur light orange, ventrally whitish on basal 0.2; mid tibia yellowish, mid t1–4 light fuscous, t5 blackish; hind coxa whitish, with wide longitudinal black stripe; hind trochanters marked with whitish and brown, femur bright orange (225, 146, 042), basal 0.8 of tibia yellowish, apical 0.2 and basal 0.3 of hind t1 blackish; apical 0.7 of t1 and t2–5 white. Metasoma: bright orange; anterior 0.4 and posterior 0.2 of T1 whitish, median portion black, laterally extending almost to tergite base; T2 with posterior white stripe.

Male. Fore wing 4.66–5.42 mm long. Differs from female essentially by the following: posterior blackish mark on propodeum medially triangular, reaching anterior black area, leaving only two oblique, ovoid yellow marks on propodeum; hind trochanters almost entirely dark brown; hind femur with small basal and apical blackish marks; blackish marks at hind tibia and t1 more extensive, covering apical 0.25 of tibia and basal 0.7 of t1; T1–7 and S1–6 anteriorly brown, with progressively shorter posterior white stripes.

Variation. Fore wing 5.82–6.69 mm long. Posterior portion of pronotum sometimes with black area covering up to 20% of its surface; mesopleuron and mesosternum sometimes mostly or entirely black, except for subalar ridge and small rounded spot at ventral mesopleuron; apical black area on propodeum sometimes almost indistinct; hind coxa sometimes marked with orangish ventrally to blackish longitudinal mark; T2–7 sometimes basally brown. One male specimen with T2 basally orange.

Comments. Very similar to *M. propodeator*, from which it can be differentiated by having T3–8 entirely bright orange (vs. anteriorly brown, posteriorly whitish); fore wing crossvein 3r-m entirely absent (vs. distinct, though spectral); hind wing vein Cub almost straight, very weakly convex (vs. distinctly convex on posterior half); supra-antennal area without median depression (vs. with median depression); and mesosternum medially with short transverse wrinkles (vs. without transverse wrinkles).

Biology. Unknown.

Etymology. Latinized construction for “from Amazon”; in reference to its mostly Amazonian distribution.

Material examined. 15 ♀♀, 13 ♂♂. Holotype ♀ from BRAZIL, Pará, Melgaço, Floresta Nacional de

Caxiuanã, Trilha Igarapé Curua, Pt. M7, 17–23.XI.2003, Malaise trap, APAGUIAR *et al.* (MPEG). Mounted on triangle point. Right antenna and left fore t2–5 missing; otherwise in good shape.

Paratypes: 1 ♂ from TRINIDAD, Arima Valley, 800–1200 m, 10–22.II.1964, JGROZEN & PWYGODZINSKI (AMNH). 1 ♀ 1 ♂ from COLOMBIA, Magdalena, PNN Tayronna, Cañaverl, 30 m, 30.VIII–19.IX.2000, HENRIQUEZ; 1 ♀, same data except 28.VII–14.VIII.2000; 1 ♂, same data except 225 m, 1–19.IX.2000; 2 ♂♂, same data except, 19–30.IX.2000; 1 ♀ 2 ♂♂, same data except SFF Tayrona Pueblito, 1–19.IX.2000, RHENRIQUEZ; 1 ♂, same data except 30.IX–26.X.2000; 1 ♀, same data except 29.VII–14.VIII.2000. 4 ♀♀ 2 ♂♂ from COLOMBIA, Choco, Camp. Sautata, Rio Atrato, 12–14.X.1967 (AEIC). 1 ♀ from FRENCH GUYANA, Nouragues, Saut Parraré, 22.IX.2009, S.E.A.G (UFES). 1 ♂ from ECUADOR, Sucumbios, Rio Napo, Sacha Lodge, 290 m, 3–16.VIII.1994, PHIBBS; 1 ♂, same data except 1–31.XII.1994. 1 ♀ from ECUADOR, Pastaza, Kapawi, 300 m, 6–20.III.1966, Malaise trap, PHIBBS. 2 ♀♀ from BRAZIL, Pará, Tucuruí, I.1979, MALVARENGA; 1 ♂, same data except Utinga, Belém, XII.1966, SJOLIVEIRA (AEIC). 1 ♀ from BRAZIL, Pará, Melgaço, Floresta Nacional de Caxiuanã, Estação Científica Ferreira Penna, Pt. P05143, 22–25.XI.2003, yellow pans, APAGUIAR *et al.*; 1 ♀, same data except Trilha Igarapé Curua, Pt. M7, 17–23.XI.2003, Malaise trap (MPEG). 1 ♀ from BRAZIL, Mato Grosso, Chapada dos Guimarães, 800 m, VII.1983, MALVARENGA (AEIC).

Distribution. *Messatoporus amazonensis* seems to be widely distributed at northern South America, mainly in equatorial forests, but also with one record from Brazilian Cerrado (Fig. 293).

***Messatoporus amplithorax* Santos, sp. nov.**

(Figs 68, 187, 253, 294)

Female. Fore wing 10.11 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.59; MWW 0.47; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.33. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.59; CWW 2.29; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli distinctly concave, with slight median line. Occipital carina uniformly curved, apically very faint, meeting hypostomal carina far from mandible base. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum sparsely pilose, shiny, scarcely punctate, ventrally moderately striate; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, 1.29 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, anteriorly densely foveolate, posteriorly scarcely punctate; notaulus reaching about 0.74 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, distinctly sinuous; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about 0.72 × as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron moderately punctate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: 1.16 × as long as wide, shiny, moderately pilose; anterior area moderately punctate; spiracle elongate, SWL 5.00; anterior transverse carina medially straight. Propodeal wrinkles strong, closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.67 of its own length; vein 2Cua 0.75 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.59, subquadratic, about as

high as wide, AWH 1.18; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M almost indistinct; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.05; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.93 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.34 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally densely pilose; T1LW 3.27; T1WW 1.75; spiracle on 0.5 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.17; T2WW 2.09; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, densely and uniformly pilose. OST 1.56; ovipositor moderately stout, slightly upcurved, basally cylindrical, apically slightly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 5 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and pale yellow. Head: black; clypeus, mouthparts, supra-clypeal area and complete orbital band, pale yellow (219,197,129); f7–11 entirely white, f12 mostly white, f13 basally white. Mesosoma: black; collar, dorsal margin of pronotum, propleuron laterally, subcircular spot on mesoscutum, scutellar carina, scutellum except posterior margin, tegula, subalar ridge, central mark on mesopleuron, most of mesosternum, dorsal division of metapleuron, metapleuron except anterior margin and small posterior spot, pale yellow; pale yellow, arc-shaped mark on propodeum medially interrupted forming two distinct lateral marks; fore leg pale yellow, except posterior face of coxa, dorsal stripe at first trochanter and femur and ventral mark at tibia, black; fore t5 blackish; mid and hind coxae deep orange (175,094,059), with small pale yellow and blackish basal marks; mid and hind trochanters and extreme base of mid femur bright orange, mid first trochanter and hind second trochanter with dorsal blackish mark; mid femur ventrally pale yellow, dorsally blackish; hind femur blackish; mid and hind tibiae and tarsi pale yellow, darker apically. Metasoma: black; T1 with anterior 0.5 dorsally and posterior 0.2 pale yellow; S1 pale yellow; T2 anteriorly with sublateral pale yellow marks, at lateral midlength with oval pale yellow spot; T2–7 with posterior pale yellow stripes, T2–5 with very narrow brownish posterior lines over pale yellow area; S2–6 pale yellow, S2–5 with progressively smaller lateral marks; T8 with lateral pale yellow mark.

Male. Fore wing 6.02–8.57 mm long. Very similar to female, except for the following: mandible except apex and malar space, pale yellow; antenna with 26–27 flagellomeres; black marks at fore coxa, fore, mid and hind trochanters and hind femur less extensive to absent; T2 without anterior marks.

Variation. Fore wing 8.83–10.71 mm long. Antenna sometimes with 23 flagellomeres; yellow area at dorsal margin of pronotum sometimes very narrow; mesosternum sometimes mostly black; metapleural triangle sometimes yellow; propodeal pale yellow marks sometimes medially connected; pale yellow and black basal marks at mid and hind coxae sometimes indistinct; hind femur sometimes dorsally or almost entirely orange; anterior pale yellow marks at T2 sometimes medially connected. Pale yellow areas sometimes buff (214,168,096).

Specimen from Minas Gerais with several differences from those from Rio Grande do Sul, as follows: mesoscutum about $1.12 \times$ as long as wide; epicnemial carina medially with distinct longitudinal wrinkles; apical longitudinal black mark on propodeum not connected to basal black area, so that a complete arc-shaped mark is present; dark brown marks at fore leg less extensive; mid coxa pale yellow with longitudinal blackish mark on apical 0.8; mid trochanters pale yellow with blackish marks; hind coxa pale yellow with two black marks, dorsal one extending on apical 0.8, medially narrow; hind trochanters and femur pale orange, with sparse blackish marks; hind tarsus pale yellow; T2 without anterior yellow marks. This specimen may be actually part of a new, close species, but in the absence of a variation series, and given its overall similarity with *M. amplithorax*, it is preferable not to describe it as a new species.

Comments. Very similar to *M. interceptus* **sp. nov.**, from which it can be differentiated by having orbital band complete (vs. interrupted at dorsal margin of eye); propodeum large, in lateral view almost as high as thorax (vs. small and somewhat rounded, distinctly shorter than thorax in lateral view – Fig. 69); T1 laterally at least partially blackish (vs. laterally yellow); central mark on mesopleuron somewhat S-shaped (vs. approximately rectangular); and ovipositor dorsal valve with five moderately strong ridges (vs. three).

Also very similar to *M. transversostriatus*, from which it can be isolated by having anterior area of propodeum entirely black (vs. with two sublateral yellowish spots); yellow marks at posterior area wider posteriorly (vs. wider anteriorly; Figs 183, 181); T2 anteriorly with sublateral ovoid yellowish marks (vs. without anterior marks); mandible entirely black (vs. mostly pale yellow); central mark on mesopleuron distinctly separated from yellow

spot at subalar ridge (vs. connected with spot at subalar ridge or almost so); anterior transverse carina medially straight (vs. slightly arched forwards); and ovipositor ventral valve with five teeth (vs. eight). It can be further differentiated from *M. titans* **sp. nov.** by having mid and hind coxae and hind trochanters and femur mostly bright to deep orange (vs. coxae yellow and black, trochanters and femur dark brown).

Male specimens can be mistaken as males of *M. euryoikos* **sp. nov.**, because the mid and hind leg color pattern of the males of the latter species are much different from the female, which seems more similar to the males of *M. amplithorax* **sp. nov.**. However, males of *M. euryoikos* can be recognized as such by the posterior marks on propodeum, very similar to those of females (vs. much wider on midlength in *M. amplithorax*); and postscutellum pale yellow to whitish (vs. black).

Biology. Unknown.

Etymology. From the Latin *amplus*, meaning “large”, and *thorax*; in reference to its stout mesosoma.

Material examined. 9 ♀♀, 6 ♂♂. Holotype ♀ from BRAZIL, Rio Grande do Sul, Capão do Leão, 7 m, 28.II.2003, Malaise trap, RFKrüger (UFES). Mounted on triangle point. In good shape.

Paratypes: 1 ♂ from BRAZIL, Espírito Santo, Santa Teresa, Estação Biologica Santa Lucia, Trilha principal, 6–12.XI.2009, suspended Malaise trap at 6 m, MTTavares *et al.* 1 ♀ from BRAZIL, Minas Gerais, Parque Estadual do Rio Doce, Área da Tereza, primary forest, Pt. 1, 17–24.VI.2003, Malaise trap, JCRFontenelle. 1 ♀ from BRAZIL, Rio Grande do Sul, Arroio Grande, 101 m, 5.III.2004, Malaise trap, RFKrüger; 1 ♂, same data except Capão do Leão, 7 m, 19.III.2004; 1 ♀, same data except 2.IV.2004; 1 ♀, same data except 27.II.2004; 1 ♂, same data except 5.III.2004; 1 ♀, same data except 9.IX; 1 ♂, same data except Pelotas, 16 m, 28.II.2003; 1 ♀, same data except 7.II.2003; 1 ♂, same data except 21.II.2003; 1 ♂, same data except 16.I.2004; 1 ♀, same data except 5.XII.2003 (UFES). 1 ♀ from URUGUAY, Cerro Largo, Sierra de Vaz, Rio Tacuari, 20 km SE Melo, 23–26.III.1963, JKBouseman (AMNH).

Distribution. Subtropical lowland areas in southern Brazil and Uruguay, and one record for Atlantic Forest at southeastern Brazil (Fig. 294).

***Messatoporus andinus* Santos, sp. nov.**

(Figs 94, 118, 149, 244, 255, 295)

Female. Fore wing 8.70 mm. HEAD: Mandible densely covered with long hairs; MLW 2.07; MWW 0.44; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.37. Clypeus basally evenly convex, apically gradually flattened, centrally concave; CHW 2.34; CWW 2.27; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 28 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, coriarius, very weakly striate near antennal sockets, ventrally and around ocelli slightly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, shiny, punctate-rugulose, with moderately strong wrinkles at ventral half of posterior margin; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, 1.48 × as long as wide, densely covered with short hairs, mat, minutely colliculate; notaulus reaching about 0.72 of mesoscutum length, weakly impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove shallow, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about 0.7 × as long as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron minutely rugulose-colliculate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa entirely coriarius.

PROPODEUM: 0.96 × as long as wide, mat, densely pilose; anterior area asperous and densely punctulate; spiracle elongate, SWL 3.64; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles weak, very closely spaced, ramificated and irregular, anteriorly incomplete and posteriorly mostly complete, anteriorly distinctly arched forwards, posteriorly distinctly arched backwards; posterior transverse carina distinct as moderately strong crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.28 of its own length; vein 2Cua 0.66 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.93, pentagonal, about as high as wide, AWH 0.88; crossvein 3r-m partially spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.29; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.94 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.36 × as long as T2–8, approximately cylindrical, ventrolaterally rounded, uniformly, densely pilose; T1LW 4.84; T1WW 1.24; spiracle on 0.49 of its length, slightly prominent; median depression elongate, very shallow; median posterior depression absent; lateral depressions elongate, distinct; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 2.01; T2WW 2.27; thyridium longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriarius, densely and uniformly pilose. OST 0.81; ovipositor slender, slightly sinuous, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma black and whitish, metasoma dark brown and whitish. Head: black; clypeus centrally, labrum, palpi basally, dorsal half of supra-clypeal area and orbital band widely interrupted at malar space, whitish (236,223,165); palpi apically, scape and pedicel ventrally, brownish orange; flagellum basally dark brown, blackish towards apex; f8–11 entirely white, f7 mostly white, f12 with small white spot. Mesosoma: black; pronotal collar, dorsal margin of pronotum, scutellar carina, posterior 0.6 of scutellum, axillar carina, postscutellum, tegula, subalar ridge, small central mark on mesopleuron, small spot at ventral margin of mesopleuron, dorsal division of metapleuron, dorso-posterior 0.3 of metapleuron and sublateral marks on propodeum, whitish; all coxae dark brown, hind one with small posterior whitish mark; fore and mid trochanters, femora and tibiae light orange (228,169,066); fore t1 light orange; mid t1 and fore and mid t2–4 dark fuscous, fore and mid t5 blackish; hind first trochanter light orange, second trochanter marked with light orange and dark brown; hind femur, extreme base of tibia, apical 0.75 of tibia, basal 0.4 of t1, ventral mark at t4 and t5, blackish; sub-basal 0.2 of hind tibia, apical 0.6 of t1 and t2–4, white. Metasoma: blackish; T1 whitish, dorsally dark brown at median 0.4; S1 light orange; T2–7 and S2–6 with posterior whitish stripes, T8 with lateral whitish stripe.

Male. Fore wing 8.30–9.63 mm long. Similar to female, except for the following: supra-clypeal area entirely yellowish; antenna with 29–31 flagellomeres; white band at flagellum distinct only dorsally; fore and mid coxae extensively marked with yellowish; fore and mid trochanters and femur yellowish, dorsally with longitudinal brown stripe; fore and mid tibiae whitish, basal 0.6 ventrally with longitudinal brown line; fore t1–4, basal 0.4 of mid t1 and mid t2–4 whitish; yellow mark at hind coxa more extensive; T1 laterally black.

Variation. Fore wing 8.70–10.60 mm long. Antenna sometimes with 29 flagellomeres. Older specimens present less extensive yellow marks, which seems to be due to discoloration of the specimen associated with its long age. This tendency was not observed in any other species, and may complicate species determination. The paratype specimen from Zamora, Ecuador, collected in 1970, lacks the yellow marks on mesopleuron, and has the remaining yellow areas less extensive than the holotype (collected in 1981). The specimen from Banos, Ecuador, collected in 1939, lacks most of yellow areas on head and mesosoma, which are represented only by reddish brown marks. Among the male specimens, these variations also occur. The color differences might represent “real” variation instead of effects due to collecting or age of specimen, but even so they would still be likely intra-specific variation. The species is recognized and defended as discussed below.

Comments. *Messatoporus andinus* can be recognized by the following combination of characters: mesopleuron with shallow depressions, one posterior to ventral 0.3 of epicnemial carina, covered with oblique and somewhat regular wrinkles, and one represented by a small pit dorsad to sternaulus midlength; scrobe moderately

deep and covered with moderately strong wrinkles; metapleuron covered by the same wrinkling of propodeum, however less regular; posterior transverse carina propodeum more or less distinct, forming weak to moderately strong sublateral crests; fore wing crossvein 2Cu about $0.7 \times$ as long as 2cu-a; cell 1+2Rs of moderate size, APH 0.93, crossveins 2r-m and 3r-m distinctly convergent; ovipositor slender, apically slightly depressed, dorsal valve without ridges, ventral valve with eleven teeth.

Biology. Unknown.

Etymology. Latinized form for “from the Andes”; in reference to its largely Andinean distribution.

Material examined. 10 ♀♀, 12 ♂♂. Holotype ♀ from VENEZUELA, Tabay, 2200 m, 1.V.1981, Townes (AEIC). Pinned. In good shape.

Paratypes: 1 ♂ from COLOMBIA, Bogota, Slindig (ZMHB). 1 ♀ from VENEZUELA, Tabay, 2200 m, 30.IV.1981, Townes; 2 ♀♀, same data except “31.IV.1981”; 1 ♀, same data except Yacambu, 13.V.1981, 1200 m; 1 ♀, same data except Merida, 20.VI.1965, Paramorov. 1 ♀ from ECUADOR, Banos, 2300 m, 10.V.1939, WClake-MacIntyre; 2 ♀♀, same data except 25.V.1939 (AEIC); 1 ♂, same data except Tungurahua, 1900 m, 27.XII.1981, MCooper (BMNH). 1 ♀ from ECUADOR, Zamora, Loja, 1800 m, 16.XI.1970, LPena. 2 ♂♂ from PERU, Machu Picchu, 28.XI.1965, Townes & Townes; 1 ♂, same data except 29.XI.1965; 1 ♂, same data except 1.XII.1965 (AEIC). 1 ♂ from PERU, Amazonas, Chachapoyas, 2,800 m, 25.III.1984, Mcooper (BMNH). 1 ♂ from PERU, Lima, San Geronimo, ca. CHosica, 28.VI.1976, CPorter, CCalmbacher. 1 ♂ from PERU, La Libertad, Samme, ca. 40 km NE Trujill, 1500 m, 12–17.VII.1975, CPorter & LStange (FSCA). 1 ♂ from ARGENTINA, Jujuy, 15.I.1966, Townes & Townes; 1 ♂, same data except Vila Nogue, 8.I.1966; 1 ♂, same data except 13–17.I.1966 (AEIC).

Distribution. Widely distributed along the Andes, from western Venezuela to northern Argentina (Fig. 295). Record are comprise altitudes of 1200–2800 m above sea level.

***Messatoporus anepomius* Santos, sp. nov.**

(Figs 88, 244, 296)

Female. Fore wing 7.68 mm. HEAD: Mandible densely covered with long hairs; MLW 2.04; MWW 0.46; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.27. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.09; CWW 1.86; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 23 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, coriarius, distinctly striate near antennal sockets, ventrally and around ocelli slightly concave, without median line. Occipital carina uniformly curved, apically weak, meeting hypostomal carina far from mandible base. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum moderately pilose, mat, almost entirely striate, ventrally with strong wrinkles; epomia absent. Mesoscutum strongly and uniformly convex, subcircular, $1.13 \times$ as long as wide, densely covered with short hairs, mat, densely punctulate; notaulus reaching about 0.79 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.85 of distance to subalar ridge (, apically faint), irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, slightly arched forwards. Transverse sulcus at base of propodeum moderately wide, about $0.68 \times$ as long as anterior area of propodeum, anteriorly weakly colliculate, posteriorly with very weak longitudinal wrinkles; metapleuron minutely rugulose, without transverse wrinkles, densely covered with very short hairs; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.12 \times$ as long as wide, mat, densely pilose; anterior area asperous and densely punctulate; spiracle elliptic, SWL 3.44; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly and laterally faint, posteriorly moderately strong, very closely spaced, mostly complete, often ramificated, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more

or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.35 of its own length; vein 2Cua $0.55 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.7, pentagonal, about as high as wide, AWH 0.9; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs somewhat irregular, apically slightly upcurved; 4-M spectral, weakly sinuous. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.23; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.84 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.35 \times$ as long as T2–8, approximately cylindrical, ventrolaterally angled, uniformly, densely pilose; T1LW 6.96; T1WW 2.04; spiracle on 0.5 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina weak. T2LW 1.19; T2WW 2; thyridium longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriaceous, densely and uniformly pilose. OST 1.04; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 11 teeth, 1st, 2nd and 3th widely spaced; surface anterior to first tooth rugulose.

Color. Head dark brown, mesosoma light orange and dark brown, metasoma dark brown. Head: dark brown (078,061,050); clypeus centrally light fulvous; mouthparts, dorsal spot at supra-clypeal area and orbital band shortly interrupted at malar space, bright yellow (079,061,050); scape and pedicel ventrally light brown; f8–13 entirely white, f7 and f14 partially white. Mesosoma: light orange (211,099,042); most of pronotum, axillar carinae, postscutellum, anterior area of propodeum medially and area over anterior transverse carina, dark brown; small spot at pronotal collar, dorsal margin of pronotum, scutellar carina, posterior half of scutellum, tegula and subalar ridge, bright yellow; fore coxa and first trochanter dark brown; second trochanter, femur, tibia and t1–4, whitish; fore femur dorsally and fore tibia ventrally with longitudinal brown stripes; fore and mid t5 blackish; mid and hind coxae with apical dark brown mark; mid trochanter with sparse dark brown marks; mid femur dark brown, except lateral face light orange; mid tibia dorsally whitish, ventrally dark brown; mid t1–4 light brown; hind trochanters and femur dark brown; extreme base and apical 0.75 of hind tibia, basal 0.5 of t1 and t4–5, blackish; sub-basal 0.2 of hind tibia, apical 0.5 of t1 and t2–3, whitish. Metasoma: dark brown; anterior 0.25 and sub-posterior 0.25 of T1, and S1, light orange; T1–4 and 7–8 with distinct posterior whitish stripes; T5–6 with almost indistinct lighter posterior lines; S2–3 light brown, S2–6 with posterior whitish stripes.

Male. Unknown.

Comments. Readily recognized by the following combination of characters: supra-clypeal area mostly blackish; pronotum dark brown except narrow whitish line at dorsal margin; mesopleuron and propodeum bright orange; hind coxa bright orange with apical dark brown mark; pronotum almost entirely striate; and epomia absent. More similar to *M. argentinus*, from which can be isolated by the characters above and also by the T5–6 without whitish or yellow marks, metasomal sternites mostly dark brown (vs. mostly yellowish) and ovipositor moderately stout, its dorsal valve with four moderately strong ridges (vs. ovipositor slender, dorsal valve without ridges).

Biology. Unknown.

Etymology. From the Greek prefix *an-*, meaning “not”, and epomia; in reference to the absence of epomia.

Material examined. Holotype ♀ from ECUADOR, Napo, Baeza, 1550 m, 15–19.V.1987, Brown & Coote (AEIC). Pinned. Fore right wing ripped posteriorly; left fore wing detached and re-glued to the specimen; otherwise in good shape.

Distribution. Recorded only from the type locality, in Ecuador (Fig. 296).

***Messatoporus antennator* Kasparyan & Ruíz 2005**

(Figs 123, 264, 297)

**Messatoporus antennator* Kasparyan & Ruíz 2005: 106–107. Description, distribution, keyed. Holotype ♂ (UATM, not examined). Type data: México, Tamaulipas, Gómez Farías, Alta Cima, 940 m, Malaise trap, 26.VI–3.VII.1999, S. Hernández A.

Messatoporus antennator: Kasparyan & Ruíz 2008: 309–311, 313–314, 373. Description, distribution, figure, keyed.

Female. Not examined. According to Kasparyan & Ruíz, similar to male, except for the following: fore wing 6.0

mm long; antenna with 25 flagellomeres; f8–14 entirely white, f7 partially white; pronotum with small posterior black spot; epicnemium entirely black; anterior black mark on propodeum not extending to posterior area; fore femur posteriorly with dorsal brownish stripe; mid tarsus light brown, t3–4 whitish; dorsal blackish stripe at hind coxa narrow; hind trochanters blackish, apically and ventrally yellowish; hind tibia orange, distinctly blackish on basal 0.12 and apical 0.25.

Male (Figs 123, 260). Fore wing 7.76 mm. **HEAD:** Mandible densely covered with moderately long hairs; MLW 2.2; MWW 0.37; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.33. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.59; CWW 2.12; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 27 flagellomeres; flagellum uniform. Supra-antennal area shiny, coriarius, not striate near antennal sockets, ventrally and around ocelli slightly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, apically very faint, meeting hypostomal carina far from mandible base. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, sparsely pilose at dorsal margin, shiny, impunctate, with moderate striation along posterior margin and collar; epomia moderately strong, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, ovoid, $1.3 \times$ as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 0.76 of mesoscutum length, deeply impressed, surface over notaulus not wrinkled; scuto-scutellar groove deep, with distinct longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, ventrally straight, dorsally slightly curved; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.76 \times$ as long as anterior area of propodeum, asperous; metapleuron punctate-rugulose, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.32 \times$ as long as wide, shiny, moderately pilose; anterior area medially almost impunctate, laterally moderately punctate; spiracle elliptic, SWL 3.4; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly weak, posteriorly strong, closely spaced, anteriorly faint at median portion, posteriorly complete, anteriorly strongly curved, posteriorly somewhat irregular; posterior transverse carina distinct as moderately strong crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.34 of its own length; vein 2Cua $0.46 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.38, subquadratic, distinctly wider than high, AWH 1.96; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.11; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.86 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.35 \times$ as long as T2–8, approximately cylindrical, ventrolaterally rounded, uniformly, moderately pilose; T1LW 5.97; T1WW 1.29; spiracle on 0.47 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 3.12; T2WW 1.56; thyridium much longer than wide, without small circular depression just behind it; T2–8 minutely and very weakly coriarius, densely and uniformly pilose.

Color: Head and mesosoma black and whitish, metasoma mostly dark brown and light yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, whitish (231, 222, 179); f11–26 white, white area gradually ventrally reduced, only apical flagellomere entirely orange. Mesosoma: mostly pale yellow; mesoscutum except subcircular spot, scuto-scutellar area, apex of scutellum, both axillary through, axillar carinae medially, postscutellum, epicnemium, area of mesopleuron just

ventral to subalar ridge, scrobe, part of hypoepimeron, scrobe, transverse sulcus and propodeum except arc-shaped mark, black; fore and mid coxa and trochanters, whitish; mid trochanters with small brownish marks; fore femur mostly light yellow, basally whitish, with dorsal brownish mark at base; fore tibia whitish with dorsal brownish mark; t1–4 whitish, t5 brown; mid second trochanter, femur and tibia, pale orange, with small brownish marks at second trochanter and extreme base and apex of femur, tibia with ventral brownish stripe on basal 0.7 t1–2 and t5 dark brown, t3–4 whitish; hind coxa whitish with longitudinal blackish stripe, wider basally; hind trochanters mostly dark brown with orange marks; hind femur bright orange with basal and apical dark brown marks at dorsal face; basal 0.15 and apical 0.2 of hind tibia and basal 0.25 of t1, dark brown; median 0.65 of hind tibia bright orange; tarsus except brown area, whitish. Metasoma: mostly blackish; anterior 0.4 dorsally and posterior 0.2 of T1, whitish; S1 whitish; T2–7 with apical, progressively wider, light yellow stripe; S2–6 anteriorly light brown, posteriorly whitish.

Variation. Fore wing 6.0–7.5 mm. long. Specimen from Sinaloa yellow areas paler (211, 190, 113), with small posterior mark on pronotum and ventral 0.7 of epicnemium pale yellow, only with small black spot near anterior apex of sternaulus.

Comments. The males of *M. antennator* can be readily differentiated by the apical portion of the flagellum almost entirely white, with only one or two apical flagellomeres being entirely orange or blackish (Fig. 260). This is a very distinctive character, exclusive of this species among *Messatoporus*, and apparently, among all Cryptinae. According to Kasparyan and Ruíz (2008), the female of *M. antennator* is very similar to *M. tibiator*, from which it can be differentiated by the hind second trochanter black (vs. orange, but sometimes with dorsoposterior blackish mark), posterior margin of mesopleuron black (vs. with distinct yellowish spot dorsally to hypoepimeron), and by having distinct sublateral crests on propodeum (vs. absent or very weak). In fact, only one female of *M. antennator* is known. It may eventually correspond to an unusual specimen of *M. tibiator*, particularly because it was collected at the same site of other females of the latter species (see “Distribution” for both species, Figs 278, 297). Also, at least some of the examined species of *M. tibiator* have distinct sublateral crests on propodeum. They are, thus, intermediaries between the original definition of *M. antennator* and *M. tibiator*. In that case, the female of *M. antennator* would still be unknown.

Biology. Unknown.

Material examined. 2 ♂♂. 1 ♂ from MEXICO, Chiapas, L. Montebello National Park, 1525 m, 26.VI.1969, Malaise trap. 1 ♂ from MEXICO, Sinaloa, 15 mi. W El Palmito, 1525 m, 4.VIII.1964, WRMMason (CNCI).

Distribution. Northern to southern Mexico (Fig. 297). The records correspond to humid areas, with altitude from 400–1525 m.

***Messatoporus apertus* (Taschenberg 1876)**

(Figs 36, 168, 210, 246, 298)

**Mesostenus apertus* Taschenbrg 1876:90. Description. Holotype ♀ (MLUH, examined). Type data: [Brazil, Rio de Janeiro] N. Frib. [Nova Friburgo]

Mesostenus apertus: Dalla Torre 1902. Listed.

Mesostenus apertus: Schmiedeknecht 1908:53. Listed.

**Messatoporus apertus*: Townes & Townes 1966:123. Generic transfer.

Messatoporus apertus: Yu & Horstmann 1997:274. Listed.

Messatoporus apertus: Yu *et al.* 2005. Listed.

Female. Fore wing 10.50 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.97; MWW 0.37; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.2. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.44; CWW 1.74; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, impunctate, very weakly striate near antennal sockets, not distinctly concave or convex, with slight median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, with weak and short wrinkles along posterior margin of collar (and posterior margin); epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, subcircular, $1.22 \times$ as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.65 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina complete, reaching subalar ridge, distinctly sinuous; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture without wrinkles. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about $0.84 \times$ as long as anterior area of propodeum, very weakly rugulose; metapleuron sparsely and finely punctate, covered with the same wrinkling of propodeum, however less regular, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter, changing to coriarius-colliculate at interior face.

PROPODEUM: $1.24 \times$ as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elliptic, SWL 3.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.35 of its own length; vein 2Cua $0.25 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.67, pentagonal, about as high as wide, AWH 1.12; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, 3r-m distinctly shorter; vein 3-M about as long as 2-M; 4-Rs somewhat irregular, apically slightly upcurved; 4-M tubular, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.81; vein Cub almost straight, very slightly convex, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.81 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.36 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.65; T1WW 1.88; spiracle on 0.42 of its length, slightly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.22; T2WW 2.18; thyridium very shallow, about as wide as high, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.05; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 10 teeth, 1st and 2nd widely spaced; surface anterior to first tooth rugulose.

Color. Head black; meso and metasoma mostly bright orange (211, 105, 38). Head: black; scape and pedicel ventrally ferruginous; f9–13 entirely white, 8 and 14, partially white; mandible except apex and small basal triangle, palipi and supra-clypeal area whitish (241, 230, 204). Mesosoma: bright orange; fore and mid legs gradually darker towards apex, tarsi dark fuscous; hind tibia basal 0.6 light ferruginous, apical 0.4 blackish; hind tarsus white, except basal 0.2 of t1 and apical 0.4 of t5, blackish. Metasoma: mostly orange to fuscous; anterior 0.5 of T2–8 marked with dark fuscous or blackish.

Male. Unknown.

Variation. Fore wing 7.28–10.50 mm long. Scape and pedicel ventrally ferruginous to whitish; propodeum sometimes apically infuscated with black; hind tibia with up to apical 0.6 blackish; T1 usually marked with dark fuscous near spiracle; basal 0.5 of T2–8 dark orange to blackish, usually darker at T2–3. Metasoma bright orange to fuscous (172, 090, 046).

Comments. Similar to *M. amarelius* **sp. nov.**, from which it can be differentiated mainly by having generally larger size, fore wing 7.28–10.50 mm long (vs. 4.75–5.58); T2–8 entirely orange or with weak fuscous or blackish marks (vs. with distinct basal dark brown marks); cluster of bristles at mesal lobe of hind t4 distinct, represented by numerous bristles (vs. small, reduced to 3–4 bristles); and fore wing crossvein present, though spectral (vs. absent). It also resembles *M. aurantius* **sp. nov.**, from which it can be separated by the ovipositor straight (vs. slightly upcurved); hind tibia apically blackish (vs. entirely yellowish); and epomia epicnemial carina complete (vs. epomia distinct only after diverging from collar and epicnemial carina reaching about 0.6 of distance to subtegular ridge).

Biology. Unknown.

Material examined. 14 ♀♀. **Holotype** ♀ from BRAZIL, Rio de Janeiro, Nova Friburgo. Pinned. In good shape. **Other specimens:** 1 ♀ from BRAZIL, Mato Grosso, Sinop, X.1975, MAlvarenga. (AEIC). 1 ♀ from BRAZIL, Espírito Santo, Domingos Martins, Pico do Eldorado, B8, 3.XII–10.XII.2004, Malaise trap, MTTavares *et al.*; 1 ♀, same data except B5; 1 ♀, same data except Santa Maria de Jetibá, Fazenda Paulo Seick, B4, 29.XI–6.XII.2002, MTTavares, COAzevedo *et al.*; 1 ♀, same data except Fazenda Clarindo Kruger, Pt. T6; 1 ♀, same data except Santa Leopoldina, Alto das Farinhas, P1, 14.V–24.V.2008, CWAichert & Furieri. 1 ♀ from BRAZIL, Rio de Janeiro, Teresópolis, Parque Nacional da Serra dos Órgãos, A3, 31.X–5.XI, Malaise trap, 2004, ALGPeronti *et al.* (UFES). 1 ♀ from BRAZIL, São Paulo, São José do Barreiro, Serra da Bocaina, XI.1969, 1650 m, Alvarenga & Seabra. 1 ♀, from BRAZIL, Paraná, Campina Grande, nr. Curitiba, 10.II.1966, Townes & Townes (AEIC). 1 ♀, same data except Guarapuava, Estação de águas Santa Clara, 6.X.1986, Malaise trap, PROFAUPAR; 1 ♀, same data except Ponta Grossa, Reserva IAPAR, Br376, 13.IV.1987. 1 ♀ from BRAZIL, Santa Catarina, Nova Teutonia, 300–500 m, XII.1967, FPlaumann (DZUP). 1 ♀, same data except II.1968 (AEIC).

Distribution. Recorded from several sites at the Brazilian Atlantic Forest, from Nova Teutonia (Santa Catarina) to Santa Maria de Jetibá (Espírito Santo), but also with one record in central Brazil (Mato Grosso), in an area of Cerrado, a savannah-like vegetation (Fig. 298). The lack of other records between Atlantic coast and central Brazil can be due to poor sampling effort at those regions, but it is noteworthy that *M. apertus* was not recorded after years-long collecting efforts at southern Bahia, eastern Minas Gerais or central São Paulo. Also, all of the northernmost records (at Rio de Janeiro and Espírito Santo) are from highlands, therefore with colder temperatures more similar to those at southern Brazil. Thus, the species seems to be more typical of areas with moderate temperatures.

***Messatoporus apiopharkis* Santos, sp. nov.**

(Figs 52, 299)

Female. Fore wing 10.1 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.79; MWW 0.44; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.31. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.49; CWW 2.42; apical area medially straight, laterally slightly projected, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, distinctly striate near antennal sockets, ventrally and around ocelli distinctly concave, medially with a distinct depression but without a distinct line. Occipital carina dorsally distinctly bell-shaped, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrate, shiny, impunctate, ventrally with strong wrinkles; epomia strong, distinct only after diverging from pronotal collar, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, $1.37 \times$ as long as wide, glabrate, shiny, anteriorly scarcely punctate, posteriorly almost impunctate; notaulus reaching about 0.7 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum moderately wide, about $0.54 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.1 \times$ as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elongate, SWL 5.33; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles strong, moderately widely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly irregular, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.84 of its own length; vein 2Cua $0.35 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.53, subquadratic, distinctly wider than high, AWH 1.27; crossvein 3r-m partially spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M spectral, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.35; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.89 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.34 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 3.21; T1WW 1.71; spiracle on 0.49 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.27; T2WW 1.87; thyridium longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriarius, moderately and uniformly pilose except glabrate postero-dorsal area in T2–3. OST 1.49; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 9 teeth, 1st, 2nd and 3rd widely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma black and pale yellow, metasoma orange. Head: black; clypeus, basal 0.4 of mandible, mouthparts, supra-clypeal area and complete orbital band, pale yellow (233,215,149); f6–8 entirely white, f5 partially white, f9 dorsally white, f10–12 with dorsal white marks. Mesosoma: black; pronotal collar, dorsal margin of pronotum, propleuron, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron, most of mesosternum, dorsal division of metapleuron, metapleuron except anterior and posterior borders and arc-shaped mark on propodeum, pale yellow; fore and mid legs pale yellow, somewhat lighter towards apex; all coxae with large black mark at mesal face; fore and mid coxae, trochanters and femora dorsally with longitudinal black stripe; fore tibiae with ventral blackish stripe; fore and mid t5 blackish; mid t3–4 fuscous; hind coxa with posterior longitudinal black stripe; hind first trochanter with basal black mark, dorsally extending on basal 0.5; second trochanter and femur dark orange; hind tibia basally bright yellow, orange on apical 0.4; hind tarsus bright yellow, apically whitish. Metasoma: bright orange (198,087,046); T1 pale yellow, with black mark at median 0.4, laterally extending to basal 0.3; S1 pale yellow; T2 with small anterior and lateral blackish marks.

Male. Unknown.

Variation. General tone of yellow varying from almost white to buff.

Comments. Very similar to *M. euryoikos* **sp. nov.**, from which it can be differentiated by having mid and hind coxae yellow and black (vs. mostly orange); posterior area of propodeum with one arc-shaped mark (vs. with two ovoid longitudinal yellow marks); postscutellum yellow (vs. black); flagellum flattened and widened at subapical 0.3 (vs. with uniform width); apical area of clypeus medially straight (vs. concave); epomia and wrinkles on pronotum strong (vs. weak); propodeal wrinkles moderately widely spaced (vs. closely spaced); and ovipositor ventral valve with nine teeth (vs. six). It is also similar to *M. lordos* **sp. nov.**, which differs from *M. apiopharkis* by having posterior area of propodeum with two sublateral, subtriangular marks (Fig. 184); mesosternum black (vs. mostly yellow); metapleuron mostly black (vs. almost entirely yellow); and propodeum densely punctate (vs. scarcely punctate), with anterior transverse carina medially distinctly arched backwards (vs. slightly arched forwards).

Biology. Unknown.

Etymology. From the Greek words *apios*, meaning “far” and *pharkis*, meaning “wrinkle”; in reference to the widely spaced propodeal wrinkles.

Material examined. 2 ♀♀ Holotype ♀ from ECUADOR, Pichincha, Tinalandia, 800 m, II.1983, Malaise trap, M. Sharkey (AEIC). Pinned. Tip of right antenna broken and regaled in the specimen; otherwise in good shape.

Paratype: 1 ♀, same data as holotype.

Distribution. Recorded only from the type locality, in Ecuador (Fig. 299).

***Messatoporus arcuatus* (Cresson 1874)**

(Figs 75, 237, 300)

**Mesostenus arcuatus* Cresson 1874: 156. Description, keyed. Holotype ♀ (ANSP, not examined). Type data: México, Orizaba.

Mesostenus arcuatus: Dalla Torre 1902. Listed.

Mesostenus arcuatus: Schmiedeknecht 1908:53. Listed.

**Messatoporus arcuatus*: Townes 1946: 32. Generic transfer.

Messatoporus arcuatus: Townes & Townes 1966: 123. Listed.

Messatoporus arcuatus: Yu & Horstmann 1997:274. Listed

Messatoporus arcuatus: Yu *et al.* 2005. Listed.

Messatoporus arcuatus: Kasparyan & Ruíz 2005: 106, 109. Distribution, keyed.

Messatoporus arcuatus: Kasparyan & Ruíz 2008: 308, 310, 314. Diagnosis, distribution, figure, keyed.

Female. Holotype ♀. Fore wing 10.24 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.78; MWW 0.45; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.25. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.53; CWW 6.14; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, impunctate, distinctly striate near antennal sockets, ventrally and around ocelli distinctly concave, dorsally with very weak median line, ventrally fading. Occipital carina dorsally acuminate, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum sparsely pilose, shiny, impunctate, ventrally with strong wrinkles; epomia moderately strong, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.24 \times$ as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, asperous; notaulus reaching about 0.69 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with distinct longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, distinctly sinuous; sternaulus moderately strong, wider on posterior apex, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter moderately long, straight. Transverse sulcus at base of propodeum moderately wide, about $0.54 \times$ as long as anterior area of propodeum, impunctate; metapleuron with very fine and moderately dense punctures, without transverse wrinkles, moderately pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: $1.15 \times$ as long as wide, shiny, moderately pilose; anterior area scarcely punctate; spiracle elongate, SWL 6.5; anterior transverse carina medially straight. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, anteriorly faint at median portion, posteriorly partly complete and partly incomplete, mostly slightly curved or somewhat sinuous; posterior transverse carina distinct as very weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed around its midlength; crossvein 1m-cu more or less uniformly curved, totally continuous with 1-Rs+M; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.58 of its own length; vein 2Cua $0 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.37, subquadratic, distinctly wider than high, AWH 1.22; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M almost indistinct; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.23; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.8 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.49; T1WW 1.75; spiracle on 0.56 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.11; T2WW

1.93; thyridium longer than wide, with small circular depression just behind it; T2–8 minutely and very weakly coriarius, moderately and uniformly pilose except glabrate postero-dorsal area in T2–3. OST 1.74; ovipositor moderately stout, slightly upcurved, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 9 teeth, 1st and 2nd widely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and whitish. Head: black; clypeus, basal 0.4 of mandible, mouthparts, supra-clypeal area, ventral spot at scape and complete orbital band, whitish (229, 214, 146); f7–12 entirely white, f6 partially white, f13–14 dorsally white. Mesosoma: black; collar, dorsal margin of pronotum, propleuron, subcircular spot on mesoscutum, scutellar carina, scutellum except posterior margin, axillar carinae, tegula, subalar ridge, central mark on mesopleuron, mesosternum, dorsal division of metapleuron, metapleural triangle centrally, metapleuron except posterior apex and arc-shaped mark on propodeum, yellow (225, 212, 118); fore and mid coxae and first trochanters whitish, fore coxa with posterior face and weak apical mark dark brown, mid one with distinct apical mark and small posterior spot dark brown; first trochanters with basal dark brown mark; fore and mid second trochanter, femur, tibia and tarsus bright yellow (224, 179, 056), second trochanters basally dark brown, femora with dorsal dark brown stripes, fore tibia with ventral brownish mark on basal 0.7, mid tarsus fuscous, fore and mid t5 blackish; hind coxa whitish with three longitudinal stripes, anterior and posterior ones reaching 0.6 of its length, lateral one basally wider, apically bifurcated and reaching coxa apex; hind first trochanter whitish with basal blackish mark; second trochanter blackish, with apical 0.2 dark yellow; hind femur with extreme base dark yellow, otherwise bright yellow, with anterior and posterior dark brown stripes apically connected; hind tibia bright yellow, hind tarsus basally bright yellow, whitish towards apex. Metasoma: black; anterior 0.4 and posterior 0.2 of T1 whitish; T2–5 with sub-posterior whitish stripes, T6–7 with posterior whitish stripes; T8 with lateral whitish marks; S1–6 whitish, S2–4 with progressively smaller brown lateral marks.

Male. Not examined. According to Kasparyan & Ruíz (2008), very similar to the female except for the following: mandible yellow (except apex); antenna with 27 flagellomeres; and T1–7 with apical blackish stripe.

Variation. Fore wing 8.46–10.24 mm. long. Mandible sometimes almost entirely black, scape sometimes entirely black; subalar ridge sometimes connected to central mark on mesopleuron; sublateral crests on propodeum sometimes conspicuous; one specimen with posterior dark line also at T6; whitish areas sometimes turning to pale yellow (226, 208, 114); ovipositor very slightly to distinctly upcurved.

Comments. *Messatoporus arcuatus* can be readily recognized by the posterior border of T2–4 black (sometimes also on T1 and T5; in males, all tergites posteriorly black) and T8 in dorsal view with a somewhat Y-shaped blackish mark. Superficially similar to the species from the *compressicornis* group (see Comments under *M. compressicornis*). In addition to the characters above, it can be isolated from species of that group by the following: flagellum uniform, not flattened at subapical 0.3; apex of apical flagellomere much narrower than base (vs. about as wide as base); ovipositor longer (OST 1.74) and slightly upcurved (vs. straight, OST 0.86–1.24); and scutellum black (vs. yellow).

Biology. Unknown.

Material examined. 10 ♀♀, 2 ♂♂. Homotype ♀ (by Townes) from MEXICO, Nayarit, Vic Compostela, 10.VI.1933 (AEIC). 1 ♀ from MEXICO, Tamaulipas, Gomez Farías, Reserva El Cielo, Los Cedros, 27.VII.1993, night light, Mquinn (TAMU). 1 ♀ from EL SALVADOR, Cerro Verde, 915 m, 1.V.1971, HHowden. 1 ♀ from COSTA RICA, Alajuela, pena Blanca, V.1987, ECruz; 1 ♀ from COSTA RICA, Guanacaste, San Rosa Park, Dry hill, 8.XII.1977, DHJanzen; 1 ♂, same data except 20.IX.1977. 1 ♂ from COSTA RICA, Escazú, 25.V.1987, Townes & Townes. 1 ♀ from COSTA RICA, Puntarenas, Monteverde, 9.II.1968, CPalmer; 1 ♀, same data except I–II.1963. (AEIC). 1 ♀ from PANAMA, Canal Zone, Barro Colorado Island, IV–V.1942, JZetek; 1 ♀, same data except 14.VI.1939; 1 ♀, same data except El Cemen, I.1941 (USNM).

Distribution. Widely distributed from northern Mexico to Panama, with records also at Costa Rica and El Salvador (Fig. 300). All records are from tropical or subtropical forests.

Messatoporus argentinus Santos, sp. nov.

(Figs 87, 301)

Female. Fore wing 7.92 mm. HEAD: Mandible densely covered with long hairs; MLW 2.08; MWW 0.4; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.36. Clypeus

basally convex, apically abruptly flattened, centrally straight; CHW 2.03; CWW 1.91; apical area medially straight, laterally slightly projected, its margin regular, not raised. Antenna with 29 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, coriarius, very weakly striate near antennal sockets, ventrally and around ocelli slightly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, shiny, minutely punctulate, with moderate striation along posterior margin and collar; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, ovoid, $1.37 \times$ as long as wide, densely covered with short hairs, mat, densely punctulate; notaulus reaching about 0.75 of mesoscutum length, weakly impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum moderately wide, about $0.49 \times$ as long as anterior area of propodeum, with weak longitudinal wrinkles; metapleuron minutely rugulose, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.07 \times$ as long as wide, shiny, densely pilose; anterior area asperous and densely punctulate; spiracle elliptic, SWL 2.83; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles weak, very closely spaced, anteriorly complete and ramificate, posteriorly partly complete and partly incomplete and overlapped, anteriorly strongly curved, posteriorly somewhat irregular; posterior transverse carina distinct as moderately strong crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.36 of its own length; vein 2Cua $0.7 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.55, about as high as wide, AWH 1.12; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.33; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.89 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.39 \times$ as long as T2–8, approximately cylindrical, ventrolaterally angled, uniformly, densely pilose; T1LW 4.67; T1WW 1.35; spiracle on 0.5 of its length, slightly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina weak, medially interrupted. T2LW 1.52; T2WW 2.71; thyridium much longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriarius, densely and uniformly pilose. OST 0.63; ovipositor slender, slightly sinuous, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma bright orange and bright yellow, metasoma dark brown and pale yellow. Head: bright orange (201,082,046); clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area and complete orbital band, bright yellow (227,192,075); scape light orange; pedicel and flagellum blackish; f8–13 entirely white, f14 mostly white. Mesosoma: bright orange; pronotal collar, dorsal margin of pronotum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, dorsal division of metapleuron, small posterior mark on metapleuron and over propodeal crests, bright yellow; fore coxa light orange; fore and mid trochanters, femur, tibia and fore tarsus pale yellow; fore and mid trochanters and femur dorsally with longitudinal light brown stripe; fore tibia ventrally with longitudinal light brown stripe on basal 0.6; fore and mid t5 blackish; mid t1 and t4 brownish, t3–4 whitish; hind trochanters and femur dark brown; basal 0.4 of hind tibia, apical 0.8 of

t1 and t2–5 white; apical 0.6 of hind tibia, basal 0.2 of t1 and extreme apex of t5 blackish. Metasoma: dark brown; T1 anterior 0.25 and posterior 0.2 pale yellow; T2–7 with lateral and posterior pale yellow stripes; S2–6 pale yellow with lateral dark brown marks.

Male. Unknown.

Variation. Head sometimes dark brown; antenna sometimes with 28 flagellomeres.

Comments. Similar to *M. xanthogaster* **sp. nov.**, from which it can be differentiated by having T2 anteriorly dark brown, posteriorly pale yellow (vs. anteriorly light orange, posteriorly bright yellow); pronotum ventrally orange (vs. blackish); metapleuron with posterior yellow mark, propodeum with sublateral yellow marks (vs. metapleuron and propodeum without yellow marks); T7–8 in lateral view about same length of T5–6, or shorter (vs. longer than T5–6); ovipositor dorsal valve without ridges (vs. with four weak ridges).

Biology. Unknown.

Etymology. Latinized version for “from Argentina”; in reference to the known geographic records for the species, both from Argentina.

Material examined. 3 ♀♀. Holotype from ARGENTINA, Jujuy, 14.I.1966, Townes & Townes (AEIC). Pinned. Extreme tip of right antenna missing; left fore tarsus broken and re-glued to specimen; otherwise in good shape.

Paratypes: 1 ♀ from ARGENTINA, Tucumán, Tacanas, 7–17.XII.1968, LStange; 1 ♀ from ARGENTINA, Vila Nogués, 1.I.1966, Townes & Townes (AEIC).

Distribution. Recorded from two localities in northern Argentina (Fig. 301).

***Messatoporus atlanticus* Santos, sp. nov.**

(Figs 81, 220, 302)

Female. Fore wing 9.28 mm. HEAD: Mandible densely covered with long hairs; MLW 1.56; MWW 0.3; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.17. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.22; CWW 1.43; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 22 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, very scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow.

THORAX: Pronotum sparsely pilose, shiny (less shiny), mostly impunctate, scarcely punctate at dorsal corner and collar, with moderately strong wrinkles at ventral half of posterior margin; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, subcircular, $1.22 \times$ as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 0.7 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, without wrinkles or with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, weakly sinuous, with vestigial vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $1.05 \times$ as long as anterior area of propodeum, impunctate; metapleuron densely and finely punctulate, without transverse wrinkles, densely covered with very short hairs; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: $1.23 \times$ as long as wide, mat, moderately pilose; anterior area scarcely punctate (and faintly coriarius); spiracle elongate, SWL 3.6; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basal

of 1M+Rs by 0.49 of its own length; vein 2Cua $0.51 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.71, pentagonal, about as high as wide, AWH 0.85; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.22; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.91 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.38 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.48; T1WW 2.09; spiracle on 0.5 of its length, distinctly prominent; median depression subcircular, distinct; lateral and median posterior depressions absent; ventrolateral carina weak, medially interrupted. T2LW 1.09; T2WW 2.13; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.03; ovipositor moderately stout, straight, basally cylindric, apically distinctly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black with whitish marks. Head: black; clypeus, mouthparts, supra-clypeal area, ventral spot at scape and orbital band shortly interrupted at dorsal margin of eye, pale yellow (222,186,118); most of scape ventrally, dark brown; f8–12 entirely white, f7 and f13 partially white. Mesosoma: black; collar, propleuron, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae laterally, tegula, subalar ridge, central mark covering 0.8 of mesopleuron (with small black spot at scrobe), mesosternum (area over sternaulus black), dorsal division of metapleuron, transverse sulcus centrally, metapleuron and arc-shaped mark on propodeum, whitish; fore and mid coxa whitish with longitudinal blackish mark; fore and mid first trochanters whitish with small blackish mark basally; fore second trochanter, femur, tibia and tarsus, light yellow, except brownish dorsal mark at femur; mid second trochanter and femur light orange, femur with dorsal brownish stripe; mid tibia and tarsus light yellow, t5 blackish; hind coxa whitish, with three longitudinal marks, anterior one extending on basal 0.6, median one on apical 0.6 and connected to posterior mark, extended at entire length of coxa; hind first trochanter whitish with basal blackish mark, second trochanter blackish with apical yellow mark; hind femur blackish, with ventral mark on basal 0.5 light yellow; hind tibia and basal 0.4 of t1, bright yellow (236,210,113); apical 0.6 of t1 and t2–5, whitish. Mesosoma: black, turning to dark brown towards posterior tergites; anterior 0.5 of T1 dorsally whitish; T1–8 with posterior and lateral whitish stripe; S1–7 whitish, S3–6 with lateral brown mark.

Male. Fore wing 6.75–7.49 mm long. Very similar to female, except for the following: antenna with 20–25 flagellomeres; yellow marks on mesopleuron more extensive; apical 0.2 of hind tibia and basal 0.3 of t1, blackish; fore coxa entirely whitish, mid coxa with only small blackish marks; mid tarsus blackish; cell 1+2Rs smaller, APH about 0.35; T2–8 laterally dark brown, whitish stripes restricted to posterior margin.

Variation. Fore wing 8.57–10.06 mm long. Orbital band sometimes complete; antenna with 23–26 flagellomeres; pronotum of males sometimes entirely whitish; yellow mark at hind femur sometimes very small. Specimen from Nova Teutônia with median posterior depression of T1 distinct. All black areas sometimes reddish brown; whitish marks sometimes bright yellow.

Comments. Very similar to *M. caxiuanensis* **sp. nov.**, from which it can be differentiated by orbital band shortly interrupted at dorsal margin of eye (vs. complete); dorsal margin of pronotum black (vs. whitish and connected to whitish mark at collar); hind femur dark brown (vs. bright orange); propodeal wrinkles mostly slightly curved or somewhat sinuous (vs. distinctly curved backwards); and central mark on mesopleuron not connected to mark at subalar ridge (vs. narrowly connected).

Biology. Unknown.

Etymology. From a Latinized form of *Atlantic*; in reference to its distribution record, restricted to the Atlantic Forest domain, as opposed to the very similar species *M. caxiuanensis*, exclusively Amazonic.

Material examined. 10 ♀♀, 5 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Santa Maria de Jetibá, Fazenda Clarindo Kruger, Pt. T6, 29.XI–6.XII.2002, Malaise trap, MTTavares *et al.* (UFES). Mounted on triangle point. In good shape.

Paratypes: 1 ♂ from BRAZIL, Espírito Santo, Santa Maria de Jetibá, Fazenda Paulo Seick, Área 1, Pt. B3, 29.XI–6.XII.2002, Malaise trap, MTTavares *et al.* (UFES). 1 ♀ from BRAZIL, Paraná, Guarapuava, Estação de

águas Santa Clara, 20.X.1986, Malaise trap, PROFAUPAR; 1 ♀, same data except 27.X.1986; 1 ♂, same data except 5.I.1987; 1 ♀, same data except 6.IV.1987; 1 ♀, same data except Ponta Grossa, Reserva IAPAR, Br376, 13.X.1986; 1 ♀ 1 ♂, same data except Telêmaco Borba, Reserva Samuel Klabin, 1.XII.1986; 1 ♂, same data except 13.X.1986 (DZUP). 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 26.III.1954, FPlaumann; 1 ♀, same data except 22.X.1952 (AEIC); 1 ♀, same data except I.1969; 1 ♀, same data except XI.1968; 1 ♂, same data except II.1968 (CNCI).

Distribution. Atlantic Forest in southern and southeastern Brazil (Fig. 302).

***Messatoporus atrifoveus* Santos, sp. nov.**

(Figs 111, 202, 303)

Female. Fore wing 6.0 mm. HEAD: Mandible densely covered with long hairs; MLW 2.09; MWW 0.31; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.28. Clypeus basally evenly convex, apically gradually flattened, centrally straight; CHW 2.5; CWW 1.56; apical area medially concave, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 30 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, scarcely punctate, distinctly striate near antennal sockets, ventrally distinctly concave, with very weak, low median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, ventrally moderately striate; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, subcircular, $1.11 \times$ as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, scarcely punctate; notaulus reaching about 0.8 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum very wide, about $1.16 \times$ as long as anterior area of propodeum, posteriorly with longitudinal wrinkles; metapleuron punctate-rugulose, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa laterally foveolate-areolate, dorsally rugulose.

PROPODEUM: $1.28 \times$ as long as wide, shiny, sparsely pilose; anterior area moderately punctate; spiracle elongate, SWL 3.8; anterior transverse carina medially straight. Propodeal wrinkles moderately strong, very closely spaced, anteriorly complete, posteriorly mostly incomplete and overlapped, approximately straight; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.29 of its own length; vein 2Cua $0.37 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.61, pentagonal, about as high as wide, AWH 1.02; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly longer than 2-M; 4-Rs irregular, apically not upcurved; 4-M semi-spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.81; vein Cub almost straight, very slightly convex, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.8 of distance to posterior wing margin.

METASOMA: First tergite very long, about $0.47 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally densely pilose; T1LW 4.59; T1WW 1.63; spiracle on 0.51 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.64; T2WW 2.16; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly

pilose. OST 0.66; ovipositor slender, straight, basally cylindrical, apically distinctly depressed; dorsal valve without ridges; ventral valve apex with 8 teeth, 1st and 2nd widely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma black and pale yellow, metasoma dark brown and pale yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape and pedicel ventrally and complete orbital band, pale yellow (221,194,124); scape and pedicel dorsally and flagellum dark brown, blackish towards apex; f10–15 entirely white, f9 and f16 partially white. Mesosoma: mostly pale yellow; mesoscutum black with subcircular spot and small lateral longitudinal dashes, pale yellow; small marks at posterior pronotum, anterior margin of mesopleuron, and scrobe, axillary through of mesonotum, anterior portion of axillary through of metanotum, posterior 0.2 of scutellum, axillary carinae medially, postscutellum, ventral 0.5 of epicnemium except mark anterior to sternaulus, surface over sternaulus, transverse sulcus, and ventral margin of metapleuron anteriorly, black; anterior area of propodeum black with lateral sub-triangular pale yellow spots; posterior area anteriorly black, posteriorly with arched, somewhat triangular pale yellow mark; fore and mid legs pale yellow except brown stripe on basal 0.8 of dorsal femora and ventral tibiae, both t5 dark fuscous, dark brown ventral mark at mid first trochanter and mid tarsus blackish; hind coxa pale yellow with large longitudinal black stripe, basally expanded to a ring; hind first trochanter blackish; second trochanter yellowish with brown marks; hind femur brownish orange (177,107,047), with small marks basally orange, apically blackish; basal 0.25 of tibia, apical 0.75 of t1, t2–4 and basal 0.8 of t5, whitish; apical 0.75 of tibia, basal 0.25 of t1 and apical 0.2 of t5, blackish. Metasoma: dark brown (071,055,042); T1 black with anterior 0.4 dorsally and posterior 0.2 pale yellow; T2 blackish except thyridium orangish and posterior pale yellow stripe; T3–7 with posterior pale yellow stripe; S1–6 pale yellow, S2–5 with lateral brownish marks.

Male. Fore wing 6.75 mm long. Antenna with 27 flagellomeres. Very similar to female, except for anterior area of propodeum without yellow spots.

Variation. Fore wing 6.42–7.71 mm long. Paratype specimen with f9 entirely dark brown; mesoscutum without lateral dash; most black marks at mesosoma turning to dark brown; anterior area of propodeum without lateral marks; second hind trochanter with large dark brown spot.

Comments. Similar to *M. campanulatus* **sp. nov.**, from which it can be differentiated by having T1 very long, about $0.47 \times$ as long as T2–8 (vs. short, about $0.29 \times$ as long as T2–8); epicnemium mostly whitish (vs. almost entirely black); T5–6 with complete posterior yellowish stripe (vs. only with lateral yellowish marks); propodeal wrinkles approximately straight (vs. anteriorly and posteriorly slightly sinuous, median wrinkles medially strongly arched forwards, bell-shaped); and ovipositor dorsal valve without ridges (vs. with four moderately strong ridges). Also somewhat similar to *M. complexifemur* **sp. nov.**, from which it can be isolated by the femur orange (vs. base and apex dark brown, median portion dorsally light brown, ventrally yellowish); T1 very long (vs. short, $0.33 \times$ as long as T2–8); propodeal wrinkles approximately straight (vs. distinctly curved backwards); mesopleuron almost entirely yellowish, central mark connected to yellow subalar ridge (vs. distinctly separated from subalar ridge by black area); and ovipositor much shorter, OST 0.66, dorsal valve without ridges (vs. OST 1.02, dorsal valve with four moderately strong ridges).

Biology. Unknown.

Etymology. From the Latin words *ater*, meaning “black”, and *fovea*, meaning “pit”; in reference to the isolated black spot at scrobe.

Material examined. 2 ♀♀, 1 ♂. Holotype ♀ from BRAZIL, Espírito Santo, Cariacica, Reserva Biológica de Duas Bocas, Pau Amarelo, Pt. 20, 23–25.X.2005, yellow pans, APAGuiar *et al.* (UFES). Mounted on triangle point. Apical third of right antenna, apical two thirds of left antenna and right hind t5 missing; right hind leg broken and re-glued to the specimen; both hind rings largely folded, right hind wing partially ripped.

Paratypes: 1 ♂ from BRAZIL, Espírito Santo, Cariacica, Reserva Biológica de Duas Bocas, 16–17.IX.2006, Malaise trap, RKawada *et al.*; 1 ♀, same data except Pau Amarelo, Pt. 21, 25–27.X.2005, yellow pans, APAGuiar *et al.* (UFES).

Distribution. Recorded only from two neighbouring areas in the same reserve, in southeastern Brazil (Fig. 303).

***Messatoporus aurantius* Santos, sp. nov.**

(Figs 37, 304)

Female. Fore wing 8.53 mm. HEAD: Mandible densely covered with long hairs; MLW 1.86; MWW 0.48; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.18. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.43; CWW 1.87; apical area medially straight, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 23 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, with slight median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, wrinkles at posterior margin vestigial; epomia very weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, subcircular, $1.21 \times$ as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.76 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove shallow, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, medially indistinct, strongly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about $0.82 \times$ as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron moderately punctate, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with weak punctures separated by about their own diameter.

PROPODEUM: $1.25 \times$ as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elongate, SWL 4.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.5 of its own length; vein 2Cua $0.26 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.66, pentagonal, about as high as wide, AWH 0.88; crossvein 3r-m fully spectral (check), 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs straight, apically slightly upcurved; 4-M semi-spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HWIC 1.16; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.93 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.38 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally densely pilose; T1LW 3.54; T1WW 1.58; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.66; T2WW 1.44; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.2; ovipositor moderately stout, slightly upcurved, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 10 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black, meso and metasoma orange. Head: black; f8–12 entirely white, 13 partially white; scape ventrally ferruginous; clypeus, mandible except apex, palpi, supra-clypeal area, orbital band distinct only at supra-antennal area and near base of mandible, whitish (218,191,109). Mesosoma: orange (194,100,050); fore and mid legs gradually lighter towards apex; hind tibia yellow; hind tarsus whitish. Metasoma: orange, T3 marked with fuscous at median portion.

Male. Unknown.

Comments. Similar to *M. longicaudis* **sp. nov.**, from which it can be differentiated mainly by having shorter ovipositor, $1.20 \times$ as long as hind tibia (vs. 2.50), fore tibia distinctly swollen (vs. not swollen), propodeum in lateral view rounded, subspherical (vs. somewhat flattened), with very closely spaced wrinkles (vs. moderately closely spaced), fore wing crossveins 2r-m and 3r-m subparallel (vs. distinctly convergent), and vein 3-M about as long as 2-M (vs. distinctly longer). It is also similar to *M. apertus* and *M. amarellus*, from which it can be isolated by the ovipositor slightly upcurved (vs. straight), hind tibia entirely yellowish (vs. apically blackish), epomia distinct only after diverging from collar (vs. complete) and epicnemial carina reaching about 0.6 of distance to subtegular ridge (vs. complete).

Biology. Unknown.

Etymology. From the Latin *aurantium*, meaning “citrus” or “orange”; in reference to its almost entirely orange body.

Material examined. Holotype ♀ from BRAZIL, Paraná, Guarapuava, Estação de águas Santa Clara, 10.XI.1986, Malaise trap, PROFAUPAR (DZUP). Pinned. In good shape.

Distribution. Recorded only from the type locality, in southern Brazil (Fig. 304).

Messatoporus badius Santos, **sp. nov.**

(Figs 90, 164, 305)

Female. Fore wing 9.5 mm. HEAD: Mandible densely covered with long hairs; MLW 2.03; MWW 0.37; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth somewhat rhomboid. MSM 0.3. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.43; CWW 2.5; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 29 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, with moderately dense punctation, distinctly striate near antennal sockets, ventrally and around ocelli slightly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, mat, minutely punctulate or punctate-rugulose, with moderate striation along posterior margin and collar; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, $1.27 \times$ as long as wide, densely covered with short hairs, mat, densely punctulate; notaulus reaching about 0.77 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, more or less uniformly curved; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, distinctly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.82 \times$ as long as anterior area of propodeum, with strong longitudinal wrinkles; metapleuron punctate-rugulose, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.07 \times$ as long as wide, mat, densely pilose; anterior area shallowly foveolate; spiracle elongate, SWL 4.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, closely spaced, ramificated and irregular, rugulose anteriorly at lateral portions and posteriorly at median portion; posterior transverse carina faintly suggested as a stronger wrinkle, sublaterally forming weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs uniformly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.44 of its own length; vein 2Cua $0.73 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.75, pentagonal, about as high as wide, AWH 0.91; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M forming

straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.38; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.91 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.38 \times$ as long as T2–8, approximately cylindrical, ventrolaterally angled, uniformly, densely pilose; T1LW 4.8; T1WW 1.46; spiracle on 0.48 of its length, slightly prominent; median depression absent; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina very weak. T2LW 1.69; T2WW 2.83; thyridium much longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriaceous, densely and uniformly pilose. OST 1.04; ovipositor slender, slightly sinuous, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 10 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head, meso- and metasoma reddish brown. Head: reddish brown (151,069,049); dorsal spot at supra-clypeal area and orbital band widely interrupted at malar space and dorsal margin of eye, yellow (217,140,060); apical 0.5 of mandible and flagellum blackish; f5–13 whitish yellow, f4 and f14 with yellowish spots. Mesosoma: reddish brown; fore coxa, fore and mid trochanters and femur light orange, fore and mid tibia deep yellow; fore and mid t1–2 basally orange, apically dark fuscous, t3–4 dark fuscous, t5 blackish; hind tibia basally deep yellow, gradually turning to blackish on apical 0.25; basal 0.25 of t1 and t5 blackish; apical 0.75 of t1 and t2–4 whitish yellow. Metasoma: reddish brown; anterior 0.4 of T2–8 dark brown; S2–6 dark brown, with narrow posterior whitish stripe.

Male. Unknown.

Comments. Similar to *M. paradoxus* **sp. nov.**, from which it can be differentiated by having mesosoma and legs uniformly reddish brown (vs. mesosoma mostly mid brown, with mesosternum and coxae dark brown); T4–7 anteriorly dark brown, posteriorly brownish orange (vs. entirely bright orange); propodeal wrinkles distinct and moderately strong (vs. vestigial, most of posterior area areolate-rugulose); ovipositor dorsal valve without ridges (vs. with three very weak ridges); surface anterior to first tooth of ventral valve not rugulose (vs. rugulose) and epomia after diverging from collar distinctly curved (vs. approximately straight).

Biology. Unknown.

Etymology. From the latin *badius*, meaning “reddish-brown”; in reference to its body color.

Material examined. Holotype ♀ from GUATEMALA, Zacapa, San Lorenzo, 2200 m, XI.1986, M. Sharkey (AEIC). Pinned. Apical half of left antenna broken and re-glued to specimen; otherwise in good shape.

Distribution. Recorded only from the type locality, in highlands of Guatemala (Fig. 305).

***Messatoporus basiflavus* Santos, sp. nov.**

(Fig. 101)

Female. Fore wing 7.87 mm. HEAD: Mandible densely covered with long hairs; MLW 2.26; MWW 0.57; dorsal tooth in front view projected upwards, enlarged and wide, ventral tooth indistinct. MSM 0.31. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.45; CWW 2.35; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 23 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, with slight median line. Occipital carina uniformly curved (doubt), fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, with moderately strong wrinkles at ventral half of posterior margin; epomia weak, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, subcircular, $1.13 \times$ as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.73 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, smooth; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short

transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, straight. Transverse sulcus at base of propodeum moderately wide, about $0.55 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.07 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elongate, SWL 3.78; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly faint, posteriorly moderately strong, closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.47 of its own length; vein 2Cua $0.5 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.57, pentagonal, about as high as wide, AWH 0.95; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.6; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.73 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.32 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 3.32; T1WW 1.64; distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.24; T2WW 2.87; thyridium much longer than wide, without small circular depression just behind it; T2–8 smooth between punctures, laterally moderately pilose, dorsally T2 glabrate, T3–8 sparsely to moderately pilose. OST 1; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black with yellow marks. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area and complete orbital band, light yellow (231,211,095); f5–10 entirely white, f4 and f11 partially yellow. Mesosoma: black; collar, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron reaching ventral margin, dorsal division of metapleuron, posterior 0.4 of metapleuron and arc-shaped mark on propodeum, light yellow; fore leg light yellow, except basal mark at coxa, dorsal mark on basal 0.2 of femur and t5, blackish; dorsal face of femur pale orange; mid leg light orange (221,166,064) except t5, blackish; hind leg bright orange (200,086,049), except posterior mark at coxa and basal 0.75 of tibia, bright yellow; apical 0.25 of tibia gradually turning to blackish, 0.6 of hind t1 black; remainder of t1 and T2–3 white. Metasoma: black; T1 laterally entirely bright yellow, dorsally yellow at anterior 0.4 and posterior 0.2; S1 yellowish; T2–7 and S2–7 with posterior light yellow stripes.

Male. Unknown.

Comments. *Messatoporus basiflavus* is part of a group of five very close species; (Fig. 101–105; see Comments under *M. mesosternalis*). Among these species, it is more similar to *M. occidentalis* **sp. nov.**, from which it can be differentiated by having T1 laterally entirely yellow, dorsally yellow on basal 0.4 and posterior 0.2 (vs. black at anterior 0.8, whitish or yellowish on apical 0.2); S1 yellowish (vs. black); mid coxa mostly orange (vs. mostly whitish); and ovipositor ventral valve with nine teeth (vs. five).

Messatoporus basiflavus can be isolated from the other close species *M. mesosternalis*, *M. semiaurantigaster* **sp. nov.** and *M. orientalis* **sp. nov.** by the following combination of characters: orbital band complete; propodeum with distinctly arc-shaped whitish or yellowish mark; hind coxa, trochanter and femur mostly or entirely orange; hind tibia bright yellow on basal 0.75, blackish on apical 0.25; T2–8 black with posterior whitish or yellowish stripes.

Biology. Unknown.

Etymology. From the Latin words *basis*, meaning “base” and *flavus*, meaning “yellow”; in reference to the first metasomal tergite anteriorly yellow, as opposed to other very close species (see Comments).

Material examined. Holotype ♀ from PANAMA, Tuipo, VII.1922, JPChapin (USNM). Pinned. Extreme tip of right antenna, right fore leg apicad to coxa, both hind t4–5 and ovipositor sheaths missing; right fore wing detached and re-glued to the specimen; otherwise in good shape.

Distribution. Recorded only from the type locality, in Panama. The locality name on the label, “Tuipo”, is unknown.

***Messatoporus bennetti* Santos, sp. nov.**

(Figs 96, 150, 221, 286, 306)

Female. Fore wing 11.43 mm. HEAD: Mandible densely covered with long hairs; MLW 1.98; MWW 0.41; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.26. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.22; CWW 1.79; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Supra-antennal area shiny, with moderately dense punctation, not striate near antennal sockets, ventrally and around ocelli slightly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, mat, densely punctate, with moderate striation along posterior margin and collar; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.21 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.65 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching only 0.2 of distance to subalar ridge, after that represented by a wrinkled sulcus; sternaulus moderately strong, wider on posterior apex, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, arched backwards. Transverse sulcus at base of propodeum moderately wide, about $0.63 \times$ as long as anterior area of propodeum, impunctate; metapleuron densely punctate, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: $1.13 \times$ as long as wide, shiny, densely pilose; anterior area moderately punctate; spiracle elongate, SWL 5.27; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, closely spaced, anteriorly faint at median portion, posteriorly partly complete and partly incomplete, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.563 of its own length; vein 2Cua $0.73 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.85, pentagonal, distinctly wider than high, AWH 1.21; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous (and strong); 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 2.15; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.96 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.35 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 3.2; T1WW 1.89; spiracle on 0.51 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.17; T2WW 2.12; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely and very weakly coriarius, densely and uniformly pilose. OST 1.68; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 6 teeth, widely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black with pale yellow marks. Head: black; clypeus except margins and apical central mark, mouthparts and orbital band shortly interrupted at malar space and dorsal margin of eye, pale yellow (233,212,123); white band at flagellum starting at f7, partially white. Mesosoma: black; collar, short dash at dorsal margin of pronotum, subcircular spot on mesoscutum, scutellar carina, scutellum except apical margin, tegula two separate marks on mesopleuron, dorsal division of metapleuron, transverse sulcus centrally, central mark covering 0.6 of metapleuron and lateral marks on propodeum, pale yellow; fore leg pale yellow except most of fore coxa posteriorly, dorsal stripe on basal 0.6 of femur and t5, black; second fore trochanter and femur dorsally light orange; mid leg pale yellow except posterior face of coxa and dorsal stripe at trochanters and femur, black; hind tibia anteriorly black, posteriorly yellow with a black mark which is connected to the anterior black portion; hind trochanters, femur and apical 0.5 of tibia black; basal 0.5 of tibia and hind tarsus, pale yellow. Metasoma: black; anterior 0.4 of T1 pale yellow; T1–7 with posterior pale yellow stripes, progressively wider at posterior tergites; S1 black; S2–7 pale yellow except anterior stripe at T2–3.

Male. Unknown.

Comments. Similar in color pattern to *M. bimaculatus* **sp. nov.** and *M. unimaculatus* **sp. nov.**, from which it can be differentiated mainly by its generally larger size, fore wing 11.43 mm (vs. 5.94–8.25 mm long); orbital band widely interrupted at dorsal margin of eye (vs. complete); ovipositor much longer, OST 1.68 (vs. 0.66–0.84), moderately stout, dorsal valve with five moderately strong ridges (vs. slender, dorsal valve without ridges); T7–8 distinctly longer than T5–8 (vs. about as long as T5–6); and hind femur entirely black (vs. mostly orange).

Biology. Unknown.

Etymology. Named after the hymenopterist Andrew Bennett (CNCI); in acknowledgement of his valuable help in many steps of this work.

Material examined. Holotype ♀ from COSTA RICA, Puntarenas, Monteverde, 23.VIII–5.IX.1996, CCondy (CNCI). Mounted on triangle point. Right antenna, apical two thirds of left antenna and right mid tarsus missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in Costa Rica (Fig. 306).

***Messatoporus bicolor* Santos, sp. nov.**

(Figs 91, 307)

Female. Fore wing 5.1 mm. HEAD: Mandible densely covered with long hairs; MLW 2.36; MWW 0.52; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.28. Clypeus basally convex, apically abruptly flattened, centrally straight; CHW 2.17; CWW 2.36; apical area medially straight, laterally slightly projected, its margin very sharp, raised. Flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, with moderately dense punctation, not striate near antennal sockets, ventrally very weakly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, apically very faint, meeting hypostomal carina far from mandible base. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, shiny, mostly impunctate, scarcely punctate at dorsal corner and collar, ventrally moderately striate; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, ovoid, $1.26 \times$ as long as wide, densely covered with long hairs, shiny, densely punctate; notaulus reaching about 0.67 of mesoscutum length, deeply impressed, surface over notaulus not wrinkled; scuto-scutellar groove deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, irregular; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with weak longitudinal wrinkles along entire length. Transverse sulcus at base of propodeum moderately wide, about $0.67 \times$ as long as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron dorsally punctate-rugulose, ventrally foveolate-rugulose, without transverse wrinkles, densely pilose (doubt); juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: 1.21 × as long as wide, shiny, moderately pilose; anterior area moderately punctate; spiracle elliptic, SWL 2.71; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, closely spaced, anteriorly irregular and ramificate, medially faint, posteriorly complete, anteriorly strongly curved, posteriorly somewhat irregular; posterior transverse carina faintly suggested as a stronger wrinkle.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.15 of its own length; vein 2Cua 0.36 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 1.45, pentagonal, distinctly higher than wide, AWH 0.79; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved).

METASOMA: First tergite very long, about 0.46 × as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 2.51; T1WW 1.62; spiracle on 0.49 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.28; T2WW 1.91; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.07; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma dark brown, metasoma dark orange black. Head: black; mouthparts light brown; clypeus, mandible, malar space and flagellum dark brown; f9–11 entirely white; f12 dorsally, f13 with small white spot. Mesosoma: blackish; apex of metapleuron orange; legs dark brown (087,068,055); apical 0.3 of fore femur, fore and mid tibia and fore tarsus, light fuscous; mid tarsus dark fuscous; basal 0.2 of hind tibia, apical 0.5 of hind t1 and basal 0.5 of t2, whitish. Metasoma: dark orange (184,090,046), T2–8 anteriorly and laterally with sparse blackish marks.

Male. Unknown.

Comments. Differs from the other mostly blackish species of the genus by the orange metasoma and by having ovipositor moderately stout, its dorsal valve with five moderately strong ridges (vs. ovipositor slender, dorsal valve without ridges). Structurally similar to *M. teutonicus*, from which it can be readily distinguished by the head and mesosoma entirely blackish (vs. with many yellow marks – see Fig. 59); hind tibia whitish on basal 0.2 (vs. deep yellow); areolet distinctly larger, APH 1.45 (vs. 0.93), distinctly higher than wide, AWH 0.79 (vs. 1.00); and ovipositor shorter, OST 1.07, dorsal valve with five moderately strong ridges (vs. OST 1.41, dorsal valve with four weak ridges).

Biology. Unknown.

Etymology. From the latin *color*, added to the prefix *bi-*, meaning “two”; in reference to the two main body colors, black at head and mesosoma and orange at metasoma.

Material examined. Holotype ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 16.II.1960, FPlaumann (CNCI). Originally glued to the pin, re-mounted on triangle point. Badly broken; right hind tarsus and left hind wing missing; and metasoma broken and re-glued to the specimen; both antenna and right hind femur and tibia broken and glued to the triangle; right hind wing folded; left mesopleuron with a perforation.

Distribution. Recorded only from the type locality, in southern Brazil (Fig. 307).

***Messatoporus bimaculatus* Santos, sp. nov.**

(Figs 97, 148, 158, 234, 308)

Female. Fore wing 5.94 mm. HEAD: Mandible densely covered with long hairs; MLW 2.24; MWW 0.31; dorsal tooth in front view projected upwards, long, ventral tooth distinct only as a very short lobe. MSM 0.27. Clypeus basally convex, apically abruptly flattened, centrally straight; CHW 2.36; CWW 1.97; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 26 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat,

coriarius, not striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, shiny, minutely rugulose, ventrally moderately striate; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved straight. Mesoscutum moderately and uniformly convex, subcircular, $1.15 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.73 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, more or less uniformly curved; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.9 \times$ as long as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron punctate-rugulose, dorsally with same wrinkling of propodeum, however less regular, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa rugulose-coriarius.

PROPODEUM: $1.14 \times$ as long as wide, shiny, moderately pilose; anterior area punctate-foveolate; spiracle elliptic, SWL 2.8; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, anteriorly strongly curved, posteriorly somewhat irregular; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.43 of its own length; vein 2Cua $0.58 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.43, pentagonal, about as high as wide, AWH 1.12; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M almost indistinct; 4-Rs very weakly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.69; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.92 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.37 \times$ as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally sparsely pilose, laterally moderately pilose; T1LW 3.91; T1WW 1.47; spiracle on 0.5 of its length, slightly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.25; T2WW 2.7; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, with small, shallow foveae, densely and uniformly pilose. OST 0.66; ovipositor slender, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 7 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head, mesosoma and metasoma black, marked with whitish. Head: black; clypeus except dorsal margin and median apical spot, mandible except apex, mouthparts, dorsal 0.5 of supra-clypeal area and complete orbital band, pale yellow (233,221,143); f8–13 entirely whitish, f7 and f14–15 almost entirely whitish. Mesosoma: black; collar, posterior 0.8 of dorsal margin of propodeum, subcircular spot on mesoscutum and longitudinal dash over notaulus, scutellar carina, scutellum, subalar ridge, two separate marks on mesopleuron, dorsal division of metapleuron, posterior 0.4 of metapleuron and ovoid lateral marks on propodeum, whitish; fore and mid coxae whitish with posterior brown spots; fore and mid first trochanters whitish with basal brown spot; fore and mid second trochanters and femora dark orange (184,088,047), fore femur with dorsal brownish stripe; fore and mid tibiae light fuscous; fore tarsus fuscous; fore and mid t5 and mid t1, blackish; mid t2–4, whitish; hind coxa black with longitudinal, wide, whitish stripe at posterior face; hind trochanters black, first one with apical yellow spot, second with apical orange spot; hind femur bright orange, apical 0.01 black; basal 0.25 of hind tibia, apical 0.75 of t1 and t2–4, whitish; apical 0.75 of hind tibia, basal 0.25 of t1 and t5, dark brown. Metasoma: black; anterior 0.3 of T1 dorsally bright yellow; T1–8 and S1–7 with posterior bright yellow stripes.

Male. Fore wing 6.09 mm long. Very similar to female, except for the following: dark areas slightly lighter, dark brown; mid tibia with sparse brownish marks; f14–19 entirely white, f11–13 and f20 dorsally white.

Variation. Male from Colombia with supra-clypeal area entirely yellow and hind femur almost entirely blackish. Female from Colombia with supra-clypeal area yellow except for narrow black line between clypeus and supra-clypeal area; anterior portion of mesoscutum laterally with horizontal yellow dash; yellow mark at dorsal margin of pronotum wider; fore and mid femora and tibiae orangish yellow; mid tibia fore tibia more distinctly swollen; and ovipositor ventral valve teeth appearing somewhat worn, teeth hardly distinguishable. It may represent a different species, but a more representative series is needed to be sure.

Comments. Very similar to *M. unimaculatus* **sp. nov.**, from which it can be differentiated by the supra-clypeal area black except orbital band (vs. yellow except for narrow black line between clypeus and supra-clypeal area); supra-antennal area not striate near antennal sockets, without median carina (vs. distinctly striate, with slight median carina); epomia moderately long, distinctly curved (vs. short, approximately straight); mesoscutum densely punctate (vs. minutely colliculate); fore tibia very weakly swollen (vs. distinctly swollen); propodeal spiracle elliptic, SWL 2.80 (vs. elongate, SWL 4.75).

Biology. Unknown.

Etymology. From the Latin *macula*, meaning “spot”, added to the prefix *bi-*, meaning “two”; in reference to the two separate central marks on mesopleuron.

Material examined. 2 ♀♀ 3 ♂♂. Holotype ♀ from BRAZIL, Bahia, Iruberá, Fazenda Vale da Juliana, 26.I.2007, Malaise trap, JCardoso & JMaia, “Banana Teste.” Mounted on triangle point. Tips of both antennae, right fore t2–5 and left mid leg apicad to coxa missing; otherwise in good shape.

Paratypes: 1 ♂ from COLOMBIA, Valle, Pance CVC, 15 km W Cali, wet premontane forest, 28.X.1974, 1700 m, Malaise trap, RCWilkerson (FSCA). 1 ♀ from PERU, Cuzco, SVGarlepp (ZMHB). 1 ♂ from BRAZIL, Bahia, Buerarema, Fazenda Boa Sorte, Pt. 5, 29.XI.2002, Malaise trap, JCardoso & JMaia; 1 ♂, same data except Uruçuca, Fazenda Guarani, Pt. 7, 24.XI.2003 (UFES).

Distribution. Recorded from widely separated areas in Colombia, Peru and, northeastern Brazil (Fig. 308).

Messatoporus campanulatus Santos, sp. nov.

(Figs 110, 309)

Female. Fore wing 5.34 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.93; MWW 0.36; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.21. Clypeus almost entirely flattened, centrally straight; CHW 2.29; CWW 2.4; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, centrally with coarse punctures and rugulosity, not striate near antennal sockets, ventrally very weakly concave, with slight median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, shiny, impunctate, wrinkles at posterior margin vestigial; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, ovoid, 1.23 × as long as wide, sparsely pilose, shiny, anteriorly densely foveolate, posteriorly scarcely punctate; notaulus reaching about 0.66 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus complete but weak, medially indistinct, weakly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, distinctly arched forwards. Transverse sulcus at base of propodeum moderately wide, about 0.6 × as long as anterior area of propodeum, very weakly rugulose; metapleuron impunctate, covered with the same wrinkling of propodeum, however less regular, covered with moderately dense, very short hairs; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa entirely coriaceous.

PROPODEUM: 1.41 × as long as wide, shiny, sparsely pilose; anterior area coriarius-foveate; spiracle elliptic, SWL 3.33; anterior transverse carina medially straight. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, anteriorly and posteriorly slightly sinuous, median wrinkles medially strongly arched forwards, bell-shaped; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, totally continuous with 1-Rs+M; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.38 of its own length; vein 2Cua 0.47 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.47, pentagonal, about as high as wide, AWH 1.16; crossvein 3r-m fully spectral (and almost indistinct), 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly longer than 2-M; 4-Rs almost straight; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.25; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.7 of distance to posterior wing margin.

METASOMA: First tergite short, about 0.29 × as long as T2–8, approximately cylindrical, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 3.87; T1WW 1.33; spiracle on 0.42 of its length, slightly prominent; median depression elongate, distinct; median posterior depression absent; lateral depressions elongate, distinct; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.55; T2WW 2.17; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.04; ovipositor slender, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 8 teeth, 1st, 2nd and 3rd widely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma black and pale yellow, metasoma dark brown and pale yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, ventral spot at scape and complete orbital band, pale yellow (237,219,153); scape and pedicel dorsally and flagellum basally, dark brown, flagellum turning to blackish towards apex; f11–15 entirely white, f10 and f16 mostly white, f17 with small basal whitish mark. Mesosoma: mostly pale yellow; small posterior mark on pronotum, sparse marks at mesoscutum, scuto-scutellar groove, scutellum posteriorly, axillar carinae medially, postscutellum, epicnemium, dorsal margin of mesopleuron, scrobe, mesopleural suture, ventral margin of mesopleuron and lateral posterior mesosternum, anterior area of propodeum except lateral ovoid spot and about 0.5 of posterior area (medially arched backwards), black; most of mesoscutum dark brown (061,051,038), with central yellow mark partially covering notaulus and with weak yellowish longitudinal dash; fore and mid coxae, mid first trochanter, ventral face of fore and mid first trochanter mostly dark brown, with sparse yellowish marks; fore and mid second trochanters ventrally dark brown, dorsally pale yellow; dorsal face of femora pale orange, with longitudinal brown stripe; tibiae ventrally with longitudinal brown stripe on basal 0.85; fore tarsus light fuscous, mid tarsus dark brown, fore and mid t5 blackish; hind coxa mostly pale yellow, basally black, with large longitudinal black stripe which is basally wider; hind first trochanter and dorsal face of second one, black; ventral face of second trochanter pale yellow; basal 0.1 of hind femur pale yellow, sub-basal and apical 0.1 blackish, median 0.7 bright orange (202,098,039) basal 0.25 of hind tibia, apical 0.8 of t1 and t2–4, whitish; apical 0.75 of tibia, basal 0.2 of t1 and t5, blackish. Metasoma: dark brown; anterior 0.25 dorsally and posterior 0.3 of T1 pale yellow; posterior stripes at T2–4 and T7, lateral marks at T5–6 and 8 and lateral portion of T8, pale yellow; T8 posteriorly ferruginous; S2–6 pale yellow with brownish lateral marks.

Male. Unknown.

Variation. Female from Santa Teresa with fore wing 5.68 mm long; antenna with 22 flagellomeres; f10 entirely white, f9 and 16 entirely blackish; mesoscutum with only a small posterior black mark, lateral yellow dashes very weak; lateral yellow spot at anterior area distinct only as small brownish mark; pale yellow portion of posterior area anteriorly narrow and pointed, instead of bell-shaped; propodeal wrinkles medially only weakly arched forwards, not distinctly bell-shaped; all pale yellow areas almost whitish (243,227,190).

Comments. Readily recognized by the propodeal wrinkles anteriorly and posteriorly slightly sinuous, median wrinkles medially slightly to strongly arched forwards, somewhat bell-shaped; anterior area of propodeum with sublateral yellowish spots; and pronotum with vestigial wrinkles restricted to ventral margin. Except for these features, is very similar to *M. complexifemur* sp. nov., from which it can be further differentiated by having hind femur mostly bright orange (vs. base and apex dark brown, median portion dorsally light brown, ventrally

yellowish); central yellow mark on mesopleuron connected to yellow subalar ridge (vs. not connected); T1 dorsally yellowish or whitish at anterior 0.25 (vs. black at anterior 0.7); ventral tooth of mandible indistinct (vs. distinct, rhomboid); and T4 anteriorly blackish, posteriorly yellowish (vs. anteriorly yellowish, with posterior blackish subcircular mark).

Also similar to *M. atrifoveus* **sp. nov.**, from which it can be additionally distinguished by having T1 short, about $0.29 \times$ as long as T2–8 (vs. very long, about $0.47 \times$ as long as T2–8); epicnemium almost entirely black (vs. mostly yellowish); T5–6 only with lateral yellowish marks (vs. with complete posterior yellowish stripe); and ovipositor dorsal valve with four moderately strong ridges (vs. without ridges).

Biology. Unknown.

Etymology. From the Latin *campana*, meaning “bell”; in reference to the bell-shaped median propodeal wrinkles in the holotype.

Material examined. 2 ♀♀. Holotype ♀ from BRAZIL, Espírito Santo, Alfredo Chaves, Picadão, Pt. 2, 8.X–15.X.2007, Malaise trap, COAzevedo *et al.* (UFES). Mounted on triangle point. Badly broken; left fore leg, right mid leg and left hind leg missing; right hind leg broken and re-glued to the specimen; right fore wing detached and re-glued to the triangle.

Paratype: 1 ♀ from BRAZIL, Espírito Santo, Santa Teresa, Propriedade rural, Pt. 1, 19–26.VIII.2007, Malaise trap, FGRampinelli *et al.* (UFES).

Distribution. Recorded only from two very close localities in the Atlantic Forest of Espírito Santo, southeastern Brazil (Fig. 309).

***Messatoporus caxiuanensis* Santos, sp. nov.**

(Figs 82, 199, 233, 310)

Female. Fore wing 6.75 mm. HEAD: Mandible densely covered with long hairs; MLW 1.59; MWW 0.43; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.22. Clypeus basally evenly convex, apically gradually flattened, centrally concave; CHW 2.08; CWW 3; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 25 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, shiny, finely punctate, ventrally weakly striate; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, subcircular, $1.14 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.72 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove shallow, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, strongly sinuous, with vestigial vertical wrinkles; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, distinctly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.7 \times$ as long as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron punctate-rugulose, with vestigial wrinkles, densely covered with very short hairs; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with weak punctures separated by about their own diameter.

PROPODEUM: $1.23 \times$ as long as wide, shiny, sparsely pilose; anterior area moderately punctate; spiracle elliptic, SWL .003; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.43 of its own length; vein 2Cua $0.49 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.79, pentagonal,

about as high as wide, AWH 0.96; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.23; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.93 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.34 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.73; T1WW 1.42; spiracle on 0.52 of its length, slightly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.27; T2WW 2.16; thyridium much longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.85; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 12 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black with whitish marks. Head: black; clypeus, basal 0.3 of mandible, mouthparts, part of malar space, supra-clypeal area, scape ventrally and complete orbital band, whitish (234,222,177); scape dorsally and pedicel, brown; f7–14 entirely white, f8 and f15 mostly white, f7 with white apical spot. Mesosoma: black; pronotum except posterior mark covering 0.2 of its surface, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae near wing base, tegula, subalar ridge, central mark covering almost entire mesopleuron, connected to subalar ridge, mesosternum, dorsal division of metapleuron, most of transverse sulcus, metapleuron except apical margin and arc-shaped mark on propodeum, whitish; fore and mid coxae and first trochanters whitish, except basal and apical brown marks at mid coxa and ventral orange mark at mid trochanter; fore femur pale yellow with weak brownish stripe on basal 0.6; mid femur light orange; fore and mid tibiae whitish with ventral brownish stripe on basal 0.7; fore tarsus whitish except t5 blackish; mid tarsus blackish except t4 ventrally white; hind coxa whitish with three longitudinal stripes, anterior one extending on basal 0.7, median one on apical 0.4, both stripes connected by a brownish area; posterior stripe reaching apical and basal margins, basally much wider; first trochanter brownish on basal 0.5, black on apical 0.5; second trochanter black with ventral orange spot on apical 0.3; hind femur light orange (215,123,050); basal 0.5 of hind tibia, apical 0.8 of t1 and t2–5, white; apical 0.5 of hind tibia, tibial spurs and basal 0.2 of t1, blackish. Metasoma: black; T1 anterior 0.4 dorsally and posterior 0.2 whitish; S1 whitish; T2–7 with posterior and lateral whitish stripes, T8 only with lateral stripe; S2–6 whitish, with lateral brownish marks.

Male. Unknown.

Comments. Very similar to *M. atlanticus* sp. nov., from which it can be differentiated by orbital band complete (vs. shortly interrupted at dorsal margin of eye); dorsal margin of pronotum whitish and connected to whitish mark at collar (vs. black); hind femur bright orange (vs. dark brown); propodeal wrinkles distinctly curved backwards (vs. mostly slightly curved or somewhat sinuous); and central mark on mesopleuron narrowly connected to mark at subalar ridge (vs. not connected).

Biology. Unknown.

Etymology. Latinized form of the word *Caxiuanã*, in reference to the species type-locality.

Material examined. Holotype ♀ from BRAZIL, Pará, Melgaço, Floresta Nacional de Caxiuanã, Trilha Igarapé Tijucaquara, margem do Igarapé, Pt. P05191, 21–26.XI.2003, Malaise trap, APAGUIAR *et al* (MPEG). Mounted on triangle point. Left hind tarsus missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in eastern Amazon Basin, Brazil (Fig. 310).

***Messatoporus citreocephalus* Santos, sp. nov.**

(Figs 41, 282, 311)

Female. Fore wing 7.92 mm. HEAD: Mandible densely covered with long hairs; MLW 2.3; MWW 0.35; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.3. Clypeus basally strongly convex, emarginated in its mid-length, more or less triangular, centrally concave; CHW 2.03; CWW 1.86; apical area medially convex, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly

tapered. Supra-antennal area shiny, finely coriarius, very weakly striate near antennal sockets, ventrally and around ocelli slightly concave, without median line. Occipital carina uniformly curved, fading out at distance distinctly longer than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, wrinkles at posterior margin vestigial; epomia very weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, $1.32 \times$ as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.72 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, irregular; sternaulus complete but weak, medially indistinct, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about $1.11 \times$ as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron minutely rugulose, without transverse wrinkles, moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.2 \times$ as long as wide, shiny, glabrate; anterior area almost impunctate; spiracle elongate, SWL 4.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles weak, very closely spaced, mostly complete, anteriorly slightly arched forwards, at posterior 0.8 distinctly arched forwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.28 of its own length; vein 2Cua $0.27 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.38, pentagonal, distinctly wider than high, AWH 1.43; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs somewhat irregular, apically slightly upcurved; 4-M spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.14; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.93 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.38 \times$ as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 4.22; T1WW 1.37; spiracle on 0.5 of its length, slightly prominent; median depression elongate, very shallow; median posterior depression subcircular; lateral depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.34; T2WW 2.41; without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriarius, densely and uniformly pilose. OST 0.81; ovipositor slender, straight, basally cylindrical, apically slightly depressed; dorsal valve with three very weak ridges; ventral valve apex with 10 teeth, widely spaced; surface in between teeth smooth.

Color. Head and mesosoma bright orange, metasoma dark brown. Head: bright orange (209,087,034); mouthparts and orbital band restricted to supra-clypeal and supra-antennal areas, whitish; mandible apex blackish; flagellum basally black, gradually turning to light brown towards apex; f8–14 entirely white, f7 and f15 mostly white. Mesosoma: bright orange; fore and mid tibiae white except for ventral brownish mark; fore t1–4 white, fore t5 and mid tarsus fuscous; hind trochanter mostly dark brown; hind femur mostly light brown, ventrally dark orange, dorsally turning to dark brown apically; basal 0.25 of hind tibia, apical 0.8 of t1 and t2–5 white; apical 0.75 of hind tibia and basal 0.2 of t1 dark brown. Metasoma: dark brown; T1 and S1 orange; T2–8 with posterior pale stripe, very narrow at T8; S2–6 with posteriorly larger posterior pale marks, S6 almost entirely pale.

Male. Unknown.

Comments. More similar to *M. lissonotus*, from which it can be differentiated mainly by having generally smaller size, fore wing 7.92 mm long (vs. 10.71–16.66 mm long); propodeum small, rounded, with moderately strong and very closely spaced wrinkles (vs. propodeum moderately large, somewhat flattened, with strong and moderately closely spaced wrinkles); ovipositor much shorter, OST 0.81 (vs. 1.66); epomia distinct only after diverging from collar (vs. complete); and notaulus weakly impressed, smooth (vs. deeply impressed, with short

transverse wrinkles). Also somewhat similar to *M. convexus* **sp. nov.**, which it can be readily isolated from *M. citrecephalus* by the pronotum and mesoscutum mostly black (vs. entirely orange); supra-antennal area, occiput and most of gena black (vs. orange); ovipositor much longer, OST 1.36; and mesoscutum strongly convex (vs. moderately convex).

Biology. Unknown.

Etymology. From the Greek words *kitrea*, meaning “citrus”, and *kephale*, meaning “head”; in reference to the almost entirely orange head, a very unusual feature in *Messatoporus* and in Cryptinae as a whole.

Material examined. Holotype ♀ from PERU, Avispas, nr. Marcapata, 300 m, 1–15.X.1962, L. Peña (AEIC). Pinned. In good shape.

Distribution. Recorded only from the type locality, in Peruvian Amazon Basin (Fig. 311).

***Messatoporus complexifemur* Santos, sp. nov.**

(Figs 109, 204, 214, 275, 278, 312)

Female. Fore wing 6.52 mm. HEAD: Mandible densely covered with long hairs; MLW 2; MWW 0.38; dorsal tooth in front view projected upwards, long, ventral tooth indistinct; ventral tooth somewhat rhomboid. MSM 0.24. Clypeus almost entirely flattened, centrally straight; CHW 2.41; CWW 2.94; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 23 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, fading out at distance distinctly longer than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.24 \times$ as long as wide, sparsely pilose, shiny, asperous; notaulus reaching about 0.64 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus complete but weak, medially indistinct, strongly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about $0.78 \times$ as long as anterior area of propodeum, very weakly rugulose; metapleuron sparsely and finely punctate, without transverse wrinkles, dorsally glabrate, ventrally sparsely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.27 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elliptic, SWL 3.14; anterior transverse carina medially straight. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, often ramificated, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, totally continuous with 1-Rs+M; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.48 of its own length; vein 2Cua $0.57 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.68, pentagonal, about as high as wide, AWH 1; crossvein 3r-m absent; vein 3-M distinctly longer than 2-M; 4-Rs irregular, apically not upcurved; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.31; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.57 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.33 \times$ as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally sparsely pilose, laterally moderately pilose; T1LW 3.52; T1WW 1.42; spiracle on 0.48 of its length, slightly prominent; median depression elongate, very shallow; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.76; T2WW 1.68; thyridium longer than wide, without small circular depression just behind it;

T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.02; ovipositor slender, slightly sinuous (check), basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 7 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and pale yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape and pedicel ventrally and complete orbital band, pale yellow (236,213,130); scape and pedicel dorsally and flagellum basally, light brown, flagellum turning to blackish towards apex; f9–15 entirely white, f16 partially white, f8 with small apical whitish mark. Mesosoma: mostly pale yellow; small posterior mark on pronotum, mesoscutum except subcircular spot, scuto-scutellar groove, scutellum posteriorly, axillar carinae medially, postscutellum, dorsal 0.4 of epicnemium, area of mesopleuron just ventral to subalar ridge, dorsal portion of hypoepimeron and scrobe, mesopleural suture, ventral margin of mesopleuron, anterior area and most of posterior area (medially arched backwards), black; fore and mid legs pale yellow; mid coxa with lateral longitudinal black mark on apical 0.8, apically wider; mid trochanters ventrally dark brown; dorsal face of fore and mid femora pale orange, with brown stripe on basal 0.8; tibiae with brown ventral stripe on basal 0.9; mid tarsus fuscous, both t5 dark brown; hind coxa pale yellow, small anterior spot and lateral longitudinal stripe which is basally and apically widened, black; hind trochanters basally black, apically pale yellow; hind femur dark brown on basal 0.25 and ventral face of apical 0.4, dorsal face pale orange at median 0.7, ventral face pale yellow at median 0.35; basal 0.75 of hind tibia pale yellow, gradually turning to blackish on apical 0.25; basal 0.3 of t1 and apical 0.25 of t5, blackish; remainder of tarsus whitish. Metasoma: black; p 0.3 of T1, posterior stripes at T2–3, anterior and lateral portions of T4, lateral marks at T5–6 and 8, all T7 except anterior margin, pale yellow; S1–6 pale yellow, S2–6 with brownish lateral marks.

Male. Fore wing 4.07–7.71 mm long. Very similar to female, except for the following: antenna with 20–22 flagellomeres; black mark at fore coxa very small, S1 blackish; transverse sulcus entirely black; posterior area of propodeum almost entirely black, black area medially usually reaching posterior margin.

Variation. Fore wing 3.81–7.97 mm long. Antenna with 21–23 flagellomeres, flagellum sometimes basally dark brown; white band sometimes ending only 2–3 flagellomeres before apex; pronotum sometimes entirely pale yellow; portion of notaulus posterior to subcircular spot sometimes pale yellow; small black spot at scrobe not connected to anterior black area on mesopleuron; longitudinal mark at mid coxa sometimes extending to its base; anterior mark at hind coxa sometimes extended longitudinally as a small stripe, basally connected with lateral stripe; hypoepimeron sometimes entirely pale yellow, black mark at hind t5 sometimes almost indistinct. Specimens from Manaus with scrobe more distinctly convex, one of them with epicnemium entirely black and black area of mesopleuron expanded to about 0.5 of its surface. Specimens from Bahia with dark brown areas at hind leg turning to black, hind tibia distinctly gray at median 0.5 and black area of mesopleuron covering 0.4–0.6 of its surface, in one specimen including area over sternaulus; all pale yellow tones sometimes turning to whitish (240,224,157) or bright light yellow.

Comments. Readily recognized by the color pattern of hind femur and metasoma – the hind femur is dark brown at base and apex, with median portion dorsally light brown, ventrally yellowish; and the metasoma have the T4 anteriorly yellowish, with posterior blackish subcircular mark, T5–6 blackish with lateral yellowish marks and T7 almost entirely yellowish. Except for these features, is very similar to *M. campanulatus* sp. nov., from which it can be further differentiated by having central yellow mark on mesopleuron not connected to yellow subalar ridge (vs. connected); anterior area of propodeum entirely black (vs. with sublateral yellowish spots); T1 dorsally black at anterior 0.7 (vs. yellowish or whitish at anterior 0.25); ventral tooth of mandible distinct, rhomboid (vs. indistinct); and propodeal wrinkles distinctly curved backwards (vs. anteriorly and posteriorly slightly sinuous, median wrinkles medially strongly arched forwards, bell-shaped).

Biology. Unknown.

Etymology. Latinized form of “complex”, added to the Latin *femur*; in reference to the peculiar color pattern of the femur.

Material examined. 13 ♀♀, 13 ♂♂. Holotype ♀ from BRAZIL Minas Gerais, Parque Estadual do Rio Doce, Área da Tereza, Pt. 3, primary forest, 14.XI.2002, Malaise trap, JCRFontenelle (UFES). Mounted on triangle point. Apical half of left antenna missing; otherwise in good shape.

Paratypes: 1 ♀ from FRENCH GUYANA, Nouragues, Saut Parraré, IX.2009, Malaise trap, S.E.A.G. (UFES) 1 ♂ from ECUADOR, Sucumbios, Napo River, Sacha Lodge, 290 m, 21–31.X.1994, PHibbs; 1 ♀ 1 ♂, same data

except 21.XI–1.XII.1994; 1 ♀ 2 ♂, same data except 1–31.XII (AEIC). 1 ♀ from BRAZIL, Amazonas, Manaus, Reserva Florestal Adolpho Ducke, Pt. 23, 28.IX–20.X.2005, Malaise trap, APAGuiar *et al.*; 1 ♀, same data except Pt. 15, 29.IX–4.X.2005; 1 ♀, same data except Pt. 7, 30.IX–8.X.2005. 1 ♀ from BRAZIL, Bahia, Ipiaú, Fazenda Petrolina, 27.I.2007, Malaise trap, JCardoso & JMaia, “Oeste Teste”; 1 ♀, same data except Ubaitaba, Fazenda Casa de Pedra, pt. 1, 13.XII.2003. 1 ♀ from BRAZIL, Espírito Santo, Santa Leopoldina, Suíca, 361 m, 5–12.XI.2007, Malaise trap, COAzevedo *et al.* 1 ♂ from BRAZIL Minas Gerais, Parque Estadual do Rio Doce, Área da Tereza, primary forest, 10–17.XI.2004, Malaise trap, JCRFontenelle; 1 ♀, same data except Campolina, primary forest with helicones, Pt. 4, 23.XI.2003; 1 ♂, same data except Trilha do Vinhático, Pt. 1, 31.VII–7.VIII.2001; 1 ♂, same data except 14.XI.2002; 2 ♂♂, same data except Pt. 2; 1 ♂, same data except 24.X.2002; 1 ♂, same data except 24–31.X.2002; 1 ♂, same data except Pt. 3, 26.X–2.XI.2003; 1 ♀, same data except 15–22.X.2005; 1 ♀, same data except Pt. 2, 26.X–2.XI.2006; 1 ♂, same data except Pt. 3, 18–25.X.2007 (UFES).

Distribution. Recorded from widely spaced localities in central Atlantic Forest and Amazon Basin, at Brazil and Ecuador (Fig. 312).

***Messatoporus compressicornis* Cushman 1929**

(Figs 71, 261, 263, 284, 313)

**Messatoporus compressicornis* Cushman 1929: 12–13. Description, keyed. Holotype ♀ (USNM, examined). Type data: [USA] Pa. [Pennsylvania], Inglenook, VIII, JNKnull; No. 40580

Messatoporus major Cushman 1929: 5, 13. Description, figure, keyed. Holotype ♀ (USNM, examined). Type data: [USA] Fla [Florida], Orlando, coll. OCMcBride, 073-25. Type No. 40581. Synonym by Townes (1962: 467)

Messatoporus compressicornis: Townes 1962: 467–468, 561. Description, distribution, figure, keyed.

Messatoporus compressicornis: Yu & Horstmann 1997:274. Listed

Messatoporus compressicornis: Ruíz 2002:641. Listed.

Messatoporus compressicornis: Yu *et al.* 2005. Listed.

Messatoporus compressicornis: Kasparyan & Ruíz 2005: 106, 109. Distribution, keyed.

Messatoporus compressicornis: Kasparyan & Ruíz 2008: 314, 318, 373. Diagnosis, distribution, figure, keyed.

Female. Holotype ♀. Fore wing 9.38 mm. long. HEAD: Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.58; CWW 1.78; apical area medially concave, laterally slightly projected, its margin very sharp, raised. MLW 1.58; MWW 0.39; mandible with moderately sparse and long hairs; dorsal tooth in front view not distinctly projected upward, much longer than ventral tooth; ventral tooth somewhat rhomboid. MSM 0.22. Antenna with 21 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not strigulate near antennal sockets, ventrally and around ocelli distinctly concave, with slight median line. Uniformly curved, fading out at a distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, shiny, impunctate, ventrally with strong wrinkles; epomia strong, complete, moderately long, ending near dorsal margin of pronotum, gradually diverging from collar, after diverging from collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, 1.21 × as long as wide, sparsely pilose, shiny, asperous; notaulus reaching about 0.73 of mesoscutum length, moderately impressed, surface over notaulus smooth, medially parallel; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subtegular ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subtegular ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially without transverse depressions; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum very wide, about 0.81 × as long as anterior area of propodeum, smooth; metapleuron moderately punctate, without transverse wrinkles, moderately pilose; juxtacoxal carina absent. Fore tibia distinctly swollen; tibiae with numerous widely spaced bristles; hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: 1.08 × as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elongate, SWL 5.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles strong,

closely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina distinct as very weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between two veins more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.45 of its own length; vein 2Cua $0.42 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength, occupying about 0.28 of its length; cell 1+2Rs small, APH 0.67, pentagonal, distinctly higher than wide, AWH 0.83; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.02; vein Cub distinctly convex on apical half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.80 of distance to posterior wing margin.

METASOMA: First tergite moderately short, about $0.34 \times$ as long as T2–8, Somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.43; T1WW 1.49; spiracle on 0.59 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; median dorsal absent, dorsolateral absent, but traceable as limit between dorsal and lateral portions, ventrolateral carina absent. T2LW 1.09; T2WW 2.04; thyridium about as long as wide, without a small circular depression just behind it; T2–8 smooth between punctures, moderately and uniformly pilose. OST 0.93; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 6 teeth, 1st, 2nd and 3th widely spaced; surface in between teeth densely microsculptured, surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black with light yellow marks. Head: black; clypeus, mandible except apex and ventral margin, mouthparts, supra-clypeal area and complete orbital band, light yellow (229, 208, 109); f5–9 entirely white, f4 apically white and f10–15 with dorsal basal white marks. Mesosoma: black; collar, dorsal margin of pronotum (wider at posterior 0.5), subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron, mesosternum except posterior lateral spot, dorsal division of metapleuron, most of metapleural triangle, metapleuron except anterior margin and posterior spot and arc-shaped mark on propodeum, light yellow; fore and mid coxae and first trochanters light yellow, coxae with posterior and apical dark brown marks, trochanters with basal dark brown marks; fore and mid second trochanters, femora, tibiae and tarsi light orange (222, 132, 054), basal mark at second trochanters and both t4–5, blackish; hind coxa light yellow with three longitudinal stripes, anterior one extending on basal 0.5, lateral one reaching coxa apex and posterior one extending on basal 0.8; hind first trochanter light yellow with basal blackish mark; second trochanter and femur light orange, second trochanter with basal black mark; hind tibia bright yellow (235, 208, 064), apically orangish; extreme apex of hind tibia, tibial spurs and basal 0.4 of t1, dark brown; apical 0.6 of t1 and t2–5, whitish. Metasoma: black; anterior 0.5 and posterior 0.2 of T1, light yellow; T1–7 with posterior bright yellow stripes, progressively wider and occupying lateral areas towards apex, T8 only laterally yellow; S1–7 yellow, S2–5 with anterior dark brown areas.

Male. Fore wing 5.69–9.42 mm long. Generally similar to female, except for the following: scape ventrally light orange, scape dorsally and pedicel dark brown; light yellow areas at collar and dorsal margin of pronotum connected; area over notaulus light yellow; fore and mid coxa without posterior black marks; hind second trochanter almost entirely dark brown; apex of hind femur with dark brown mark; basal 0.5 of hind tibia whitish, apical 0.5 blackish.

Variation. Fore wing 6.69–10.39 mm long. Malar space sometimes partially light yellow; antenna with 21–23 flagellomeres; mesoscutum laterally sometimes with longitudinal light yellow dash; mid tarsus sometimes entirely fuscous. White marks at f10–15 stronger and connected at Mexican specimens. Light orange areas sometimes bright orange (213, 110, 052); dark brown marks at hind tibia and tarsus sometimes blackish; median depression on T1 weak to strong.

Comments. *Messatoporus compressicornis* is part of a group of four very close species, which apparently form a monophyletic group (see Analysis 2). Along with the recovered synapomorphies, species of that group are generally similar in size and color pattern, and share features like flagellum subapically strongly flattened, postscutellum yellow and T7–8 much longer than T5–6. Among these species, *M. compressicornis* can be differentiated from *M. nigriscapus* **sp. nov.** by having hind femur entirely orange (vs. deep yellow, dorsal face black); mandible basally yellow (vs. entirely black); orbital band complete (vs. shortly interrupted at dorsal margin

of eye); collar yellow (vs. black); thyridium about as wide as long (vs. much wider than long); and ovipositor dorsal valve with five moderately strong ridges (vs. four). It can be isolated from both *M. keraiopetalus* **sp. nov.** and *M. depressifrons* **sp. nov.** by the hind femur entirely orange (vs. ventrally black, dorsally deep yellow); fore and mid femora entirely orange (vs. dorsally with strong longitudinal brown stripes); ovipositor dorsal valve with five moderately strong ridges (vs. four); supra-antennal area with slight median carina (vs. median carina indistinct, represented only by a smoother area or depression); and mesosternum medially without transverse wrinkles (vs. with short transverse wrinkles).

Biology. One specimen from Plummers Island, Maryland, was reared from *Trypoxylon collinum rubrocinctum* (Crabronidae). The species is also recorded in the literature attacking *Ancistrocerus tuberculocephalus sutterianus* Saussure (Vespidae, Eumeninae). One paratype from Thomasville, Alabama, was collected on a *Quercus* sp. Many specimens were collected in urban or rural areas, what may indicate that the species can occupy areas with significant anthropogenic disturbance. Dozens of specimens were collected in fruitfly traps or Steiner traps at Florida during the 1952–1971, in *Citrus* grove and yards with *Citrus* trees as part of a monitoring programme for medfly. One specimen from Jacksonville was collected on x *Citrofortunella mitis*; one specimen in a soybean field; and one specimen on *Hibiscus* sp. Some specimens were also collected in a green area behind the Doyle Conner Building, Gainesville, Florida Department of Agriculture. In the material from these collecting events, *M. compressicornis* was by far more common than the sympatric species *M. discoidalis*.

Material examined. 150 ♀♀, 110 ♂♂. **Holotype** ♀ (*M. compressicornis*) from USA, Pennsylvania, Inglenook, No. 40580. Pinned. Right hind tarsus and right ovipositor sheath missing; otherwise in good shape. **Holotype** ♀ (*M. major*) from USA, Florida, Orlando. About half of right antenna, mid t5 and both hind legs missing; apical 0.7 of left fore wing detached and stuck to right fore wing; otherwise in good shape. **Paratypes** (*M. compressicornis*): 1 ♀ from USA, Alabama, Thomasville, 20.IV.1910, WDPierce, No. 40580, on *Quercus* sp.; 1 ♀ from USA, District of Columbia, 15.VIII.1898, No. 4580. 1 ♂ from USA, Pennsylvania, Speeceville, 8.VII.1909, PRMyers, Paratype 40580, 312. **Other specimens:** 1 ♀ from USA, Connecticut, Stamford, 13.VIII.1940, RTLab (AEIC); 1 ♀, same data except 24.VII.1931 (USNM). 1 ♂ from USA, New Jersey, Tabernacle, 11.VI.1939, Townes (AEIC). 1 ♂, same data except Ramsey, 16.VII.1916 (USNM). 1 ♀ from USA, Missouri, Wayne Co., Williamsville, V.1968, JTBecker. 1 ♀ from USA, Kentucky, Golden Pond, VII.1965, Malaise trap; 1 ♀, same data except V.1965 (AEIC); 1 ♀ from USA, Maryland, Cumberland, nr. Thomas Road, 13.VIII.1960, CFWMusenbeck; 1 ♀, same data except Plummers Island, 27.VII.1962, KVKrombein, “Host: *Trypoxylon rubro-cinctum* Pack. // Year 1962/ Nest M4/ Cell 4”; 1 ♂, same data except 5.VI.1903, WVWarner. 1 ♀ from USA, Virginia, Fluvanna Co., 1929, WRobinson bequest (USNM). 1 ♀, same data except Dunn Loring, 11.IX.1949, KVKrombein. 1 ♂ from USA, North Carolina, Souther Pines, 31.X.1950, Townes. 1 ♂ from USA, South Carolina, Greenville Co., Mt. Lake, 1.VIII.1950, HTownes & GTownes; 1 ♀, same data except McClellanville, 15.V.1944, Townes & Townes; 1 ♀, same data except Cleveland, 29.IX.1975, GFTownes; 1 ♂, same data except 25.V.1971, GTownes family; 1 ♀, same data except 24.V.1971; 1 ♂, same data except 1.VI.1971; 1 ♀, same data except 20.V.1971, N.714–250. 1 ♂ from USA, Texas, Kerrville, 1.V.1988, Townes & Townes; 5 ♂, same data except 4.V.1988; 2 ♀, 3 ♂, same data except 6.V.1988; 1 ♂, same data except 8.V.1988; 1 ♂, same data except 18.V.1988. 4 ♂ from USA, Alabama, Gulfshores, 25.IV.1968, Townes & Townes; 1 ♂, same data except 24.IV.1968; 2 ♂, same data except 23.IV.1968; 1 ♂, same data except 22.IV.1968. 1 ♀ from USA, Georgia, Sapelo Island, 15.VII–9.VIII.1987, LMasner & party (AEIC). 1 ♀ from USA, Georgia, Atlanta, 21.V.1935; 1 ♀, same data except 8.VIII.1941, PWFattig; 1 ♂, same data except 11.VII.1941; 1 ♂, same data except 23.VII.1942 (USNM). 4 ♂♂, same data except Smyrna, Pt. 3, 26.V.1983, Malaise trap, Gupta; 2 ♀♀, 7 ♂♂, same data except VI.1983; 4 ♂♂, same data except VII.1983; 2 ♂♂, same data except VIII.1983 (FSCA). 1 ♀ from USA, Florida, Fort. Myers, V.1968, GHeinrich (CNCI); 1 ♀, same data except 22.V.1967; 1 ♀ 1♂, same data except 28.IV.1970, 1 ♀, same data except 5.V.1969 (ZSMC); 1 ♂ from USA, Florida, Alachua Co., 2 mi N Gainesville, 30.IX.1974, HDavis & WJetter, Cypress Dome Project; 1 ♀, same data except Bradenton, 7.X.1963, Steiner trap, DCChancey; 1 ♀, same data except 16.IX.1964; 2 ♀, same data except 10.XI.1965; 1 ♀ 2 ♂, same data except Clay Co., Gold Gench Branch State Park, Ravine hardwoods, 15.III–2.IV.1996, Malaise trap, CPorter & LStange; 1 ♂, same data except 2.IV–5.V.1996; 2 ♂, same data except 1–14.VII, 1996; 1 ♂, same data except VI.1997; 1 ♀, same data except Ravine mixed wood, 5–26.IV.1996; 1 ♀ 2 ♂, same data except 15.V.1996; 1 ♂, same data except 15.VI.1996; 1 ♀, same data except Orange Park, 18.IV.1970, trap unknown, ZFZeiger; 1 ♀, same data except Collier Co., Everglades City, 11.VI.1974, JBHeppner (FSCA); 1 ♀, same data except Everglades, Royal Palm Ham.,

2.V–2.VIII.1985, SPeck & JPeck (AEIC). 1 ♀, same data except Lake Co., Leesburg, 16.X.1961, CHCurran (AMNH); 1 ♀, same data except Coral Gables, 25.III.1949, ODLINK, “in trap”; 1 ♀, same data except 22.VII.1958, RWSwanson; 1 ♀, same data except Dade City, 15.X.1963, Steiner trap, GFWade Sr.; 1 ♀, same data except 29.IV.1964, GVBerber; 1 ♀, same data except Dade Co.,m Ross & Castello Hammock, 9.IV.1959, trap unknown, HVWeems Jr.; 1 ♂, same data except 30.III.1963; 1 ♀, same data except De Land, 9.X.1961, fruit fly trap, GWDesin; 1 ♀, same data except Fruitville, 23.III.1961, CLYax; 1 ♀, same data except De Leon Springs, 20.VIII.1963, Steiner trap, GWDesin; 1 ♀, same data except Ellenton, 14.XI.1962, Medfly trap, DCChancey (FSCA); 1 ♀, same data except Gainesville, III.1986, JLaSalle (AEIC); 1 ♀, same data except 610 NW 54th Terr., mixed pine/hardwoods, 15.V.1997, unknown trap, LStange; 1 ♀, same data except Gainesville, Beville Hts, 15–30.IV.1986, LStange; 1 ♂, same data except 16–30.XI.1986; 1 ♂, same data except AEI, 25–30.IV, 1986, Malaise trap, JLaSalle; 1 ♀, same data except Foyle Conner Building, 10.IX.1973, EEGrissel; 1 ♂, same data except 11.IX; 1 ♂, same data except 12.IX; 1 ♀, same data except 30.V–10.VI.1986, CPorter; 1 ♀, same data except 23.X.1989; 1 ♀, same data except 8.V.1994; 1 ♀, same data except DPI, 5.III.1982, LStange; 1 ♂, same data except 25.III.1982; 1 ♂, same data except Pierce’s Homestead, 24.III.1970, WHPierce; 2 ♂, same data except 25.III.1976; 1 ♂, same data except Rock Cr., Pt. 1, 1.XI.1984, Gupta; 2 ♂, same data except Summer creek, 26.VI–9.VII.1988, CPorter; 1 ♂, same data except 16–20.X.1989; 1 ♂, same data except UF Campus, Pt. 3, 20.V.1985, JBrambila; 1 ♂, same data except Pt. 1, 1.VII.1985; 1 ♂, same data except Pt. 2, 10.VII.1985; 1 ♂, same data except 15.VII.1985; 1 ♂, same data except 21.VII.1985; 1 ♂, same data except 15.VIII.1985; 1 ♂, same data except 28.IV.1986; 3 ♂, same data except 21.VII.1986; 1 ♂, same data except Gainesville, 16.III.1982, LStange; 1 ♀, same data except Gilett, 9.XI.1961, Steiner trap, DCChancey; 1 ♀, same data except Haleah, 22.I.1962, HVWeems Jr.; 1 ♀, same data except Hardee Co., Lemomn Grove, 25.XI.1966, RHRhodes; 1 ♀, same data except Sweet Water, 17.XI.1964; 1 ♂, same data except Highlands Co., Archbold Biological Station, 23.III.1978, insect fly trap, HVWeems Jr & LLLampert Jr; 1 ♂, same data except 14.V.1978, LLLampert Jr.; ♂, same data except 15.V.1978; 1 ♂, same data except “31.IV.1978” (FSCA); 1 ♂, same data except Lake Placid, Archbold Biological Station, 5.VI.1967 (ZSMC); 1 ♀, same data except Hillsborough Co., Lutz, 23.XII.1972, Steiner trap, KCLowery; 1 ♀, same data except Holy Hill, 11.VI.1963, JNPott; 7 ♂, same data except Homestead, Tropical Reseach and Education Center, Pt. 15, 8.IV.1988, unknown trap, Gupta; 1 ♀, same data except 25.IX.1949, Link & Calkins (USNM); 1 ♀, same data except 21.VIII.1949, DWcalkins; 1 ♀, same data except 10.IX.1949, ODLINK; 1 ♀, same data except Duval Co., Jacksonville, Oaks Road, 5.X.1982, unknown trap, GVirgona, “on *Citrofortunella mitis*”; 2 ♀, same data except Leon Co., Tall Timbers Research Station, Pt. 6, 8–17.V.1983, Malaise trap, Gupta; 1 ♂, same data except 18–24.V.1983; 1 ♀, same data except Pt. 10, VI.1983; 1 ♂, same data except Pt. 7, 25.IV.1984; 1 ♀, same data except Lily, 14.XI.1963, Steiner trap, R.H. Rhodes; 1 ♀, same data except Manatee Co., 2.VI.1961, fruit fly trap, DCChancey; 1 ♀, same data except 5.VI.1961; 1 ♀, same data except 4.IV.1962; 1 ♀, same data except 31.X.1962; 1 ♀, same data except 24.I.1952, Steiner trap; 1 ♀, same data except 21.VI.1961; 1 ♀, same data except 4.VIII.1961; 1 ♀, same data except 31.VIII.1961; 1 ♀, same data except 4.X.1961; 1 ♀, same data except 5.X.1961; 1 ♀, same data except 17.X.1961; 1 ♀, same data except 30.X.1961; 1 ♀, same data except 15.X.1962; 1 ♀, same data except 29.X.1962; 1 ♀, same data except 4.X.1963; 2 ♀, same data except 24.X.1963; 1 ♀, same data except 29.IV.1964; 1 ♀, same data except 3.VIII.1964; 1 ♀, same data except 15.X.1964; 1 ♀, same data except 28.X.1964; 1 ♀, same data except 29.XII.1965; 3 ♀, same data except 21.XI.1967; 1 ♀, same data except Bethany, 5.V.1966; 1 ♀, same data except Cortez, 15.XI.1971, fruit fly trap; 1 ♀, same data except Duette, 8.II.1867, Steiner trap; 1 ♀, same data except Harrison Hammock, 16.VI.1964; same data except Parrish, 25.V.1967; 1 ♀, same data except Marion Co., Ocala Natural Forest, 10.IX.1963, TRAdkins; 1 ♀, same data except Melrose, 8.XI.1960, unknown trap, REWoodruff; 1 ♀, same data except Miami, 2.V.1949, ODLINK, “in trap”; 1 ♀, same data except 9.IX.1949, ODLINK (FSCA); 1 ♀, same data except 50 km SW Miami, 28.VII–15.IX.1985, Peck (AEIC); 1 ♀, same data except Monroe Co., 11.XII.1931, CDBaxcus; 1 ♀, same data except new Smyrna Beach, 21.VII.1961, fruit fly trap, GWDesin; 1 ♀, same data except Ona, 9.XI.1962, Steiner trap, RHRhodes; 1 ♀, same data except Orange Co., X.1931, McPhail trap, ODLINK; 1 ♀, same data except X.1936; 1 ♀, same data except Orlando, 15.XI.1961, fruit fly trap, JRWooley; 3 ♀♀, same data except 7.VIII.1962, Steiner trap, NPolt; 1 ♀, same data except 25.V.1967, RJMorgott; 1 ♀, same data except 26.V.1967, “soil”; 1 ♀, same data except Orlevista, 1.VII.1948, unknown trap, ODLINK, “at *Hibiscus*”; 1 ♀, same data except Palm Beach Co., Belle Glade, 19.X.1965, CESeiler; 1 ♀, same data except 3.X.1972, “insectary screen”; 1 ♂, same data except 24.X.1972; 1 ♂, same data except 13.XI.1972; 1 ♂, same data except 14.XI.1972; 1 ♀, same data except

25.VIII.1974, insect fly trap, “2:00 PM”; 1 ♀, same data except Palma Sola, 30.I.1967, Steiner trap, DCChancey; 1 ♀, same data except palmetto, 21.VIII.1964; 1 ♀, same data except 22.XII.1965; 2 ♀♀, same data except 22.XI.1966; 1 ♀, same data except 20.XII.1966; 1 ♂, same data except Sanford, Central Florida Research and Education Center, Pt. 11, 9.IV.1987, unknown trap, AAli; 3 ♂♂, same data except 14.IV.1987; 2 ♂♂, same data except 22.IV.1987; 2 ♂♂, same data except 28.IV.1987; 1 ♀, same data except 27.X.1987; 1 ♀, same data except Sarasota, 23.IX.1960, Medfly trap, CLYax; 1 ♀, same data except 17.XI.1960, fruit fly trap; 1 ♀, same data except 31.X.1961; 1 ♀, same data except 3.IX.1963, Steiner trap; 1 ♀, same data except 10.X.1963; 1 ♀, same data except 15.X.1963; 1 ♀, same data except 29.XI.1963; 1 ♀, same data except 19.V.1964; 1 ♀, same data except 28.XI.1962, FBGorsky; 2 ♀♀, same data except Siesta Key, 22.V.1963, EHFrederic; 1 ♀, same data except St. Petersburg, 29.VIII.1962, WCCarrol (FSCA); 1 ♂, same data except Tarpon Springs, 21.III.1950, Townes (AEIC); 1 ♀, same data except Tampa, 29.IV.1964, TJFavoroso; 1 ♀, same data except Vero Beach, Florida Medican Entomological Laboratory, Pt. 13, X.1983, unknown trap, Nayar; 1 ♀, same data except 3 mi. S Wauchula, 4.XII.1963, Steiner trap, RHRhodes; 1 ♀, same data except Daytona Beach, 20.VI.1961, GWDesin; 1 ♀, same data except 13.XII.1961, fruit fly trap; 1 ♀, same data except Fr. Pierce, 28.III.1961, EE Prange; 1 ♀, same data except 29.XI.1961, unknown trap; 1 ♀, same data except Mount Dorsa, 23.VI.1961, Steiner trap, CLFelshaw; 1 ♀, same data except Dade Co., 6.V.1983, PJLandolt, “USDA lab”; 1 ♀, same data except Duval Co., Jacksonville, 3.X.1982, trap unknown, CVirgona, “on *Citrofortunella mitis*” (FSCA); 1 ♂, same data except Paradise key, 7.IV.1951, Townes & Townes; 1 ♀, same data except 12.IV.1951 (AEIC); 1 ♂ from MEXICO, Tamaulipas, Gomez Farías, Reserva El Cielo, Los Cedros. 20–21.V.1993, RWharton (TAMU).

Distribution. Widely distributed throughout eastern USA and Mexico (Fig. 313). In the USA, it reaches from Connecticut in the north to southern Florida, and west until Missouri. In Mexico it was recorded from several sites on the eastern coast. It was not collected in Texas, which would seem to be a natural transition from southeastern USA to northern Mexico. Specimens of *M. discoidalis*, however, have been collected at many sites in Texas; the absence of specimens of *M. compressicornis* may indicate that *M. compressicornis* is really absent in the extreme south of the USA. *Messatoporus compressicornis* occurs in sympatry with *M. discoidalis* in all of its distribution, but it seems not to overlap its distribution with its close Central American species.

Messatoporus concavivenus Santos, sp. nov.

(Figs 121, 180, 314)

Female. Unknown.

Male. Fore wing 6.8 mm. HEAD: Mandible densely covered with long hairs; MLW 2.25; MWW 0.31; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.44. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.23; CWW 204; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli distinctly concave, medially with a distinct depression but without a distinct line. Occipital carina dorsally acuminate, fading out at distance distinctly longer than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrate, shiny, impunctate, with weak and short wrinkles at ventral half of posterior margin; epomia weak, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Ovoid, 1.25 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, anteriorly scarcely punctate, posteriorly almost impunctate; notaulus reaching about 0.73 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, more or less uniformly curved; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum moderately wide, about 0.64 × as long as anterior area of propodeum, asperous; metapleuron densely punctate, without transverse wrinkles, moderately pilose; juxtacoxal carina represented by very short ridges. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: 1.22 × as long as wide, shiny, moderately pilose; anterior area almost impunctate; spiracle elliptic, SWL 1.87; anterior transverse carina medially slightly arched backwards. Propodeal wrinkles anteriorly faint, posteriorly strong, closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina faintly suggested as a stronger wrinkle.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.47 of its own length; vein 2Cua 0.39 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.91, pentagonal, about as high as wide, AWH 0.94; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, 3r-m distinctly shorter; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.71; vein Cub slightly concave, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.72 of distance to posterior wing margin.

METASOMA: First tergite short, about 0.27 × as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 6.05; T1WW 1.58; spiracle on 0.48 of its length, slightly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina weak, medially interrupted. T2LW 2.52; T2WW 2.5; thyridium longer than wide, without small circular depression just behind it; T2–8 densely, finely punctate, densely and uniformly pilose.

Color. Head and mesosoma black and whitish, metasoma bright orange. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area and orbital band shortly interrupted at dorsal margin of eye, whitish (232,215,148); f10–13 entirely white, f14 partially white. Mesosoma: black; anterior 0.7 of pronotum, propleuron, subcircular spot on mesoscutum, scutellum, tegula, subalar ridge, mesopleuron and epicnemium except sparse black marks, mesosternum, dorsal division of metapleuron, metapleural triangle, posterior 0.6 of metapleuron and posterior 0.6 of posterior area of propodeum, except for median dark line, whitish; fore and mid coxae, first trochanters and tibiae, whitish; fore and mid second trochanter and femur dorsally brown, gradually turning to whitish ventrally; fore tarsus gradually turning from whitish to dark fuscous; mid tarsus dark brown; hind coxa dark brown, apical 0.2 and posterior face whitish; hind first trochanter ventrally whitish, dorsally dark brown; second trochanter mostly blackish, its extreme apex light orange; hind femur mostly bright orange, its extreme base light orange, dorsally with narrow longitudinal brown stripe, apical 0.2 blackish; basal 0.25 of hind tibia and t2–4, white; apical 0.75 of hind tibia gradually changing from light brown to blackish; t1 and t5 blackish. Metasoma: bright orange (202,115,042); T1–7 with progressively shorter and lighter anterior brown areas, from dark brown (087,068,049) at anterior 0.8 of T1 to light brown (103,059,027) at anterior 0.4 of T7.

Variation. Mesopleuron sometimes almost entirely whitish; hind coxa anteriorly pale orange with blackish longitudinal stripe short and narrow; T1 sometimes dark orange, dorsally with pale basal mark, apical whitish stripe almost indistinct; all dark areas varying from black to brown (138,079,034).

Comments. *Messatoporus concavivenus* can be mistaken as the male of *M. dissidens* **sp. nov.**, mainly by the color pattern of legs and metasoma, and because both species seem to have a close geographic distribution (Uruguay and northern Argentina in *M. dissidens*, southern Brazil in *M. concavivenus*). However, the males of *M. dissidens*, have the metasomal tergites anteriorly dark brown, posteriorly pale yellowish, as in some other species with orange metasoma (*M. euryoikos* **sp. nov.**, *M. semiaurantigaster* **sp. nov.**). In almost everything else, they are very similar to the females, whereas *M. concavivenus* differs considerably from the females of *M. dissidens* in the color pattern of the mesosoma, and also in general morphology features like clypeus centrally concave (vs. straight); supra-antennal area not striate near antennal sockets (vs. distinctly striate), with a distinct median depression (vs. without median depression); epomia moderately long, approximately straight (vs. short and distinctly curved); fore wing vein 3-M about as long as 2-M (vs. distinctly longer); and hind wing vein Cub slightly concave (vs. distinctly convex on posterior half, otherwise straight).

Biology. Unknown.

Etymology. From the Latin words *concavus*, meaning “concave”, and *vena*, meaning “vein”; in reference to the slightly concave hind wing vein Cub, unusual among species of *Messatoporus*.

Material examined. 5 ♂♂. Holotype ♂ from BRAZIL, Rio Grande do Sul, Morro Redondo, 101 m, 5.III.2003, Malaise trap, RFKrüger (UFES). Mounted on triangle point. Right mid leg missing; otherwise in good shape.

Paratypes: 1 ♂ from BRAZIL, Santa Catarina, Nova Teutonia, 300–500 m, 1.I.1960, FPlaumann; 1 ♂, same data except 6.II.1960 (CNCI). 1 ♂ from BRAZIL, Rio Grande do Sul, Morro Redondo, 101 m, 12.III.2003, Malaise trap, RFKrüger; 1 ♂, same data except 9.IV.2003 (UFES).

Distribution. Recorded from two localities in southern Brazil (Fig. 314).

***Messatoporus convexus* Santos, sp. nov.**

(Figs 10, 48, 169, 207, 242, 270, 315)

Female. Fore wing 10.60 mm. HEAD: Mandible densely covered with long hairs; MLW 1.64; MWW 0.53; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.24. Clypeus basally strongly convex, emarginated in its mid-length, more or less triangular, centrally concave; CHW 2.26; CWW 2.32; apical area medially straight, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina, meeting hypostomal carina far from mandible base. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, subcircular, $1.15 \times$ as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.79 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove shallow, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, medially indistinct, weakly sinuous, smooth; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about $0.94 \times$ as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron entirely coriarius, covered with the same wrinkling of propodeum, however less regular, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.02 \times$ as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elongate, SWL 5.75; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.39 of its own length; vein 2Cua $0.38 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.64, pentagonal, about as high as wide, AWH 1.09; crossvein 3r-m absent; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.95; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.88 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally sparsely pilose, laterally moderately pilose; T1LW 3.7; T1WW 1.69; spiracle on 0.54 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.36; T2WW 1.78; thyridium longer than wide, without small circular depression just behind it; T2–8 smooth between punctures, densely and uniformly pilose. OST 1.36; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced.

Color. Head black; mesosoma mostly orange with yellow and black marks, metasoma mostly black and whitish. Head: black; clypeus, mandible except apex, mouthparts, supra-clypeal area, scape ventrally, most of malar space and orbital band at supra-antennal area and lower gena, pale yellow (231,209,132); pedicel ventrally and mandible just basad to blackish area, orange; part of malar space, pedicel dorsally and flagellum, blackish; f7–11 entirely white, f6 and f12 partially white. Mesosoma: orange, darker on propodeum (188,086,043) and lighter on mesopleuron and mesosternum (231,182,068); collar, anterior margin of pronotum (anterior to epomia), subcircular spot on mesoscutum, tegula, subalar ridge, scutellar carina and most of scutellum, pale yellow (240,218,113); pronotum except ventral corner and whitish marks, mesoscutum, posterior 0.2 of scutellum and postscutellum, black; base of fore coxa, marks at first fore trochanter, all tibiae and fore t1–4, pale yellow; fore and mid t5, thin stripe at dorsal face of fore femur, dorsal face of second hind trochanter, apical margin of hind tibia and tibial spurs, dark fuscous; hind tarsus whitish. Metasoma: black; T1 anterior 0.2 and posterior 0.1 whitish; laterally orange at posterior 0.8, dorsally with orange narrow line between whitish and black areas; thyridium orange; T2–7 with lateral and posterior whitish stripes; S1–6 whitish.

Male. Fore wing 8.30–8.99 mm long. Very similar to female, except for the following: orbital band reaching full extension of gena, interrupted only at temple; antenna with 21–28 flagellomeres; pronotum smaller, dorsal margin anteriorly slightly concave, with larger pale yellow area, black only at dorsal margin and postero-dorsal corner; T1 dorsally without orange line between whitish and black areas.

Variation. Fore wing 8.13–10.60 mm long. Antenna with 21–30 flagellomeres; mesosoma bright yellow (237,211,076) to deep orange (196,086,041); malar space sometimes marked with blackish; gena sometimes completely blackish; anterior corner of mesopleuron (below subalar ridge) sometimes black; dorsal part of hypoepimeron sometimes lighter than rest of mesopleuron; dorsal face of fore and mid femora and hind second trochanter sometimes marked with blackish hind tibia with up to apical 0.1 blackish; hind tibial spurs sometimes fuscous; mid t3-4 sometimes fuscous; T1 sometimes with only anterior 0.1 orange, without anterior whitish areas, black area extending laterally until spiracle level.

Comments. More similar to *M. laevilatus* sp. nov. and *M. latissulcus* sp. nov.. It can be isolated from *M. sp.* 9 mainly by having T2–8 black with posterior whitish stripes (vs. bright to deep orange); dorsal margin of mesopleuron orange (vs. black); areolet about as wide as high, APH 1.09 (vs. distinctly higher than wide, APH 0.66); supra-antennal area without median carina (vs. dorsally with weak median carina, ventrally fading); and epomia distinct only after diverging from collar (vs. complete). Readily differentiated from *M. latissulcus* by the pronotum, mesoscutum and postscutellum mostly black (vs. entirely bright orange); scutellar carina, scutellum, tegula and subalar ridge mostly or entirely whitish (vs. orange); and also by the mesoscutum strongly convex (vs. moderately convex); sternaulus medially indistinct (vs. complete); and median portion of posterior transverse carina of the mesothoracic venter indistinct (vs. moderately long).

Biology. Unknown.

Etymology. From the Latin *convexus*, meaning “convex”; in reference to the strongly convex mesoscutum and propodeum.

Material examined. 12 ♀♀, 10 ♂♂. Holotype ♀ from BRAZIL, Minas Gerais, Parque Estadual do Rio Doce, Área da Tereza, primary forest, 24.X.2002, Malaise trap, JCRFontenelle (UFES). Mounted on triangle point. Right antenna missing; otherwise in good shape.

Paratypes: 1 ♀ from PERU, Avispas, 750 m, 1–15.X.1962, LPeña. 1 ♀ from PERU, Quincemil, nr. Marcapata, 20–30.X.1962 (AEIC). 1 ♀ from BRAZIL, Bahia, Itororó, Fazenda Santa Cruz, Pt. 5, 18.VIII.2002, Malaise trap, JCardoso & JMaia; 1 ♂, same data except Fazenda Guanabara, Pt. 8, 25.XI.2002; 2 ♂♂, same data except Ilhéus, Fazenda São José, 24.XI.2002. 1 ♀ from BRAZIL, Espírito Santo, Cariacica, Reserva Biológica de Duas Bocas, 20.XI.1998, sweeping, COAzevedo. 1 ♂ from BRAZIL, Minas Gerais, Parque Estadual do Rio Doce, Área da Tereza, primary forest, Pt. 3, 24–31.X.2002, Malaise trap, JCRFontenelle; 1 ♀, same data except Pt. 1, 10–17.XI.2004; 1 ♂, same data except 26.X–2.XI.2004; 3 ♂♂, same data except Pt. 3, 27.X–2.XI.2004; 1 ♀, same data except 3–10.XI.2004; 1 ♀, same data except Pt. 1, 26.X–2.XI.2006; 1 ♂, same data except Campolina, primary forest with helicons, Pt. 3, 23.XI.2003; 1 ♂, same data except Trilha do Vinhático, high secondary forest, Pt. 1, 17–24.VII.2001 (UFES). 1 ♀ from BRAZIL, Rio de Janeiro, Represa Rio Grande, I.1968, MAlvarenga; 1 ♀, same data except II.1968; 1 ♀, same data except VII.1972 (AEIC). 1 ♀ from BRAZIL, São Paulo, Descalvado, Fazenda Itaúna, Pt. B2, 6.IV.2006, yellow pans, NWPerioto *et al.* (IBRP).

Distribution. Recorded from central Atlantic Forest, an area of Cerrado in southeastern Brazil and from Peruvian rainforest (Fig. 315).

***Messatoporus copiosus* Santos, sp. nov.**

(Figs 6, 83, 125, 154, 205, 250, 258, 316)

Female. Fore wing 6.6 mm. HEAD: Mandible densely covered with long hairs; MLW 2.42; MWW 0.46; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.19. Clypeus almost entirely flattened, centrally straight; CHW 2.32; CWW 1.57; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised or regular, not raised. Antenna with 20 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, impunctate, not striate near antennal sockets, ventrally very weakly concave, without median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, ovoid, $1.42 \times$ as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.6 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about $0.74 \times$ as long as anterior area of propodeum, very weakly rugulose; metapleuron with very fine and moderately dense punctures, without transverse wrinkles, sparsely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.28 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elongate, SWL 3.5; anterior transverse carina medially straight. Propodeal wrinkles moderately strong, very closely spaced, anteriorly complete, posteriorly mostly incomplete and overlapped, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, totally continuous with 1-Rs+M; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.23 of its own length; vein 2Cua $0.47 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.48, pentagonal, about as high as wide, AWH 0.97; crossvein 3r-m absent; vein 3-M about as long as 2-M; 4-Rs irregular, apically not upcurved; 4-M semi-spectral, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.91; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.83 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.37 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 3.68; T1WW 1.78; spiracle on 0.46 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.6; T2WW 1.98; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.94; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 10 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black and whitish, meso and metasoma black, whitish and bright orange. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape and pedicel ventrally and complete orbital band, whitish (235,219,178); scape and pedicel dorsally and flagellum, dark brown, flagellum darker towards apex; f10–14 entirely white, f15 partially white. Mesosoma: mostly whitish; mesoscutum, except subcircular spot, scuto-scutellar groove, scutellar carina, both axillary through, area of mesopleuron just ventral to subalar ridge, spot at transverse sulcus, apical area and anterior 0.3 of posterior area of propodeum, bright orange (219,139,065); posterior ventral spot on pronotum, scutellum posteriorly, axillar carinae medially, postscutellum, ventral 0.6 of epicnemium, ventral margin of mesopleuron, ventral 0.6 of mesepimeron, anterior 0.8 of lateral borders of propodeum, area over anterior transverse carina and apical somewhat “lotus-shaped” (with three connected triangles) mark on propodeum, blackish; fore and mid legs mostly whitish, darker apically; mid first

trochanter dorsally and ventrally brown; second fore and mid trochanters with ventral brown spot; fore and mid femora dorsally pale orange with blackish stripes; fore and mid tibiae with ventral brown stripes on basal 0.8; mid tarsus dark brown; hind tibia whitish with large, somewhat S-shaped longitudinal mark; hind trochanters sparsely marked with whitish, blackish and pale orange; hind femur bright orange, except very base and apex; basal 0.25 of hind tibia, apical 0.6 of t1 and t2–4, whitish; apical 0.75 of hind tibia bright orange, except sub-basal and apical dark brown marks; tibial spurs, basal 0.4 of t1 and t5, dark brown. Metasoma: dark brown, whitish and bright orange; anterior 0.4 and posterior 0.2 of T1 whitish, median 0.4 dark brown, brown area laterally extended; T2–3 dark brown at anterior 0.6, medially and over thyridium bright orange and posteriorly whitish; T4 anteriorly dark brown, gradually changing to bright orange, apically with white mark restricted to lateral portion; T5–8 bright orange, T7–8 with posterior whitish marks; S1–7 whitish, S3 basally light brown, S4–5 laterally light brown.

Male. Fore wing 5.02–5.69 mm long. Generally similar to female, except for the following: antenna with 23–29 flagellomeres; pronotum entirely and ventral 0.5 of epicnemium, whitish; transverse sulcus medially, anterior area and anterior 0.5 of posterior area of propodeum, blackish; T2–7 dark brown with apical whitish stripe.

Variation. Fore wing 4.55–5.82 mm long. Vertex just posterior to ocelli sometimes with brownish orange mark; black mark on pronotum sometimes reduced or entirely absent; central portion of each lobe at mesoscutum sometimes brownish; scutellum posteriorly, axillar carinae medially and postscutellum sometimes bright orange; epicnemium sometimes almost entirely orange; area over sternaulus sometimes orange at anterior 0.3; orange area on mesopleuron covering 0.05–0.30 of its surface; propodeum over anterior transverse carina sometimes medially with distinct subcircular black spot; orange area on propodeum sometimes extending medially, meeting black posterior mark, sometimes restricted to center of anterior area, marks that are orange in other specimens sometimes blackish; posterior blackish mark on propodeum sometimes triangular or bell-shaped; dark brown areas at all trochanters and fore and mid femora sometimes reduced; T1 laterally sometimes dark brown until its base; T2–3 sometimes without median bright orange area, sometimes partially or entirely light brown. All orange tones varying from very light orange (227,164,074) to brownish orange (190,099,049); whitish tones varying from almost white (240,230,209) to buff (220,179,105).

Comments. More similar to *M. ellipsicavus* **sp. nov.**: these are the only species with orange mesoscutum in which the rest of the mesosoma is not entirely orange or almost so. Both species can be isolated by many features, mainly by *M. copiosus* having orbital band complete (vs. widely interrupted at gena); mesopleuron and mesoscutum almost entirely whitish (vs. almost entirely bright orange); metapleuron entirely whitish (vs. orange in 0.6 of its area); epomia complete (vs. distinct only after diverging from collar); hind wing vein Cub distinctly convex on posterior half, otherwise straight (vs. almost straight, very slightly convex); and ovipositor dorsal valve with five moderately strong ridges (vs. four). The males of both species are also very similar, particularly because males of *M. ellipsicavus* have mesosternum, mesopleuron and metapleuron extensively whitish; males of both species tend to have whitish mark on propodeum medially interrupted, forming two subcircular lateral spots; and also because the epomia in males of both species is so reduced it is difficult to distinguish whether it is complete or not. Thus, males of *M. copiosus* can be recognized by the orbital band complete; hind wing vein Cub distinctly concave; and transverse sulcus of propodeum whitish (vs. orange or brown).

Also similar to *M. fulvator*, from which it can be differentiated mainly by having mandible mostly whitish (vs. entirely blackish or dark brown); T2–4 basally dark brown, medially orange and posteriorly whitish (vs. T2–4 bright orange except posterior whitish stripe at T2); metasomal sternites whitish (vs. bright orange); and propodeum marked with black, whitish and orange (vs. bright orange with small whitish marks).

Biology. Unknown.

Etymology. From the Latin *copiosus*, meaning “abundant”; in reference to the large number of specimens collected in most occurrence records, particularly at Parque Estadual do Rio Doce.

Material examined. 67 ♀♀, 189 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Alfredo Chaves, Pt. 5, 714 m, Picadão, 8–15.X.2007, Malaise trap, COAzevedo *et al.* (UFES). Mounted on triangle point. Left hind t5 missing; otherwise in good shape.

Paratypes: 1 ♀ 1 ♂ from BRAZIL, Rio Grande do Norte, Mossoró, Fazenda Santa Júlia, Pt. 1, 14.IV.2008, Malaise trap, Fernandes *et al.*; 2 ♂♂, same data except Patu, Serra do Lima, Pt. 1, IX.2008; 3 ♀♀, same data except X.2008; 1 ♂, same data except XI.2008; 5 ♀♀ 12 ♂♂, same data except Pt. 2, X.2008 (IBRP). 1 ♀ 3 ♂ from BRAZIL, Pernambuco, Caruaru, 900 m, IV.1972, MALvarenga. 1 ♀ from BRAZIL, Alagoas, Murici, V.1984, FMOliveira. 4 ♂♂ from BRAZIL, Bahia, Encruzilhada, 980 m, XI.1874, MALvarenga (AEIC). 2 ♀♀, same data

except Dario Meira, Fazenda Maria Bonita, Pt. 2, 10.VI.2003, Malaise trap, JCardoso & JMaia; 1 ♂, same data except Firmino Alves, Fazenda Santo Antônio, 9.IV.2003; 1 ♂, same data except Pt. 5, 24.XI.2002; 1 ♀, same data except Ibicuí, Fazenda Maravilha, Pt. 7, 10.IV.2003; 1 ♂, same data except Fazenda Afegan, pt. 6, 21.XI.2002; 1 ♀, same data except Iguai, Fazenda Futurosa, Pt. 5, 29.XI.2002; 1 ♀, same data except Ilhéus CEPLAC/Esomi, Pt. 2, 8.VIII.2001, “borda”; 1 ♂, same data except Ipiauí, Fazenda Petrolina, Sítio Casca, 31.I.2007, “oeste”; 1 ♂, same data except 15.II.2007; 1 ♂, same data except Itajuípe, Fazenda Trindade, Pt. 4, 14.XII.2003; 1 ♂, same data except Ituberá, Fazenda Vale da Juliana, 26.I.2007, “leste”; 1 ♀, same data except 15.III.2007; 1 ♂, same data except Itacaré, Fazenda Miramar, Pt. 3, 8.XII.2003; 1 ♂, same data except Itororó, Fazenda Bela Vista, Pt. 5, 13.IV.2003; 1 ♂, same data except Pt. 8, 13.IV.2004; 1 ♂, same data except Fazenda Santa Cruz, 24.XI.2002; 1 ♀, same data except Ubaitaba, Fazenda Fortaleza, Pt. 7, 16.VIII.2002. 1 ♀ from BRAZIL, Goiás, Alto paraíso de Goiás, Parque Nacional da Chapada dos Veadeiros, Pt. 26, 12–24.IX.2005, Malaise trap, APAGuiar *et al.* (UFES). 1 ♀ from BRAZIL, Espírito Santo, Linhares, IX.1972, Malvarenga (AEIC). 1 ♀, same data except Alfredo Chaves, 714 m, Picadão, 8–15.X.2007, Malaise trap, COAzevedo *et al.*; 1 ♀, same data except Pt. 7; 1 ♀, same data except Pt. 2; 1 ♀ 1 ♂, same data except Atilio Vivacqua, Serra das Torres, Pt. 6, 14–19.IV.2007, CWAichert *et al.*; 1 ♀, same data except Santa Leopoldina, Alto Rio das Farinhas, 14–24.VI.2008, Cwaichert & Furieri; 1 ♀, same data except Cariacica, Reserva Biológica de Duas Bocas, Pau Amarelo, pt. 11, 21–30.X.2005, APAGuiar *et al.*; 1 ♂, same data except Domingos Martins, Pico do Eldorado, Pt. B3, 26.XI–3.XII.2004, MTTavares *et al.*; 1 ♂, same data except Pt. B2; 2 ♂♂, same data except Pt. B4; 1 ♂, same data except Pt. B5; 1 ♀, same data except Pt. B6; 1 ♂, same data except Santa Maria de Jetibá, Fazenda Clarindo Kruger, Pt. T7, 29.XI–6.XII.2002; 1 ♂, same data except Fazenda Paulo Seick, Área 1, Pt. B3; 1 ♂, same data except Linhares, INCAP-ES, Pt. 3, 1–3.VII.2001, “borda”; 3 ♂♂, same data except Pancas, Fazenda Juliberto Stur, Área 1, 24–31.I.2003, MTTavares, COAzevedo *et al.*; 2 ♂♂, same data except Área 2, Pt. B7; 1 ♂, same data except 31.I–7.II.2003; 1 ♀, same data except Santa Leopoldina, Suíca, Pt. 2, 5–12.XI.2007, COAzevedo *et al.*; 1 ♂, same data except Pt. 5. 1 ♀ from BRAZIL, Minas Gerais, Dionísio, Fazenda Morro do Gavião, primary forest, 5–12.X.2005 Malaise trap, JCRFontenelle; 1 ♀, same data except Pt. 1, 22.X.2005; 1 ♂, same data except 5–12.XI.2005; 1 ♂, same data except Pt. 2, 22.X.2004; 1 ♂, same data except 22.X.2005; 1 ♂, same data except Pt. 2, 5–12.XI.2005; 2 ♀ 1 ♂, same data except Ipaba, Fazenda Macedônia, Pt. 3; 1 ♂, same data except Pt. 2, 29.X–5.XI.2005; 1 ♀, same data except 31.VII–7.VIII.2005; 2 ♂♂, same data except Pingo D’água, Fazenda Sacramento, Pt. 1, 5–12.XI.2005; 2 ♂♂, same data except Pt. 2, 29.X–5.XI.2005; 4 ♂♂, same data except 5–12.XI.2005; 1 ♂, same data except 29.X–5.XI.2005; 1 ♂, same data except Parque Estadual do Rio Doce, Área da Tereza, primary forest, Pt. 2, 2–9.XI.2000; 1 ♂, same data except Pt. 3, 17–24.VII.2002; 1 ♀, same data except Pt. 1, 24–31.X.2002; 1 ♂, same data except Pt. 3, 7.XI.2002; 1 ♂, same data except Pt. 2, 1–8.VII.2003; 1 ♀, same data except 10–17.VI.2003; 1 ♂, same data except Pt. 3, 19–26.X.2003; 1 ♂, same data except 2–9.XI.2003; 1 ♂, same data except Pt. 1, 26.X–2.XI.2003; 1 ♀, same data except Pt. 1, 27.X–2.XI.2004; 2 ♂♂, same data except Pt. 3; 2 ♂♂, same data except Pt. 1, 15–22.X.2005; 2 ♂♂, same data except 7–11.XI.2005; 1 ♀, same data except 26.X–2.XI.2006; 1 ♂, same data except Pt. 2, 18–25.XI.2007; 1 ♀, same data except 4–11.XI.2007; 1 ♂, same data except Campolina, primary forest with helicones, Pt. 1, 23.XI.2003; 1 ♀, same data except Pt. 2, 3–10.VIII.2003; 1 ♂, same data except Pt. 3, 17–24.II.2005; 1 ♀ 1 ♂, same data except Porto Capim, secondary forest with helicones, 24.XI.2003; 1 ♀ 1 ♂, same data except Pt. 3, 17–24.XI.2004; 1 ♀, same data except Pt. 1; 3 ♂♂, same data except Trilha da Lagoa do Gambá, low secondary forest, Pt. 3, 13–20.X.2000; 1 ♀ 2 ♂♂, same data except Pt. 2, 16.XI.2000; 1 ♀ 1 ♂, same data except Pt. 3, 2–9.XI.2000; 1 ♂, same data except Pt. 2, 20–26.X.2000; 1 ♂, same data except Pt. 3; 1 ♀, same data except Pt. 2, 19–26.X.2005; 1 ♂, same data except Pt. 1, 22–29.X.2005; 1 ♂, same data except Pt. 3, 4–11.XI.2007; 1 ♂, same data except Trilha do Vinhático, high secondary forest, Pt. 2, 16.XI.2000; 1 ♂, same data except 19–26.VII.2000; 2 ♂♂, same data except 2–9.XI.2000; 1 ♂, same data except 2.XI.2000; 4 ♂♂, same data except 10–17.VII.2001; 2 ♂♂, same data except Pt. 1, 17–24.VII.2001; 1 ♂, same data except 18–25.X.2001; 1 ♂, same data except Pt. 3; 1 ♀ 1 ♂, same data except 24–31.VII.2001; 2 ♂♂, same data except Pt. 2, 25.X–1.XI.2001; 1 ♂, same data except Pt. 2; 1 ♂, same data except 31.VII–7.VIII.2001; 1 ♂, same data except Pt. 2; 1 ♂, same data except, 10–17.VII.2002; 2 ♂♂, same data except Pt. 1, 14.XI.2002; 1 ♂, same data except Pt. 2; 4 ♂♂, same data except Pt. 3; 1 ♀, same data except Pt. 1, 24–31.X.2002; 8 ♂♂, same data except Pt. 2; 8 ♂♂, same data except 24.X.2002; 2 ♂♂, same data except Pt. 1, 7.XI.2002; 1 ♂, same data except Pt. 2; 1 ♂, same data except Pt. 3; 1 ♂, same data except Pt. 2, 19–26.X.2003; 1 ♀, same data except Pt. 3, 2–9.XI.2003; 2 ♂, same data except Pt. 1, 26.X–2.XI.2003; 1 ♂, same data except Pt. 3; 2 ♂♂, same data except Pt. 2, 9.XI.2003; 3 ♂, same data except 10–17.XI.2004; 1 ♂, same data except Pt. 3; 1 ♂,

same data except Pt. 1, 17–24.XI.2004; 1 ♂, same data except 26.X–3.XI.2004; 1 ♂, same data except Pt. 2, 27.X–3.XI; 1 ♂, same data except Pt. 3, 3–10.X.2004; 1 ♂, same data except Pt. 1; 1 ♂, same data except 12–19.XI.2004; 2 ♂♂, same data except Pt. 3, 12–19.XI.2005; 1 ♀ 1 ♂, same data except Pt. 1, 15–22.XI.2005; 1 ♀ 1 ♂, same data except 22–29.X.2005; 1 ♀, same data except Pt. 3; 1 ♂, same data except 5–12.XI.2005; 1 ♂, same data except 22–29.X.2005; 1 ♀, same data except Pt. 2, 2–9.XI.2006; 1 ♂, same data except pt. 1, 9–16.XI.2006; 1 ♂, same data except 11–18.XI.2007; 1 ♀ 2 ♂, same data except Pt. 2; 1 ♂, same data except pt. 3; 1 ♂, same data except 18–25.X.2007; 3 ♂♂, same data except 18–25.XI.2007; 1 ♀ 3 ♂, same data except 28.X–4.XI.2007; 1 ♂, same data except Pt. 3; 1 ♀, same data except 31.VII–7.VIII.2007; 1 ♂, same data except Pt. 2, 4–11.XI.2007 (UFES). 1 ♀ from BRAZIL, Minas Gerais, Santa Bárbara, Serra do Caraça, I.1970, FMOLiveira. 3 ♂♂ from BRAZIL, Rio de Janeiro, Represa Rio Grande, III.1970, MALvarenga; 2 ♂♂, same data except XII.1969; 1 ♀ 1 ♂, same data except I.1967; 1 ♀, same data except III.1969; 1 ♀, same data except I.1968; 1 ♀ 2 ♂♂, same data except IX. 1969; 1 ♀, same data except XII.1967; 1 ♂, same data except II.1968; 1 ♀; 1 ♂, same data except Conceição de Macabu, IX.1978, MALvarenga. 1 ♂ from BRAZIL, São Paulo, Águas Vermelhas, 800 m, XII.1983, MALvarenga (AEIC); 1 ♀, same data except Palestina, fazenda Boa Vista, 116 ha fragment, pt. 1, 23.VI.2009, Malaise trap, BIOTA-FAPESP (UJMF); 1 ♂, same data except Botucatu, Fazenda Jaciobá, 4–7.III.2005, Malaise trap, EFSantos & CPSCott-Santos (UFES). 2 ♀♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, I.1968, FPlaumann (AEIC). 1 ♂ from BRAZIL, Rio Grande do Sul, Arroio Grande, 31.X.2003, Malaise trap, RFKruger (UFES). 1 ♂ from PARAGUAY, Pirapó, XII.1971, LPeña. 1 ♂ from ARGENTINA, Salta, Pocitos, I.1972, MFritz (AEIC).

Distribution. Widely distributed from northwestern Argentina and southern Brazil to northeastern Brazil, including also areas of Cerrado in central Brazil (Fig. 316). *Messatoporus copiosus* seems to have wide ecological flexibility, and was the most common species of *Messatoporus* in all sites which were sampled in detail. It was not recorded from northern South America, even after extensive collecting trips at Amazon Basin (Pará and Amazonas), Colombia and Panama. That may indicate that the Brazilian Cerrado and the semi-arid in northeastern Brazil can be the northern limits of its distribution.

Messatoporus covarrubiasi Kasparyan & Ruíz 2005

(Figs 76, 317)

**Messatoporus covarrubiasi* Kasparyan & Ruíz 2005: 106, 109. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Tamaulipas, Gómez Farías, Alta Cima, 940 m, Malaise trap, 19–26.VIII.2000, D.R.Kasparyan.

Messatoporus covarrubiasi: Kasparyan & Ruíz 2008: 308, 310, 315–317. Description, distribution, figure, keyed.

Female. Fore wing 9.37 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 2; MWW 0.46; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.28. Clypeus almost entirely flattened, centrally concave; CHW 2.87; CWW 4.05; apical area medially straight, laterally slightly projected, its margin very sharp, raised. Antenna with 23 flagellomeres. Flagellum uniform; apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, dorsally with very weak median line, ventrally fading. Occipital carina dorsally distinctly bell-shaped, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum sparsely pilose, shiny, finely punctate, ventrally with strong wrinkles; epomia moderately strong, distinct only after diverging from pronotal collar, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, 1.26 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, asperous; notaulus reaching about 0.64 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with distinct longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, weakly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles;

median portion of posterior transverse carina of the mesothoracic venter short, arched backwards. Transverse sulcus at base of propodeum very wide, about $0.8 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.15 \times$ as long as wide, shiny, moderately pilose; anterior area sparsely punctate, with a median cluster of punctures (and faintly coriarius); spiracle elongate, SWL 4.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, oblique and approximately straight; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.42 of its own length; vein 2Cua $0.7 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.56, pentagonal, distinctly wider than high, AWH 1.2; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.47; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.91 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.38 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 3.17; T1WW 1.95; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, distinct; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.07; T2WW 1.97; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, densely and uniformly pilose. OST 1.35; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 5 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black with bright yellow marks. Head: black; clypeus except lateral margins, mouthparts, supra-clypeal area except small ventral spot, and complete (though much narrower at temple) orbital band, bright yellow (231,211,088); f7–10 entirely white, f11 dorsally white. Mesosoma: black; collar, median 0.6 of dorsal margin of pronotum, subcircular spot on mesoscutum, scutellar carina, scutellum except apical triangular mark, axillar carinae medially, tegula, subalar ridge and central mark on mesopleuron connected, anterior 0.7 of mesosternum, dorsal division of metapleuron, metapleuron except small anterior and posterior marks and arc-shaped mark on propodeum, bright yellow; fore and mid legs bright yellow, except longitudinal mark at mid coxa and posterior face of fore and mid coxae, first trochanters and femora; fore and mid t5 dark brown; hind tibia bright yellow with three longitudinal black stripes, anterior one extending on basal 0.5, median and posterior ones reaching apex of coxa; first trochanter bright yellow with basal black mark, second trochanter black, apically orange; hind femur orange at extreme base, otherwise blackish, with ventral face and dorsal longitudinal stripe bright yellow; hind tibia and tarsus uniformly bright yellow. Metasoma: black; T1 bright orange, median 0.4 black; T2–7 with posterior and lateral bright yellow marks, T8 with only lateral stripes; S–6 bright yellow, S2–3 with lateral brown marks.

Male. Generally similar to female, except for the following: dorsal margin of pronotum entirely bright orange; epicnemium except small blackish mark, area over sternaulus and mesosternum, bright yellow; fore coxa and first trochanter entirely bright yellow; mid coxa entirely yellow except small basal blackish spot; mid tarsus fuscous, darker apically; yellow areas at hind femur darker and more extensive; apical 0.2 of hind tibia and basal 0.2 of t1, blackish; hind tarsus lighter towards apex, apically whitish; T1 laterally almost entirely black; S2–7 blackish with posterior bright yellow stripes.

Variation. Fore wing 9.10–10.17 mm. Specimen from Honduras with spiracle only slightly prominent.

Comments. Very similar to *M. grandis*, from which it can be differentiated by having mandible entirely black (vs. basally yellow); yellow mark on propodeum distinctly arc-shaped (vs. propodeum with two lateral, ovoid yellowish marks); supra-antennal area not striate near antennal sockets (vs. distinctly striate); epomia long, though

distinct only after diverging from collar (vs. short, complete); propodeal wrinkles oblique and approximately straight (vs. distinctly curved backwards); and cell 1+2Rs pentagonal, 2r-m and 3r-m with about the same size (vs. 1+2Rs subquadratic, 3r-m distinctly longer than 2r-m).

Biology. Unknown.

Material examined. 4 ♀♀, 3 ♂♂. 1 ♀ from MEXICO, Chiapas, 3 km NE San Cristóbal de las Casas, 8.VI.1969, BVPetersen (AEIC). 1 ♀, same data except San Cristóbal de Las Casas, 3–7.VI.1969, 2195 m, Malaise trap; 1 ♂, same data except 2.VI.1969; 1 ♂, same data except 30.V.1969; 1 ♂, same data except 13.VI.1969, WRMMason (CNCI). 1 ♀ from HONDURAS, El Paraiso, Yuscaran, Cerro Monserrat, 25.V.1993, Rortega (FSCA). 1 ♀ from COSTA RICA, Cartago, Braulio Carrillo National Park, 400 m, 10–11.IV.1985, HGoulet (AEIC).

Distribution. Northern Mexico to Costa Rica (Fig. 317).

Messatoporus depressifrons Santos, sp. nov.

(Figs 73, 237, 274, 318)

Female. Fore wing 8.91 mm. HEAD: Mandible densely covered with long hairs; MLW 2.29; MWW 0.42; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.25. Clypeus slightly and more or less uniformly convex, centrally concave; CHW 2.56; CWW 3.95; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 27 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, with moderately dense punctation, not striate near antennal sockets, ventrally and around ocelli distinctly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, shiny, impunctate, ventrally with strong wrinkles; epomia moderately strong, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.37 \times$ as long as wide, sparsely pilose, shiny, minutely punctulate; notaulus reaching about 0.76 of mesoscutum length, deeply impressed, surface over notaulus not wrinkled; scuto-scutellar groove deep, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, arched backwards. Transverse sulcus at base of propodeum moderately wide, about $0.59 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, moderately pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with weak punctures separated by more than their own diameter.

PROPODEUM: $1.04 \times$ as long as wide, shiny, moderately pilose; anterior area scarcely punctate; spiracle elongate, SWL 6.25; anterior transverse carina medially straight. Propodeal wrinkles strong, closely spaced, anteriorly faint at median portion, posteriorly partly complete and partly incomplete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.49 of its own length; vein 2Cua $0.32 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.71, pentagonal, about as high as wide, AWH 0.94; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs somewhat irregular, apically slightly upcurved; 4-M tubular, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.03; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.81 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.45 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.3; T1WW 1.74; spiracle on 0.55 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.29; T2WW 1.8; thyridium longer than wide, with small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.24; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and whitish. Head: black; clypeus, basal 0.4 of mandible, mouthparts, supra-clypeal area, ventral spot at scape and complete orbital band, light yellow (226,208,098); f5–8 entirely white, f4 partially white, f9 almost entirely white and f10–14 with dorsal white longitudinal band. Mesosoma: black; very narrow mark at collar, posterior 0.5 of dorsal margin of pronotum, propleuron, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron, mesosternum, dorsal division of metapleuron, metapleuron except posterior apex and arc-shaped, quadratic mark on propodeum, light yellow; fore and mid coxae and first trochanters whitish, coxae with apical dark brown marks, mid one also with posterior face dark brown; first trochanters with basal dark brown mark; fore and mid second trochanter, femur, tibia and tarsus bright yellow (222,153,049), with strong dorsal brown stripes on femora, fore one with weak ventral stripe; tibiae with ventral brown marks, fore one on basal 0.8, mid one on basal 0.3; mid tarsus fuscous, fore and mid t5 blackish; hind coxa whitish with three longitudinal stripes, anterior one reaching 0.5 of its length, lateral and posterior ones reaching coxa apex; hind first trochanter whitish with basal blackish mark; second trochanter blackish, with apical 0.2 dark yellow; hind femur dorsal and anterior faces bright yellow, ventral face blackish, posterior face blackish on basal 0.1 and apical 0.2, medially bright yellow; hind tibia bright yellow, hind tarsus basally bright yellow, whitish towards apex. Metasoma: black; T1 laterally with anterior and posterior 0.2 whitish, dorsally anterior 0.5 whitish; T2–7 with posterior and lateral whitish stripes, T8 only with lateral stripes; S1–6 whitish, S2–5 with progressively smaller brown lateral marks.

Male. Unknown.

Variation. Fore wing 6.94–9.74 mm long. Arc-shaped mark on propodeum anteriorly either rounded or somewhat quadratic; hind tibia sometimes with very small blackish apical mark. Specimen from La Rioja with anterior propodeal wrinkles weak and median depression on T1 very strong.

Comments. *Messatoporus depressifrons* is part of a group of four very close species, which apparently form a monophyletic group (Figs 71–75; see Comments under *M. compressicornis*). Among these species, *M. depressifrons* can be differentiated from *M. keraiopetalus* **sp. nov.** by having clypeus very slightly and more or less uniformly convex (vs. basally strongly convex, emarginated in its mid-length, abruptly flattened); supra-antennal area with a median depression (vs. with median smoother area); epomia moderately strong, distinct only after diverging from collar (vs. weak but complete); transverse sulcus of propodeum moderately long, $0.59 \times$ as long as anterior area (vs. very long, $1.07 \times$ as long as anterior area of propodeum); and fore wing vein 3-M and 2-M with about the same size (vs. 3-M distinctly longer).

It can be isolated from *M. compressicornis* by the hind femur ventrally black, dorsally deep yellow (vs. entirely orange); fore and mid femora dorsally with strong longitudinal brown stripes (vs. entirely orange); ovipositor dorsal valve with four moderately strong ridges (vs. five); supra-antennal area with median carina indistinct, represented only by a smoother area (vs. with slight median carina); and mesosternum medially with short transverse wrinkles (vs. without transverse wrinkles).

It can be separated from *M. nigriscapus* **sp. nov.** by the orbital band complete (vs. shortly interrupted); mandible basally yellow (vs. entirely black); collar yellow (vs. black); supra-antennal area with median depression (vs. with slight median carina); median portion of posterior transverse carina of the mesothoracic venter arched backwards (vs. arched forwards); and spiracle of propodeum elongate, SWL 4.86 (vs. elliptic, SWL 3.37)

Biology. One specimen from Moca, Guatemala, was reared from a nest of *Pachymenes obscurus* Smith (Vespidae, Eumeninae).

Etymology. From the Latin *depressus*, meaning “depressed”, and *frons*; in reference to the longitudinal depression at supra-antennal area.

Material examined. 4 ♀♀. Holotype ♀ from GUATEMALA, Peten, Santa Elena, 120–160 m, VIII.1976, NLHKrauss (AMNH). Pinned. Apical third of right antenna missing; otherwise in good shape.

Paratypes: 1 ♀ from GUATEMALA, Guatalon, Moca, III–IV.1931, “SC/ from nest of *Pachymenes obscurus*.” 1 ♀ from EL SALVADOR, San Salvador, 30.IV.1957, Pab, N.714-250 (USNM). 1 ♀ from COSTA RICA, Puntarenas, La Rioja, 26.V.1956, LCKuitert, traps (FSCA).

Distribution. Recorded from three localities in Guatemala and Costa Rica (Fig. 318).

***Messatoporus dialeipsis* Santos, sp. nov.**

(Figs 120, 319)

Female. Unknown.

Male. Fore wing 5.58 mm. HEAD: Mandible densely covered with long hairs; MLW 1.73; MWW 0.37; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.2. Clypeus basally convex, apically abruptly flattened, centrally straight; CHW 1.96; CWW 2.5; apical area medially straight, laterally slightly projected, its margin regular, not raised. Antenna with 20 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, impunctate, not striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia very weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, subcircular, $1.09 \times$ as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.69 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, irregular; sternaulus complete but weak, medially indistinct, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture without wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum very wide, about $1.00 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, sparsely pilose; juxtacoxal carina absent. Hind coxa punctate-coriarius.

PROPODEUM: $1.18 \times$ as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elliptic, SWL 3.17; anterior transverse carina medially slightly arched backwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, often ramificated, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.25 of its own length; vein 2Cua $0.29 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.38, pentagonal, about as high as wide, AWH 0.96; crossvein 3r-m absent; vein 3-M about as long as 2-M; 4-Rs very weakly sinuous; 4-M tubular, irregular. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.98; vein Cub almost straight, very slightly convex, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.88 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.36 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 5.35; T1WW 1.12; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 2.73; T2WW 1.59; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose.

Color. Head black and whitish, mesosoma black, whitish and orange, metasoma mostly dark brown and orange. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape and pedicel ventrally and complete orbital band (though very narrower at dorsal margin of eye), pale yellow (222,206,124); f10–15 entirely whitish, f9 and f16 partially whitish. Mesosoma: mostly bright orange

(207,111,042); pronotum except black mark at dorsal corner, propleuron, subcircular spot on mesoscutum, scutellar carina partially basal 0.8 of scutellum, axillar carinae, axillary through of metanotum, tegula, hypopleuron, dorsal division of metapleuron and posterior 0.2 of propodeum, pale yellow; posterior mark on pronotum, mesoscutum, scuto-scutellar groove, axillary through of mesonotum, dorsal 0.25 of epicnemium and mesopleuron, anterior area and anterior 0.3 of posterior area of propodeum, black; fore leg whitish, darker towards apex, second trochanter and femur dorsally orange, t3–4 with dark brown marks, t5 dark brown; mid leg bright orange, lighter apically except tarsus blackish; hind coxa, trochanters and femur bright orange, sparse marks at trochanters and apical dorsal spot at femur, blackish; basal 0.8 of hind tibia, yellowish; apical 0.2 of hind tibia and basal 0.5 of t1, blackish; remainder of tarsus whitish. Metasoma: mostly bright orange; T1 whitish, with median 0.4 dark brown, brown area laterally extending until its base; T2–3 anterior 0.6 dark brown, T2 posteriorly gradually turning to whitish; T4–7 anterior 0.25 brown (112,063,029).

Variation. Fore wing 5.58–6.29 mm long. Antenna with 20–21 flagellomeres; hind femur sometimes without apical blackish mark. Specimen from Magdalena with orbital band wide even at dorsal corner of eye, ventral portion of mesopleuron and mesoscutum mostly whitish, dorsal whitish mark on T1 reaching anterior 0.5; specimen from Coaraci with orbital band widely interrupted at gena.

Comments. More similar to the males of *M. convexus* **sp. nov.**, from which it can be differentiated by the orbital band complete, though very narrow at dorsal margin of eye (vs. widely interrupted at gena); dorsal 0.2 of epicnemium and mesopleuron black (vs. mesopleuron and epicnemium entirely orange); anterior area of propodeum and anterior 0.4 of posterior area blackish (vs. propodeum entirely orange) and T1 laterally black at anterior 0.8 (vs. laterally almost entirely orange). By the description and illustrations provided in Kasparyan and Ruíz (2008), it seems also similar to *M. rufator*, from which it can be isolated mainly by the pronotum with blackish mark (vs. entirely yellowish); yellow spot on mesoscutum subcircular (vs. distinctly U-shaped); posterior area of propodeum anteriorly blackish (vs. entirely yellowish); T1 laterally black at anterior 0.8 (vs. laterally almost entirely yellowish); and hind coxa entirely orange (vs. with dorsal blackish mark on basal half).

Biology. Unknown.

Etymology. From the Greek *dialeipsis*, meaning “interval”; in reference to the medially indistinct sternaulus.

Material examined. 5 ♂♂. Holotype ♂ from BRAZIL, Espírito Santo, Cariacica, Reserva Biológica de Duas Bocas, 16–17.IX.2006, Malaise trap, RKawada (UFES). Mounted on triangle point. In good shape.

Paratypes: 1 ♂ from COLOMBIA, Magdalena, SFF Tayrona Pueblito, 225 m, 19–30.IX.2000, Malaise trap, Rhenriquez (AEIC). 1 ♂ from BRAZIL, Bahia, Coaraci, Fazenda Restauração, Pt. 8, 23.VIII.2002, Malaise trap, JCardoso & JMaia; 1 ♂, same data except Fazenda São José, pt. 3, 26.XI.2002; 1 ♂, same data except Itororó, Fazenda Santa Cruz, 24.XI.2002 (UFES).

Distribution. Recorded from northern Colombia and from Central Atlantic Forest, in Espírito Santo and Bahia, Brazil (Fig. 319).

***Messatoporus discoidalis* (Cresson 1872)**

(Figs 130–132, 268, 279, 320)

**Mesostenus ferrumequinum* Walsh & Riley 1869: 133. Description. Holotype lost. Name preoccupied by Brullé 1846.

**Mesostenus discoidalis* Cresson 1872: 162. Description. Holotype ♀ (USNM, examined). Type data: [USA] Texas, Belfrage. Type No.1575.

**Mesostenus jocosus* Provancher 1874: 300. Description. Lectotype ♀ (ULQC, examined). Type data: 304. Synonym by Cushman (1929: 9). Revalidated by Kasparyan & Ruíz 2005: 2005:115.

**Messatoporus discoidalis*: Cushman 1929: 3–5, 9–11. Generic transfer, description, figure, keyed.

Messatoporus rufiventris* Cushman 1929: 11–12, **new synonym. Description, keyed. Holotype ♀ (USNM, examined). Type data: [USA] Maryland [Md], Cabin John, 5.VIII.1917. Type No. 40579.

Messatoporus discoidalis: Townes 1962: 465–466, 561. Description, distribution, figure, keyed.

Messatoporus rufiventris: Townes 1962: 463–465, 561. Description, distribution, figure, keyed.

Messatoporus discoidalis: Yu & Horstmann 1997:274. Listed

Messatoporus rufiventris: Yu & Horstmann 1997:274. Listed

Messatoporus discoidalis: Yu *et al.* 2005. Listed.

Messatoporus rufiventris: Yu *et al.* 2005. Listed.

Messatoporus discoidalis: Kasparyan & Ruíz 2005: 106, 109. Distribution, keyed.

**Messatoporus jocosus*: Kasparyan & Ruíz 2005:106. Diagnosis, distribution, figure, keyed.

Messatoporus rufiventris: Kasparyan & Ruíz 2005: 106, 120. Distribution, keyed.

Messatoporus discoidalis: Kasparyan & Ruíz 2008: 309, 317–318, 373. Diagnosis, distribution, figure, keyed.

Messatoporus jocosus: Kasparyan & Ruíz 2008: 311, 324. Diagnosis, distribution, figure, keyed.

Messatoporus rufiventris: Kasparyan & Ruíz 2008: 311, 334–335. Diagnosis, distribution, figure, keyed.

Female. Holotype ♀. Fore wing 6.64 mm. HEAD: Mandible densely covered with long hairs; MLW 2.11; MWW 0.35; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.3. Clypeus slightly and more or less uniformly convex, centrally straight; CHW 2.11; CWW 1.31; apical area medially straight, laterally slightly projected, its margin regular, not raised. Antenna with 26 flagellomeres (holotype of *M. rufiventris*); flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, shiny, densely punctate, ventrally with strong wrinkles (and weakly striated along posterior margin); epomia moderately strong, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, subcircular, $1.06 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.7 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove shallow, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, ventrally abruptly curved, dorsally straight; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.97 \times$ as long as anterior area of propodeum, with weak longitudinal wrinkles; metapleuron minutely rugulose-colliculate, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa basally foveolate-areolate, apically punctate, interior face minutely rugulose.

PROPODEUM: $1.13 \times$ as long as wide, shiny, moderately pilose; anterior area densely punctate, medially rugulose; spiracle elongate, SWL 6.75; anterior transverse carina medially straight. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.41 of its own length; vein 2Cua $0.61 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.55, pentagonal, about as high as wide, AWH 0.88; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M+Cu forming straight angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.15; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.76 of distance to posterior wing margin.

METASOMA: First tergite very long, about $0.46 \times$ as long as T2–8, somewhat depressed, dorsally sparsely pilose, laterally moderately pilose; T1LW 3.23; T1WW 1.75; spiracle on 0.56 of its length, slightly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.08; T2WW 1.93; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely and very weakly coriaceous, densely and uniformly pilose. OST 0.73.

Color. Head, meso- and metasoma black and yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area and complete orbital band, yellow (222, 184, 089); [scape ventrally yellow; f7–14 white]. Mesosoma: mostly yellow; pronotum black except collar and dorsal margin connected; mesoscutum black except subcircular central spot; scuto-scutellar groove, axillary though of metanotum, posterior border of scutellum, postscutellum, epicnemium, dorsal margin of mesoscutum, scrobe, mesopleural suture, mesepimeron, posterior spot on metapleuron, anterior area of propodeum, anterior and lateral borders of posterior area and posterior ovoid spot on propodeum, black; mid leg yellow, darker at tarsus, t5 fuscous; mid coxa with weak

brownish mark; hind coxa yellow, with narrow longitudinal brownish stripe; hind trochanters and femur yellow hind tibia hind basal 0.8 yellow, gradually turning to black on apical 0.2; basal 0.2 of t1 blackish, apical 0.8 and t2–5 whitish. Metasoma: dark brown; T1 yellow, dorsally brown at median 0.3; S1 yellow; T2–8 with posterior yellow stripes; S2–6 yellow with lateral brownish marks.

Male. Fore wing 4.50–8.67 mm long. Very similar to female. All of the observed variation between males and females are also found, usually in higher degree, among females of different localities.

Variation. Fore wing 5.76–9.10 mm long. Specimens of *M. discoidalis* show a very wide array of variation in color pattern, mostly in the extension of black areas at the meso- and metasoma. That has often complicated species delimitation (see below). The type of *M. discoidalis* (Fig. 132) has the most extensively yellow mesosoma; the specimens usually determined as *rufiventris* (Fig. 131) present more extensively orange metasoma, with the black areas at mesosoma widely varied. The specimens which correspond to the previous definition of *jocosus* (Fig. 130) are the most extensively black, both at meso- and metasoma, as follows. Mesosoma black; yellow marks at collar and dorsal margin of pronotum not, or only narrowly connected; central spot on mesoscutum U-shaped, sometimes surface over notaulus only partially yellow; yellow areas on mesopleuron restricted to a central mark, medially narrower, covering about 0.4–0.5 of its surface; metapleural triangle black; black portion of posterior area of propodeum covering about 0.3 of its surface; hind coxa with two distinct blackish marks; hind tibia with apical 0.4 blackish. In the specimens with most orange metasoma, the T2–8 are entirely orange, anteriorly darker; these specimens usually also have the hind coxa entirely orange. Most specimens are intermediary between metasoma entirely orange and distinctly banded with black and yellow. Biometric variation was observed in APH, 0.88–1.00, and OST, 0.83–0.9. Some specimens from Central and South America present the following additional variations: T1 laterally entirely blackish, dorsally blackish at median 0.4–0.6; apical area of clypeus medially concave (vs. straight); supra-antennal area with a slight depression; and epomia distinct only after diverging from pronotal collar, short and distinctly curved. There are no distinctive boundaries to divide the apparently continuous morphological variation observed into different species (see below).

Comments. The delimitation of the *M. discoidalis*, *M. jocosus* and *M. rufiventris* is traditionally controversial in the taxonomic literature. Cushman (1929), when describing *M. rufiventris*, stated that “structurally, I can see no difference between this and *discoidalis* (Cresson), and am inclined to think it merely a color variation.” The same author considers *M. jocosus* as a synonym of *M. discoidalis*. Townes and Townes (1962) kept this classification, but commented that “there is some doubt about the type of *discoidalis*. It may be a specimen of *M. rufiventris* with unusual coloration.” The distinction between the two species provided by Townes and Townes (1962) is based on two characters of general morphology and three color features. For two of the color features (shape of central spot of mesoscutum and color pattern of metasoma), it is acknowledged that there is some overlapping (e.g., the metasoma of *M. rufiventris* “more or less banded with fuscous, but never so sharply banded with black and white as in *M. discoidalis*”), and the third one is a slight variation of the hind tibia color. In fact, what has usually happened in most collections is that specimens is that the specimens most extensively black have been determined as *M. discoidalis*, whereas the more orange/fulvous specimens have been determined as *M. rufiventris*.

Kasparyan and Ruíz (2005) considered *M. discoidalis* and *M. rufiventris* as separate species and revalidated *M. jocosus*. By that definition, *M. discoidalis* correspond to the specimens with more extensively yellowish mesopleuron, central spot on mesoscutum subcircular and T2–8 black with posterior yellowish stripes. *Messatoporus rufiventris*, to specimens with more extensively black mesopleuron, central spot on mesoscutum subcircular and T2–8 orange to fuscous. *Messatoporus jocosus*, on its turn, correspond to the specimens with mesopleuron extensively black, central spot on mesoscutum U-shaped and T2–8 black with posterior yellowish stripes.

In the present work, 314 specimens of this taxonomic complex were evaluated, from southern Canada to Oregon, at east, and Central America, at south, including the three holotypes. The observed variation, although intense, is totally continuous, both for color features and for the two characters of general morphology mentioned by Townes and Townes (1962), namely the shape of thyridium and presence of transverse wrinkles dorsad to hypoepimeron. When only the extremes of the observed variation are considered, the differences seem to be significant, but the examination of a long series of specimens from several localities enable the perception of the taxonomic unity of the species. The differences in color tones of mesopleuron seems to be at least partially related to latitude, with specimens from more southern areas having more extense yellowish marks. Figs 130–132 show the continuum of variation in mesopleuron for the species. This may have already been noticed by Townes and

Townes (1962) for the form that was termed as *M. rufiventris*; according to them, “in specimens from the Canadian zone and cooler parts of the Transition zone there is usually an increase of both infuscation and of fulvous”.

Messatoporus discoidalis is more similar to *M. opacus* **sp. nov.**, from which it can be differentiated by having orbital band wide at dorsal margin of eye (vs. very narrow); postscutellum black (vs. pale yellow); posterior blackish spot on propodeum distinct (vs. usually very weak); posterior transverse carina of propodeum distinct as very weak sublateral crests; (vs. entirely absent); clypeus centrally straight (vs. concave); supra-antennal area, pronotum and mesoscutum shiny (vs. mat); supra-antennal area not striate near antennal sockets (vs. distinctly striate); and ovipositor longer, OST 0.83–0.90 (vs. 0.61), its ventral valve with nine to eleven teeth (vs. six). Also readily differentiated from *M. terebrator* by having T7–8 about same length as T5–6 (vs. much longer than T5–6); and ovipositor shorter, OST 0.90 (vs. 1.33), slender, dorsal valve without ridges (vs. moderately stout, dorsal valve with four moderately strong ridges).

Biology. Recorded in the literature attacking *Ageniella conflictata* Banks, *Phanagenia bombycina* (Cresson), *Auplopus mellipes* (Say) and *Ceropales maculata fraterna* Smith (Pompilidae). There is some uncertainty, however, about the last record: according to Townes, the cocoons labeled as from *Ceropales* were “doubtless from *Auplopus* or *Phanagenia*.” One specimen was reared from an undetermined species of *Auplopus*. Many specimens were labeled only as having being reared from “mud nest”, “mud cells”, etc.

Material examined. 161 ♀♀, 153 ♂♂, 2 specimens of unknown sex. **Holotype** ♀ (*M. discoidalis*) from USA, Texas, Belfrage. Pinned. Both antennae, fore legs, hind tarsus and left wing missing; head broken and re-glued to thorax, glue apparent; metasoma broken and re-glued to the specimen label. **Holotype** ♀ (*M. josocus*). Pinned. Left mid tibia and tarsus, right mid t2–5, both hind legs after coxae missing; left fore leg broken and re-glued to the specimen; right mid leg (except missing t2–5) broken and re-glued to pin; left fore right wing ripped in half of its width on midlength, its apex broken and re-glued; right fore wing shortly ripped on midlength and apex; ovipositor broken on basal 0.2. **Holotype** ♀ (*M. rufiventris*) from USA, Maryland, Cabin John, 5.VIII.1917. Pinned. Junction between right hind coxa and first trochanter very fragile; left hind t3–5 missing; otherwise in good shape. **Paratypes** (*M. rufiventris*): 1 ♀ without label; 1 ♀ from CANADA, Quebec. 1 ♀ from Maryland, Glen Echo, RMFouts. 1 ♀ from USA, Colorado, Boulder Co., 9.V.1926, CHHicks, 150. 1 ♀ from USA, Virginia, Glencarlyn, 18.VIII.1912. 1 ♀ from USA, Alabama, Chambers Co., Langdale, HHSmith (USNM). **Other specimens:** Homotype ♀ (*M. rufiventris* – det. by HTownes) from USA, New Jersey, Moorestown, 10.VIII.1939, HTownes & MTownes. Homotype ♀ (*M. discoidalis*, *M. josocus* – det. by HTownes) from USA, New York, Bemus Pt., 222.VII.1937, HTownes. 1 ♂ from CANADA, Quebec, Aymler, 18.VII.1924, CHCuran (BMNH) 1 ♀, same data except Montreal Island, 10.IX.1901. 1 ♀ from USA, 24.IV.1884, TPergande, ex. *Agenia bombycina*. 1 ♂ from USA, New Hampshire, Durham, 24.[?].1940, W & F, Ideu 40 605 (USNM). 1 ♀ from CANADA, British Columbia, Enderby, 25.IX.1954, JWynne. 1 ♀ from USA, New York, Ithaca, 31.VIII.1937, HIScudder (CASC). 1 ♂ from CANADA, Ontario, St. Lawrence Island National park, McDonald island, 14.VIII.1976, ACarter, code 4417–Y (CNCI). 2 ♀♀, same data except Nepean, 6–11.VII.1989, LMasner (AEIC). 2 ♂♂ from USA, Maine, Dryden, VI.1957; 1 ♂, same data except 25.IX.1958 (ZSMC). 1 ♀ from USA, New York, Bemus Pt., 21.VII.1937, Townes; 1 ♀, same data except 22.VII.1937; 2 ♂♂, same data except 28.VII.1937; 1 ♂, same data except 2.VIII.1937; 1 ♂, same data except 15.VIII.1937 (AEIC); 1 ♂, same data except 10.VIII.1937 (RMNH); 1 ♂, same data except Bemus Pt., 28.VII.1937 (ZMGB). 1 ♂, same data except 11.VIII.1937; 1 ♂, same data except Poughkeepsie, 22.[?].1936; 1 specimen of unknown sex, same data except Ithaca, 20.V.1937, Coy Glen (NRMS); 1 ♂, same data except 20.V.1934 (USNM); 1 ♀, same data except 18.V.1934 (RMNH). 1 ♀, same data except 24.VIII.1947, Townes (CNCI); 1 ♂ from USA, New York, Ithaca, 2.VI.1936. HTownes; 1 ♀, same data except 6 miles e. Ithaca, 2.VIII.1940, PPBabiy; 1 ♀, same data except Lotchnorth, 21.VIII.1956 (ZSMC). 1 ♀, same data except Amer. Boreal, VII.1923 (NHWH); 1 ♂, same data except Ulster Co., 4.VII.1969; 1 ♂, same data except 8.VII, FHough (USNM); 1 ♀, same data except Cherrtown, 4 mi. NW Kerkonkson, 19.VIII–12.IX.1971, PWygodzinsky & BWygodzinsky; 1 ♂, same data except Manchester Co., Lewisboro, 29.VIII.1982, MFavreau (AMNH). 1 ♂ from USA, Wisconsin, Door Co., 23.VII.1932, MHDoner (USNM). 1 ♀ from USA, Michigan, Ann Arbor, 30.VIII.1957, LWing (AEIC); 1 ♀ 1 ♂, same data except 7.VI.1959 (ZSMC). 1 ♀ from USA, Idaho, Little Cottonwood, Craters of the Moon National Monument, 19.VIII.1965, Malaise trap, DSHorningJr (USNM). 2 ♀♀ from USA, Oregon, Corvallis, 11.VII.1978, Townes & Townes; 1 ♀, same data except 16.VII.1937; 1 ♀, same data except 21.VII.1978; 1 ♀, same data except 27.VII.1978; 1 ♀, same data except 11.VIII.1978; 1 ♀ 1 ♂, same data except 28.VIII.1978; 1 ♀, same data except 8.IX.1978; 1 ♀, same data except 5.X.1978; 1 ♂, same data except

8.X.1978; 2 ♂♂, same data except Hyatt Reservoir, 22.VII.1978 (AEIC); 1 ♀, same data except Jackson Co. Siskiyou Pass, 1370 m, 15.VII.1930, HAScullen (USNM); 1 ♀ 2 ♂♂, same data except Ochoco Creek, 11.VII.1978, Townes & Townes; 3 ♀♀ 3 ♂♂, same data except 14.VII.1978; 3 ♂♂, same data except Pinehurst, 19.VII.1978; 1 ♀ 2 ♂♂, same data except 21.VI.1978; 2 ♀♀ 3 ♂♂, same data except 29.VI.1978 (AEIC); 1 ♀, same data except 29.VI.1978; 1 ♂, same data except Hackelbarney State Park, 7.VIII.1954 (FSCA); 2 ♂♂, same data except Selma, 20.V.1978; 1 ♀, same data except Union Co., Mt. Emily, 8.IX.1987. 1 ♀ from USA, New Jersey, Moorestown, 10.VIII.1939, Townes & Townes (AEIC). 1 ♀ from USA, same data except Metuchen, Woodwild Park, 24.VI.1954; 1 ♀, same data except 28.VII.1953; 1 ♂, same data except 6.IX.1954; 1 ♀, same data except 31.VII.1954; 1 ♂, same data except 23.VIII.1956; 1 ♀, same data except 21.VII.1957; 1 ♀, same data except 8.VI.1959; 1 ♂, same data except 15.VI.1959; 1 ♂, same data except 30.VI.1959; 1 ♂, same data except 23.VIII.1962; 1 ♀, same data except 30.VII.1960; 1 ♂, same data except 14.VII.1965; 1 ♀, same data except 26.VII.1955; 1 ♂, same data except 11–14.VIII.1960, CPorter (FSCA). 1 ♀ from USA, Pennsylvania, Carlise Jc., 28.VIII.1909, WSFisher, 2401 (USNM). 1 ♀, same data except Paupack, 10.VIII.1936, Wmiddlekauff (RMNH). 1 ♂ from USA, Maryland, Bowie, 27.VIII.2944, HTownes & MTownes, 17.VIII.1944; 1 ♀, same data except Hudson, 26.V.1965; 1 ♂, same data except 7.VII.1965; 1 ♀, same data except 26.X.1966; 1 ♀, same data except 29.VIII.1968; 1 ♀, same data except 30.VII.1969; 1 ♂, same data except 23.VII.1969; 1 ♀, same data except 5.VII.1969; 1 ♀, same data except 23.VII.1969 (FSCA); 1 ♀, same data except Plummer's Island, 28.IX.1963 (RMNH); 1 ♀, same data except 11.IX.1909, JCCrawford, at light; 1 ♀, same data except 1.VIII.1909; 1 ♀, same data except 22.X.1911, HSBarber; 1 ♀, same data except 6.X.1912; 1 ♀, same data except 11.VIII.1909; 1 ♀, same data except 29.IX.1912, PRMyers; 1 ♀, same data except 6.X.1912; 1 ♂, same data except 1910, EASchwarz; 1 ♀, same data except 16.VI.1912, Schwarz & Barber (USNM). 1 ♀, same data except Takoma Park, 29.IX.1945 (FSCA); 1 ♂, same data except 7.VI.1942, Townes & Townes; 1 ♂, same data except 16.IV.1942; 1 ♀, same data except 10.IX.1943. ; 1 ♀, same data except 25.VIII.1943 (BMNH). 1 ♂, same data except Shore of Potomac, near Nanjemoy, under bank, 3.X.1953, RHArnett, ex. cell *Auplopus* sp. 1 ♀ from USA, West Virginia, Bolivar, 22.IX.1942, Townes (AEIC). 1 ♂ from USA, DC, Washington, 13.VIII.1945, Morton Vogel; 1 ♂, same data except 27.IX.1946, David Shappirio. 1 ♀ from USA, Nebraska, Big Ban Mt. Ridge, NW of Orville Co, 1958, [Callihack?]. 1 ♀ from USA Illinois, Rockford, 17.XII.1920, OHS, reared with *Ceropales fraternal* from mud cell (USNM). 2 ♀♀, from USA, Virginia, Vienna, 1.V.1936, JCBridwell, ex. *Agencia bombycina*; 1 ♂, same data except 16.IV.1942, ex. *Pseudogenia mellipes*; 1 ♂, same data except 26.IV.1942 (USNM); 1 ♀, same data except Westmoreland, Westmoreland State Park, 5.VII.1951, KVKrombein; 2 ♀♀, same data except 8 km NW Blacksburgh, 305 m, 9.IX.1987, LMasner. 1 ♀, from USA, Colorado, Lyons, 14.VI.1948, HMGTownes & DTownes (AEIC). 1 ♂ from USA, Missouri, Columbia, 49e9, ex. nest #1; 1 ♂, same data except 49E5, 1st emerged nest-2; 1 ♀, same data except SW Oxford, 3.V.1963, Sylbia Spears; 1 ♀, same data except Coluisiana, 8.II.1967, ESCraig, mud nest under bank (emerged indoors) 38. 1 ♀ from USA, Kansas. 1 ♂ from USA, California, Bangor, 3.V.1902, Earharm (USNM); 1 ♀, same data except Marin Co., Mill Valley, 21.VIII.1950, HBLeech; 1 ♀, same data except 8.X.1956; 1 ♀, 1 specimen of unknown sex, same data except IX.1951, ESRoss (CASC); 1 ♂, same data except Camino, 29.VI.1948, HMGTownes & DTownes; 1 ♀, same data except 2.VII.1948; 1 ♀, same data except Davis, 1.IX.1952, BMartin; 1 ♂, same data except N of Leggett, 17.V.1978, Townes & Townes; 1 ♂, same data except Lake Wohlford, 22.IV.1974 (AEIC). 1 ♂, same data except Penlo Park, I.1905, FHornug; 1 ♂, same data except Siskiyou Co., Black Bear Summit, [illegible] River Klamath, 6.XI.1958, CRDarek (USNM). 1 ♂ from USA, North Carolina, Haywood, Lake Junaluska, 23.VIII.1960, HVWeemsJr (FSCA); 1 ♂, same data except. 21.VIII.2969, blacklight; 1 ♂, same data except Souther Pines, 31.X.1950, Townes; 1 ♀, same data except Wake Co., 7.VIII.1951, Townes & Townes; 1 ♀, same data except 12.VIII.1951 (ZSMC); 1 ♂, same data except Middlebush, 18.III.1958, DWhitehead (AEIC); 2 ♀♀, same data except Raleigh, 10.VI.1951 (ZSMC). 1 ♂, same data except Yancy Co., Crabtree Mds, 1100 m, 28.VII.1937, HMDTownes & JTownes (ZMHB). 1 ♀ from USA, South Carolina, 8.VII.1951, GFTownes (RMNH); 2 ♀♀, same data except Cleveland, 13.V.1976; 1 ♀, same data except McCleanville, 18.V.1944, HTownes & GTownes (AEIC); 1 ♀, same data except 17.V.1944, HTownes & MTownes (BMNH). 1 ♂, same data except Pendleton, Tanglewood spring, 13.V.1987, JMorse. 1 ♂ from USA, Arizona, Oak Creek Canyon, 16.V.1946, Townes & Townes; 1 ♀. same data except 20.V.1947 (AEIC). 1 ♂ from USA, Georgia, Athens-Nicholsen, 31.VIII–7.IX.1970; 1 ♂, same data except 7–21.IX.1970 (ZSMC); 1 ♀, same data except Forsyth, 20–31.V.1968, GHeinrich (CNCI); 1 ♀, same data except Monroe Co., Forsyth, 23–30.IX.1970 (ZSMC); 2 ♂♂, same data except Smyrna, Pt. 3, 26.V.1983, Malaise trap, Gupta; 2 ♂♂, same data except 11.V.1983; 1 ♂, same data except VII.1983; 2 ♂♂, same data except 8.VI.1983; 1 ♂, same data except

V.1983; 2 ♂♂, same data except VI.1983; 2 ♂♂, same data except VII.1983; 2 ♂♂, same data except VIII.1983 (FSCA); 1 ♂, same data except Liberty Co., St. Catherines Island, 24–28.IV.1972, Thompson & Picchi (AMNH). 1 ♀ from USA, Mississippi, Yalobasha Co., Water Valley (ZSMC). 1 ♂ from USA, Louisiana, Natchitoches, 8.III.1964, CKnotts & ECross, 640308-B, nest #305. 1 ♀ from USA, Texas; 1 ♀, same data except, Belfrage, through CVRiley; 1 ♂, same data except 27.XII.1915, JDMitchell, ex. *Ageniella petiolata*, emerged 10.I.1916, hunter no. 37481; 1 ♂, same data except 23.III.1969, from mud nest (USNM). 1 ♂, same data except Brazos Co., College Station, 6.IV.1975 (TAMU); 2 ♂♂, same data except Big Bend, 1524 m, 1.VIII.1975, Townes & Townes; 1 ♂, same data except 10.VIII.1975; 3 ♂♂, same data except Fredericksburg, 3.V.1988; 1 ♀ 1 ♂, same data except 7.V.1988; 1 ♀, same data except 17.V.1988; (AEIC); 2 ♀♀, same data except Hidalgo Co., Bentsen Rio Grande Valley State Park, 10–11.?.1978, CCPorter; 1 ♂, same data except 11–12.?.1978; 2 ♀♀, same data except 13–14.?.1978; 4 ♂♂, same data except 16–26.VI.1978; 1 ♂, same data except Anderson Co., Salmon, 6–19.X.1974, Malaise trap, HRBurke; 1 ♀, same data except 19–31.X.1974; 2 ♂♂, same data except 5–26.IV.1975; 1 ♀, same data except 26–27.IV.1975; 1 ♀, same data except 17–18.V.1975; 1 ♂, same data except 21–28.IX.1975; 1 ♀, same data except 1–12.X.1975; 1 ♂, same data except 12–26.X.1975; 2 ♂♂, same data except 1–15.XI.1975 (TAMU); 1 ♀, 29.XII.1976, CPorter; 1 ♀, same data except McAllen, 5.IV.1975; 1 ♂, same data except ca. Mission Bentsen Rio Grande Valley State Park, 19.I.1976 (AEIC); 2 ♂♂, same data except Kerr Co., Kerrville Dam Guadeloupe River, 21.VII.1974, sweeping, HGreenbaum (TAMU). 2 ♀♀ 4 ♂♂, same data except Kerrville, 1.V.1988; 1 ♂, same data except 4.V.1988; 1 ♂, same data except 6.V.1988; 2 ♀♀ 1 ♂, same data except 8.V.1988; 1 ♀, same data except 12.V.1988; 1 ♂, same data except 18.V.1988 (AEIC); 1 ♀, same data except San Antonio, VII.1947, ESRoss (CASC). 1 ♀ from USA, Florida, Brooksville, 13.XI.1961, Steiner trap, GFWadeSr; 1 ♀, same data except Center Hill, 16.XI.1961; 1 ♂, same data except Clay Co., Gold Held Branch State Park, ravine hardwoods, 15.VI.1996, Malaise trap, CPorter & LStange; 1 ♂, same data except Gainesville, 510 NW 54yn Terr. mixed pine/hardwoods, 10.III.1997, LStange; 1 ♂, same data except 15.IV.1997; 1 ♂, same data except 15.V.1997; 1 ♀, same data except Beville Hts, 2.VII.1980, blacklight, LStrike; 1 ♂, same data except Doyle Conner Building, 2.X.1973, Malaise trap, EEGrissel; 1 ♂, same data except Rock creek, Pt. 1, VIII.1984, Gupta; 1 ♂, same data except 24–30.VI.1985; 1 ♂, same data except I–II.1985; 1 ♂, same data except IV.1985; 1 ♂, same data except Pt. 2, 1.V–8.V.1985; 1 ♀, same data except Summer creek, 22–28.X.1989, CPorter; 1 ♂, same data except wet hardwood, 6–12.V.1989; 1 ♂, UF Campus, 13.V.1985, JBrambila; 1 ♂, same data except 17.V.1985; 1 ♂, same data except Pt. 1, 13.VI.1985; 1 ♂, same data except 17.V.1985; 2 ♂♂, same data except 24.V.1985; 1 ♂, same data except 1.VII.1985; 1 ♂, same data except 10.VII.1985; 1 ♀, same data except Hernando Co., 22.XII.1961, Steiner trap, GFWadeSr; 1 ♀, same data except Highlands Co., Sebring, 2.XI.1976, McPhail trap, EJWolfinger; 1 ♂, same data except Leon Co., Tall Timbers Reserve Station, near Talhahassee, 7.V.1968, HVWeensJr; 2 ♀♀, same data except Manatee Co., 21.IX.1967, Steiner trap, DCChancey (FSCA); 1 ♀, same data except Orange Co., 12.IV.1930, PAAusleyJr, Florida Fruit Fly Transport Survey (USNM); 1 ♀, same data except Parrish, 25.V.1967; 1 ♀, same data except 29.XI.1964, medfly trap, JCCourtney; 1 ♀, same data except Samoset, 16.XII.1967, Steiner trap, DCChancey; 1 ♀, same data except Palmetto, 22.XI.1966; 1 ♀, same data except Sarasota, 24.III.1975, McPhail trap, SVPratt; 1 ♂, same data except Volusia Co., DeLand, 22.XI.1971, CRRoberts (FSCA); 1 ♀, same data except Winter Park, 19.VI.1940, HTFernald (USNM). 1 ♀ from USA, [illegible – Boulfer, Cro (Crkerek?)], 1.VII.1939. 1 ♂ from USA, [illegible, Boulfer, Cro. Seph (Crkerek?)]. 1 ♀ from USA, Green Rido station, Fisher’s camp near Mertons Avenue, 23.IX.1955, MFisher (USNM). 1 ♀ from MEXICO, Michoacan, Tuxpan, 11.VII.1915, HEEvans. 1 ♀ from MEXICO, Fortin de las Flores, Sumidero, Planta de La Cerveceria, Ing., Daniel Rabago Reserve, 760–915 m, 12.VII.1968, Malaise trap, HVWeens Jr (FSCA). 1 ♀ from MEXICO, Oaxaca, Oaxaca, 30.VIII.1963 (BMNH); 1 ♀ from MEXICO, Chiapas, San Cristobal de las Casas, 24.VI.1969, 2195 m, Malaise trap (CNCI). 1 ♀ from COSTA RICA, Alajuela, University farm, 14.VII.1956, LCKuitert (FSCA). 1 ♀ from COSTA RICA, Escazú, 20.V.1987, HTownes & MTownes; 1 ♂, same data except 21.V.1987. 1 ♀ from COSTA RICA, Guanacaste, San Rosa Park, riparian, 27.VII.1978, DHJanzen (BMNH). 1 ♂ from VENEZUELA, Mérida, Hacienda El Alto, Manzano Alto, cloud forest, 1600 m, 4.VII.1991, CPorter & LStange; 1 ♀, same data except 8.VII.1991 (FSCA). 2 ♀♀ from VENEZUELA, Yacambu, 1200 m, 7.V.1981, HTownes; 1 ♂, same data except 10.V.1981; 1 ♀, same data except 13.V.1981; 1 ♀, same data except Cubiro, 6.V.1981 (AEIC). 1 ♀ from VENEZUELA, Caripe Conuco, El Mirador, 22.VII.1973, JCShuttleworth (CNCI). 1 ♀ 1 ♂ from ECUADOR, Sucumbios, Napo River, Sacha Lodge, 290 m, 21–31.X.1994, PHibbs; 2 ♂♂, same data except 1–31.XII.1994 (AEIC).

Distribution. *Messatoporus discoidalis* is the most widely distributed species of the genus (Fig. 320). It is recorded from almost all North America south to southern Canada, and reach Ecuador in south. It is distributed from eastern to western coast both in USA and Mexico. These records include a very wide variety of climate and vegetation types, and indicate very wide ecological flexibility. There are some gaps in its distribution records in central USA and southern Mexico, but those are likely to be due to the lacking or insufficient sampling effort. In considerable portions of its distribution range, *M. discoidalis* is the only recorded species of *Messatoporus*—at west to 95°42' W, and at north of 42°3' N, encompassing all western and northeastern USA and southern Canada.

***Messatoporus dissidens* Santos, sp. nov.**

(Figs 100, 203, 321)

Female. Fore wing 6.6 mm. HEAD: Mandible densely covered with long hairs; MLW 2.19; MWW 0.34; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.37. Clypeus slightly and more or less uniformly convex, centrally straight; CHW 2.6; CWW 2.5; apical area medially concave, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, distinctly striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, shiny, impunctate, with weak and short wrinkles at ventral half of posterior margin; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, subcircular, 1.15 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, impunctate; notaulus reaching about 0.77 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles restricted to ventral portion. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, arched backwards. Transverse sulcus at base of propodeum very wide, about 0.87 × as long as anterior area of propodeum, impunctate; metapleuron punctate-rugulose, without transverse wrinkles, moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: 1.12 × as long as wide, shiny, moderately pilose; anterior area moderately punctate; spiracle elliptic, SWL 2.8; anterior transverse carina medially straight. Propodeal wrinkles strong, closely spaced, anteriorly faint at median portion, posteriorly partly complete and partly incomplete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs entirely irregular; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.54 of its own length; vein 2Cua 0.18 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.7, pentagonal, about as high as wide, AWH 1.12; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, 3r-m distinctly shorter; vein 3-M distinctly longer than 2-M; 4-Rs distinctly sinuous; 4-M tubular, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.92; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.67 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.4 × as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally densely pilose; T1LW 3.67; T1WW 1.67; spiracle on 0.49 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.12; T2WW 2.28; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow

foveae, densely and uniformly pilose. OST 0.88; ovipositor slender, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head and mesosoma black with whitish marks, metasoma orange with black and whitish marks. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, whitish (234,221,174); orbital band area at lower gena with small blackish spot; pedicel, scape dorsally and f1 ventrally, fulvous (176,105,060); f9–14 entirely white, f8 and f15 partially white. Mesosoma: black; collar and dorsal margin of pronotum connected, subcircular spot on mesoscutum, scutellum, tegula, subalar ridge, central mark on mesopleuron, dorsal spot at hypopimeron, dorsal division of metapleuron, transverse sulcus centrally, metapleuron except anterior and ventral margins and apical semicircular mark covering 0.3 of propodeum, whitish; axillar carinae laterally fulvous; fore and mid tibiae and first trochanter except small apical spot, whitish; fore second trochanter and femur ventrally whitish, dorsally pale orange with weak brown stripe; fore tibia whitish, ventrally with weak brown stripe; t1–4 whitish, t5 blackish; mid first trochanter whitish with anterior and posterior black stripes; second trochanter and femur pale orange, femur dorsally with weak brown stripe; mid tibia whitish, tibial spurs and tarsus blackish; hind coxa basal 0.4 blackish, apical 0.6 whitish with longitudinal black stripe; first hind trochanter blackish, second trochanter and femur bright orange (210,112,049), with small yellow mark between the two articles, apical margin of femur blackish; basal 0.25 of hind tibia, apical 0.6 of t1 and t2–4, whitish; remainder of tibia and tarsus black. Mesosoma: bright orange; T1 black, anterior 0.4 dorsally and posterior 0.1, whitish; S1 whitish; T2 anterior 0.6 blackish, posterior 0.4 turning from orange to bright yellow; T3–8 anteriorly dark fulvous, posteriorly turning to bright orange; T7 with narrow posterior white stripe.

Male. Fore wing 6.85–7.37 mm long. Similar to female, except for the following: malar space entirely whitish; antenna with 23–25 flagellomeres, flagellum basally light brown, blackish towards apex; axillar carinae blackish; ventral 0.4 of mesopleuron and mesosternum whitish; black areas on metapleuron smaller; T2–7 anteriorly dark to light brown, with progressively shorter posterior whitish stripe.

Variation. One specimen with gena without blackish spot at orbital band area, central mark on mesopleuron small and base of T2–8 fuscous, apically light fulvous. Males sometimes with pronotum almost entirely whitish; anterior whitish mark at dorsal T1 sometimes very small;

Comments. Somewhat similar to *M. tenuissimus* **sp. nov.**, from which it can be differentiated mainly by body generally stouter (see Figs 99–100); mesopleuron with an elongate, medium sized central mark and a small mark at hypopimeron (vs. with a single, small subcircular yellowish mark); metapleuron with about 0.4 of its surface black (vs. entirely yellowish); first tergite moderately long, 0.40 × as long as T2–8 (vs. short, 0.29 as long as T2–8); and ovipositor dorsal valve without ridges (vs. with four moderately strong ridges).

Also similar to *M. bimaculatus* **sp. nov.** and *M. unimaculatus* **sp. nov.** It can be isolated from both species by the color pattern of the metasoma, mostly orange, each tergite anteriorly light brown (vs. T2–8 blackish, with posterior yellowish stripe); mesopleuron with two unequal yellowish marks (vs. with a single large mark or two subcircular marks with about the same size); scape ventrally whitish (vs. entirely black); mesoscutum very strongly convex (vs. moderately convex); and propodeum with subcircular yellowish mark (vs. with two sublateral marks).

Biology. Unknown.

Etymology. From the Latin *dissidens*, meaning “disagreeing”; in reference to the color pattern of the metasoma, differing between males and females.

Material examined. 2 ♀♀, 4 ♂♂. Holotype ♀ from ARGENTINA, Tucumán, Horco Molle, 16.I.1996, yellow pans, MJSharkey (CNCI). Mounted on triangle point. In good shape.

2 ♂♂ from URUGUAY, Tacuarembó, 40 km NW Tacuarembó, 2–9.II.1963, JK Bouseman (AMNH). 1 ♀ from ARGENTINA, Tucumán, Horco Molle, 14–16.III.1966, LStange; 1 ♂, same data except 7–13.III.1966 (AEIC); 1 ♀, same data except 16.I.1996, yellow pans, MJSharkey (CNCI). 1 ♂ from ARGENTINA, La Rioja, Sta. Cruz, near Anillaco, 1700 m, humid ravine, 6.IV.2002, Malaise trap, Pfidalgo (FSCA).

Distribution. Northwestern Argentina and Uruguay (Fig. 321).

***Messatoporus dominicanus* Santos, sp. nov.**

(Figs 65, 194, 322)

Female. Fore wing 7.65 mm. HEAD: Mandible densely covered with long hairs; MLW 2.18; MWW 0.33; dorsal tooth in front view projected upwards, long, ventral tooth distinct only as a very short lobe; ventral tooth somewhat rhomboid. MSM 0.42. Clypeus slightly and more or less uniformly convex, centrally straight; CHW 2.63; CWW 2.22; apical area medially concave, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 25 flagellomeres; flagellum uniform. Supra-antennal area mat, impunctate, distinctly striate near antennal sockets, ventrally and around ocelli slightly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, strong until almost reach hypostomal carina, apically very faint. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, mat, impunctate, ventrally moderately striate; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, $1.27 \times$ as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 72 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, strongly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about $1.00 \times$ as long as anterior area of propodeum, with weak longitudinal wrinkles; metapleuron coriarius-rugulose, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia not distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.13 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elongate, SWL 3.8; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, anteriorly strongly curved, posteriorly somewhat irregular; posterior transverse carina distinct as very weak sublateral crests. WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.2 of its own length; vein 2Cua $0.46 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.59, pentagonal, distinctly wider than high, AWH 1.21; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.24; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.8 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.35 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.45; T1WW 1.63; spiracle on 0.49 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.08; T2WW 2.26; thyridium much longer than wide, without small circular depression just behind it; T2–8 minutely and very weakly coriarius, densely and uniformly pilose. OST 0.72; ovipositor slender, slightly downcurved, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and whitish. Head: clypeus, mouthparts, malar space, supra-clypeal area, ventral spots at scape and complete orbital band, whitish (243,239,227); f8–12 dorsally white, f10 entirely white, f7 dorsally white on apical 0.5, f13 with small basal white mark. Mesosoma: black; collar and dorsal margin of pronotum connected, propleuron laterally, subcircular spot on mesoscutum, scutellar carina, basal 0.8 of scutellum, tegula, subalar ridge, narrow central mark on mesopleuron, mesosternum, dorsal division of metapleuron, central 0.7 of metapleuron and narrow arc-shaped mark on propodeum, whitish; ventral border of metapleuron pale orange fore coxa and trochanter whitish, coxa with lateral longitudinal dark brown mark, first

trochanter with dorsal dark brown mark; fore second trochanter and femur pale orange; fore tibia whitish with dorsal fuscous mark on basal 0.6; fore and mid tarsus blackish; mid leg except tarsus, bright orange; hind leg deep orange (187,073,044), extreme base and apex of hind tibia and tarsus except t4, blackish; hind t4 pale orange. Metasoma: black; basal 0.25 dorsally and apical 0.2 of T1, whitish; T2–8 with posterior and lateral whitish stripes; S1–6 whitish, S2–6 with progressively smaller lateral black marks.

Male. Unknown.

Variation. Fore wing 8.65–8.67 mm long. Specimen from Santo Domingo with mandible except apex whitish; antenna with 29 flagellomeres; pronotal wrinkles stronger; mesopleuron along epicnemial carina and metapleuron with weak but distinct wrinkles; central mark on mesopleuron wider, ventral margin of metapleuron only with small pale orange spot; arc-shaped mark on propodeum narrower, posterior black area distinctly lanceolate. Specimen from La Cumbre with mandible medially whitish.

Comments. Very similar to *M. lunatus* **sp. nov.**, from which it can be differentiated by having postscutellum black (vs. yellow); yellow spot on mesopleuron elongate, somewhat sinuous (vs. distinctly C-shaped); mandible mostly blackish, with dorsal yellow spot (vs. mostly whitish); mesopleuron with weak longitudinal wrinkles along epicnemial carina, stronger on basal 0.3 (vs. without wrinkles along epicnemial carina); posterior transverse carina of propodeum distinct as very weak sublateral crests (vs. entirely absent); supra-clypeal area without blackish spot (vs. with blackish spot at females, males usually with blackish spot); scape ventrally with whitish spot (vs. without whitish spot at females, males with weak ventral spot).

Biology. Unknown.

Etymology. Latinized form of *dominicana*; in reference to Dominican Republic.

Material examined. 3 ♀♀. Holotype ♀ from DOMINICAN REPUBLIC, Puerto Plata, La Cumbra, 300 m, 22-23.III.1978, LMasner (AEIC). Pinned. In good shape.

Paratypes: 1 ♀ from DOMINICAN REPUBLIC, Barboruso, 730 m, 19–23.VII.1990, LMasner (CNCI). 1 ♀ from DOMINICAN REPUBLIC, Santo Domingo, Macoris, 28.III.1913, PCRussel (USNM).

Distribution. Recorded from three sites in Dominican Republic (Fig. 322).

***Messatoporus elektor* Santos, sp. nov.**

(Figs 60, 143, 174, 323)

Female. Fore wing 6.9 mm. HEAD: Mandible densely covered with long hairs; MLW 2.3; MWW 0.52; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.33. Clypeus basally evenly convex, apically gradually flattened, centrally concave; CHW 2.23; CWW 2.42; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 27 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, with very weak, low median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, mat, finely and densely punctate, ventrally with strong wrinkles; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, subcircular, $1.19 \times$ as long as wide, densely covered with short hairs, mat, densely punctulate; notaulus reaching about 0.71 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove shallow, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum moderately wide, about $0.62 \times$ as long as anterior area of propodeum, impunctate; metapleuron densely and finely punctulate, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with weak punctures separated by about their own diameter.

PROPODEUM: 1.15 × as long as wide, mat, moderately pilose; anterior area moderately punctate; spiracle elliptic, SWL 1.6; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, closely spaced, mostly complete, anteriorly strongly curved, posteriorly somewhat irregular; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.21 of its own length; vein 2Cua 0.57 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.67, pentagonal, about as high as wide, AWH 0.91; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.34; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.83 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.41 × as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally sparsely pilose, laterally moderately pilose; T1LW 0.27; T1WW 1.61; spiracle on 0.51 of its length, slightly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.37; T2WW 2.56; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.68; ovipositor slender, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma mostly yellow and blackish metasoma brown and pale yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, pale yellow (223,198,101); scape dorsally, pedicel and flagellum, dark brown; f10–15 entirely white, f9 and f16 partially white. Mesosoma: mostly yellow, turning from light yellow (233,218,150) dorsally to pale orange (220,151,057) ventrally; postero-ventral mark covering 0.3 of pronotum, posterior corner of mesopleuron, most of epicnemium ventrally, anterior portion of mesopleuron just dorsal to sternaulus, transverse sulcus laterally and area over anterior transverse carina of propodeum, black; mesoscutum mostly black with sparse brownish areas, central subcircular yellow spot and yellow horizontal dashes at lateral margin; axillar carinae and axillary through, brownish; anterior area of propodeum brown (115,075,050); anterior 0.2 of posterior area and apical subcircular mark on propodeum, bright orange; fore leg pale yellow, turning to light fuscous at tarsus; mid coxa, tibia and tarsus pale yellow; mid trochanters and femur bright orange; hind coxa, trochanters and femur bright orange, apically darker; posterior spot at hind coxa yellow; apical 0.7 of hind tibia and basal 0.3 of t1, whitish; remainder of tibia and tarsus, blackish. Metasoma: brown; anterior 0.5 of T1, light yellow; T1–8 and S2–6 with posterior whitish stripes, progressively wider towards posterior tergites.

Male. Unknown.

Comments. Similar to *M. nigriangulatus* sp. nov., from which it can be differentiated by having pronotum with distinct posterior blackish mark (vs. entirely yellowish); anterior area of propodeum mostly blackish (vs. entirely orange); transverse sulcus of propodeum moderately wide, 0.62 × as long as anterior area (vs. very wide, 1.20 × as long as anterior area); hind femur entirely orange, though apically darker (vs. blackish on apical 0.4); and fore wing veins 2r-m and 3r-m distinctly convergent (vs. subparallel).

Biology. Reared from a nest of unidentified Pompilidae (labeled as “Psammocharidae”).

Etymology. From the Greek *elektor*, meaning “the beaming sun”; in reference to the somewhat golden-orange color tones of the mesosoma.

Material examined. Holotype ♀ from BRAZIL, Minas Gerais, Belo Horizonte, Estação Ecológica UFMG, 21.VIII.1992, HRPimenta, “67-A(26.VI.1992) // ex. Psammocharidae” (UFES). Pinned. Tip of left antenna, both mid t5 and right hind t2–5 missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in southeastern Brazil (Fig. 323).

***Messatoporus ellipsicavus* Santos, sp. nov.**

(Figs 84, 126, 206, 217, 259, 324)

Female. Fore wing 5.28 mm. HEAD: Mandible densely covered with long hairs; MLW 1.96; MWW 0.43; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.21. Clypeus almost entirely flattened, centrally concave; CHW 1.86; CWW 1.86; apical area medially concave, laterally with distinct triangular lobes, its margin regular, not raised. [Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered]. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, without median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, minutely punctulate, with weak and short wrinkles along posterior margin of collar; epomia very weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, ovoid, $1.22 \times$ as long as wide, sparsely pilose, shiny, minutely punctulate; notaulus reaching about 0.68 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove shallow, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, irregular; sternaulus complete but weak, weakly sinuous, smooth; scrobe moderately deep; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.7 \times$ as long as anterior area of propodeum, very weakly rugulose; metapleuron with very fine and moderately dense punctures, with vestigial wrinkles, moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.16 \times$ as long as wide, shiny, moderately pilose; anterior area almost impunctate; spiracle elliptic, SWL 3.00; anterior transverse carina medially almost straight. Propodeal wrinkles weak, very closely spaced, anteriorly complete, posteriorly mostly incomplete and overlapped, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.37 of its own length; vein 2Cua $0.38 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.64, pentagonal, about as high as wide, AWH 1.13; crossvein 3r-m absent; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.36; vein Cub almost straight, very slightly convex, forming straight angle with Cua; vein 2-1A reaching 0.56 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.33 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 3.65; T1WW 1.48; spiracle on 0.46 of its length, slightly prominent; median depression elongate, very shallow; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.82; T2WW 1.66; thyridium much longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.78; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 7 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head dark brown and whitish, meso and metasoma orange, whitish and dark brown. Head: dark brown (098,082,067); clypeus, mandible except apex, malar space, supra-clypeal area, scape and pedicel ventrally and orbital band interrupted at temple, whitish (241,229,195); scape and pedicel dorsally and flagellum, brown (124,080,054); white band at flagellum starting at f10. Mesosoma: mostly bright orange (213,115,047); collar and dorsal margin of pronotum connected, subcircular spot on mesoscutum, scutellum except posterior 0.2, tegula, subalar ridge, ventral mark covering 0.3 of mesopleuron, mesosternum centrally, dorsal division of metapleuron, dorsal 0.5 of metapleuron and narrow posterior arc-shaped mark on propodeum, pale yellow (228,214,138) to whitish; posterior 0.6 of pronotum, most of central lobe of mesoscutum, scutellum posteriorly, axillar carinae centrally, postscutellum, mark over posterior apex of sternaulus, ventral 0.6 of mesepimeron, ventral mark on

metapleuron, small spots at lateral propodeum and over anterior transverse carina medially and posterior subcircular mark on propodeum, dark brown; fore leg whitish, darker towards apex, t1–4 ferruginous and t5 blackish; fore femur with dorsal brown stripe, fore tibia with ventral brown stripe on basal 0.8; mid coxa and trochanters whitish, trochanters with dorsal brownish marks; mid femur pale orange, with weak dorsal brownish stripe; mid tibia whitish with ventral brown stripe on basal 0.8; mid tarsus dark brown; hind coxa anteriorly pale orange, posteriorly whitish, medially with large and somewhat S-shaped brown mark; hind trochanters whitish with dorsal brown marks; hind femur bright orange; basal 0.15 of hind tibia, apical 0.5 of t1, t2–4 and basal 0.5 of t5, whitish; median 0.65 of hind tibia light brown; apical 0.2, tibial spurs, basal 0.5 of t1 and apical 0.5 of t5, dark brown. Metasoma: mostly bright orange; T1 anterior 0.4 and posterior 0.2 whitish; T2–3 anterior 0.6 brown (except thyridium), T2 with posterior whitish stripe.

Male. Fore wing 5.89 mm long. Very similar to female, except for the following: antenna with 21–26 flagellomeres; brown mark on propodeum very small; ventral 0.7 of mesopleuron (including hypopleuron) and mesosternum entirely, whitish; metapleural triangle dark brown; transverse sulcus medially usually blackish; metapleuron almost entirely whitish; propodeum almost entirely dark brown, except lateral triangular marks; brownish marks at fore and mid legs very weak or absent; T2–7 dark brown, lighter towards apical tergites, T2–6 with posterior whitish stripe.

Variation. Fore wing 5.46–8.03 mm long. Orbital band interruption sometimes reaching gena; antenna with 20–28 flagellomeres; dark brown mark on pronotum sometimes reduced or absent, its borders sometimes bright orange; central lobe of mesoscutum sometimes light brown, only slightly darker than lateral lobes; epicnemium and area over sternaulus sometimes dark brown; whitish marks at meso and metapleuron sometimes reduced, sometimes almost indistinct; whitish mark on metapleuron sometimes not restricted to dorsal portion, occupying as much as 0.6 of its surface; longitudinal mark at hind coxa ferruginous to black, hind coxa sometimes almost entirely brown; basal and apical tips of hind femur sometimes blackish; t5 sometimes entirely blackish; T1 sometimes with median 0.8 orange or dark brown. All whitish tones sometimes turning to buff (225,197,092).

Comments. Similar to *M. copiosus* sp. nov.: these are the only species with orange mesoscutum in which the rest of the mesosoma is not entirely orange or almost so. These two species can be isolated by many features; mainly by *M. ellipsicavus* having orbital band widely interrupted at gena (vs. complete); mesopleuron and mesosternum almost entirely bright orange (vs. almost entirely whitish); metapleuron orange in 0.6 of its area (vs. entirely whitish); epomia distinct only after diverging from collar (vs. complete); hind wing vein Cub almost straight, very slightly convex (vs. distinctly convex on posterior half); and ovipositor dorsal valve with four moderately strong ridges (vs. five). The males of both species are also very similar, particularly because males of *M. ellipsicavus* have mesosternum, mesopleuron and metapleuron extensively whitish; males of both species tend to have whitish mark on propodeum medially interrupted, forming two subcircular lateral spots; and also because the epomia in males of both species is so reduced it is difficult to distinguish whether it is complete or not. Thus, males of *M. ellipsicavus* can be recognized by the orbital band incomplete; hind wing vein Cub almost straight; and transverse sulcus of propodeum orange or brown (vs. whitish).

Biology. Unknown.

Etymology. From the Latin words *ellipsis*, meaning “omission”, but also “ellipse”, and *cavus*, meaning “hole”; in reference to the elliptic propodeal spiracle.

Material examined. 20 ♀♀ 6 ♂♂. Holotype ♀ from BRAZIL, Rio Grande do Sul, Arroio Grande, 21.III.2003, Malaise trap, RFKrüger (UFES). Mounted on triangle point. Tip of both antennae missing; otherwise in good shape.

Paratypes: 1 ♀ from BRAZIL, Paraná, Ponta Grossa, Reserva IAPAR Br376, 22.XII.1986, Malaise trap, PROFAUPAR; 1 ♀, same data except 29.IX.1986; 2 ♀♀, same data except 6.X.1986 (DZUP). 1 ♀ from BRAZIL, Santa Catarina, FHoffmann (NRMS). 1 ♀, same data except Nova Teutônia, 300–500 m, 15.IX.1946, FPlaumann; 1 ♀, same data except 3.IV.1941 (AEIC); 1 ♂, same data except 27.IV.1948; 1 ♂, same data except 27.XI.1957; 1 ♀, same data except 16.IV.1958; 1 ♂, same data except 2.II.1959; 1 ♂, same data except 21.XII.1959; 1 ♂, same data except 28.I.1959; 1 ♂, same data except 1.II.1960; 1 ♀, same data except 14.III.1960; 1 ♀, same data except 23.II.1960; 1 ♀, same data except 29.III.1960; 1 ♀, same data except 3.III.1960; 1 ♀, same data except 8.II.1960; 1 ♀, same data except 8.III.1960; 2 ♀♀, same data except 1.IV.1961; 1 ♀, same data except 20.II.1961; 1 ♀, same data except 3.II.1961; 1 ♀, same data except 16.II.1962 (CNCI).

Distribution. Atlantic Forest in southern Brazil (Fig. 324).

***Messatoporus euryoikos* Santos, sp. nov.**

(Figs 1, 15, 51, 128, 184, 225, 249, 257, 272, 325)

Female. Fore wing 10.00 mm long. HEAD: Mandible densely covered with long hairs; MLW 1.67; MWW 0.24; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.29. Clypeus almost entirely flattened, centrally concave; CHW 2.65; CWW 2.33; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, very weakly striate near antennal sockets, ventrally very weakly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, shiny, minutely punctulate, with weak and short wrinkles at ventral half of posterior margin; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, ovoid, $1.33 \times$ as long as wide, glabrate, shiny, minutely punctulate; notaulus reaching about 0.7 of mesoscutum length, deeply impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, ventrally abruptly curved, dorsally straight; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter moderately long, arched backwards. Transverse sulcus at base of propodeum moderately wide, about $0.46 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.25 \times$ as long as wide, shiny, moderately pilose; anterior area scarcely punctate; spiracle elongate, SWL 5.25; anterior transverse carina medially straight. Propodeal wrinkles strong, closely spaced, central wrinkles complete, anterior and posterior ones medially faint, oblique and central ones slightly curved; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs evenly curved in two portions; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.57 of its own length; vein 2Cua $0.49 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.49, pentagonal, about as high as wide, AWH 1.08; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.14; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.88 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.29 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 3.28; T1WW 1.59; spiracle on 0.52 of its length, slightly prominent; median depression subcircular, distinct; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.33; T2WW 1.91; thyridium longer than wide, with small circular depression just behind it; T2–8 minutely and very weakly coriarius, laterally moderately pilose, dorsally T2–3 and 8 glabrate, T4–7 sparsely to moderately pilose. OST 1.72; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma black and yellow, metasoma orange. Head: black; clypeus, small mark at mandible midlength, mouthparts, supra-clypeal area and complete orbital band, whitish (241, 228, 184); f8–9 entirely white, f7 and f10 almost entirely white, f11 dorsally white. Mesosoma: black; narrow stripes at collar and

dorsal margin of pronotum, propleuron, large subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carina, tegula, subalar ridge, central mark on mesopleuron, spots at lateral mesosternum, dorsal division of metapleuron, metapleuron except anterior and ventral margins and ovoid lateral marks on propodeum, whitish; anterior face of fore coxa, anterior mark at mid coxa, posterior mark at hind coxa, ventral face of fore first trochanter, ventral face of fore and mid femur, fore and mid tibia and tarsi except blackish t5, whitish; most of mid tibia and trochanters except sparse black marks, hind coxa, trochanters and femur, orange (222, 118, 046); hind tibia basally light yellow, slightly darker apically; hind tarsus whitish. Metasoma: orange; T1 black with posterior whitish stripe; anterior margin of T2 blackish; metasomal sternites with posterior whitish stripe, weaker towards apical sternites.

Male. Fore wing 6.22–9.42 mm long. Differs from female by the following characters: mandible whitish (except apex); scape ventrally always with whitish spot; pronotum smaller, its dorsal margin anteriorly slightly concave; mesoscutum more distinctly convex; scrobe less distinctly concave; central portion of mesopleuron slightly more projected, somewhat swollen; central mark reaching posterior margin of mesopleuron and connected with whitish area of mesosternum; mesosternum almost entirely whitish; fore coxa entirely whitish; dark areas on femora pale brown, sometimes almost fading; mid coxa and trochanters whitish; hind coxa with large longitudinal stripe anteriorly to stripe pale orange, posteriorly whitish; T1–7 anteriorly blackish to brownish, with posterior whitish stripe which is progressively wider toward posterior tergites.

Considerably different from female in color, particularly because of the striped metasoma and mid and hind coxae not orange, but recognizable by the propodeum pattern and other similarities.

Variation. Fore wing 8.39–12.07 mm long. Whitish spots covering 0–60% of mandible surface; scape sometimes with whitish ventral spot; antenna sometimes with 22–23 flagellomeres; pronotal wrinkles sometimes weak; central mark on mesopleuron sometimes connected with subalar ridge whitish spot, sometimes connected with mesosternum marks (surface over sternaulus whitish); sternaulus with vestigial to distinct vertical wrinkles; white marks at fore coxa covering 0–80% of its surface; mid and hind coxa either with or without black marks; second hind trochanter ventrally sometimes blackish; T1 sometimes fuscous, sometimes with anterior 0.1–0.3 whitish; in specimen from Caxiuanã medially orange instead of black; anterior margin of T2 sometimes not blackish; one specimen from Rio Claro and one from Morro Redondo with T2 laterally blackish, centrally brownish, with posterior yellow stripe; ovipositor sometimes slightly upcurved; one male from Ipiaú with hind second trochanter almost entirely blackish, hind femur bright orange apically marked with blackish, apical 0.2 of hind tibia and basal 0.5 of t1 blackish. Specimen from Morro Redondo with pronotum smaller and anteriorly concave, similar to male specimens, and propodeal wrinkles more curved backwards. One male specimen from Caruaru with hind coxa yellow, with wide black lateral stripe, ventrally orangish, and T1 basally dark brown. Orange tones varying from bright to deep (197,096,041); whitish tones varying from sometimes yellow (236,215,119) or buff (217,191,115).

Comments. Very close to *M. apiopharkis* **sp. nov.**, from which it can be differentiated by having mid and hind coxae mostly orange (vs. yellow and black); posterior area of propodeum with two ovoid longitudinal yellow marks (vs. with one arc-shaped mark); postscutellum black (vs. yellow); flagellum with uniform width (vs. flattened and widened at subapical 0.3); apical area of clypeus medially concave (vs. straight); epomia and wrinkles on pronotum weak (vs. strong); propodeal wrinkles closely spaced (vs. moderately widely spaced); and ovipositor ventral valve with six teeth (vs. nine). It is also similar to *M. lordos* **sp. nov.**, which differs from *M. euryoikos* in the yellow and black coxae; posterior marks on propodeum short and sub-triangular (Fig. 184); mesosternum black (vs. at least partially yellow); and propodeum densely punctate (vs. scarcely punctate), with anterior transverse carina medially distinctly arched forwards (vs. straight).

Male specimens of *M. amplithorax* **sp. nov.** can be mistaken as males of *M. euryoikos*, because the mid and hind leg color pattern are much more similar to the female of *M. euryoikos*, with mid and hind coxae and trochanters and hind femur bright orange. To correctly identify the males of *M. euryoikos*, the description provided above must be considered; they can also be readily recognized as such by the posterior marks on propodeum, very similar to those of females (vs. much wider on midlength in *M. amplithorax*); and postscutellum pale yellow to whitish (vs. black).

Biology. Unknown.

Etymology. From the Greek words *eury*, meaning “broad”, and *oikos*, meaning “house”; in reference to its wide geographic record.

Material examined. 57 ♀♀, 16 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Cariacica, Reserva Biológica de Duas Bocas, 16–17.IX.2006, RKawada *et al* (UFES). Mounted on triangle point. In good shape.

Paratypes: 1 ♂ from PANAMA, Darien, PN Darien, Pire, Estación Rancho Frio, 80 m, 21.III–4.IV.2000, Cambra, Santos & Bermudez. 1 ♀ from TRINIDAD, Tunapuna, Mt. St. Benedict, ravine forest bottom, 230 m, 4–13.VI.1993, Malaise trap, SPEck & JPEck, 93-2 (CNCI); 1 ♀ from COLOMBIA, Amazonas, PNN Amacayacu, Mocagua, 150 m, 6–12.VI.2000, AParente. 1 ♀ from COLOMBIA, Caquetá, PNN Chiribiquete, Puerto Abeja, 310 m, 2.II–12.II.2000, CArenas. 1 ♀ from PERU, Loreto, Iquitos, 10.II.1984, LHuggert. 1 ♀ from BOLIVIA, Chaparé, Rio Chimoré, II.1972, MFritz (AEIC). 1 ♀ from BRAZIL, Pará, Melgaço, Floresta Nacional de Caxiuana, Trilha Igarapé Ararua, Pt. P05180, 24–27.XI.2003, yellow pans, APAguiar & JTDias (MPEG). 1 ♀ 1 ♂ from BRAZIL, PE, Caruaru, 900 m, IV.1972, MALvarenga; 1 ♀, same data except V.1972. 1 ♀ from BRAZIL, Goiás, Jataí, XI.1972, FMOliveira (AEIC). 1 ♂ from BRAZIL, Bahia, 800 m, III.1889 (USNM). 1 ♀, same data except Camamu, Fazenda Boa Esperança, 19.XI.2002, Malaise trap, JCardoso & JMaia; 1 ♀, same data except Coaraci, Fazenda Restauração, Pt. 7, 26.XI.2002; 2 ♀♀, same data except Ibicuí, Fazenda Maravilha, Pt. 4, 26.XI.2002; 1 ♂, same data except Itacaré, Fazenda Muchirão, Pt. 7, 11.IV.2003; 1 ♀, same data except Itajuípe, Fazenda Trindade, Pt. 1, 13.IV.2003; 1 ♂, same data except Ipiaú, Fazenda Petrolina, Sítio Casca, 27.I.2007, “Oeste”; 1 ♂, same data except Itacaré, fazenda Vencedora, 8.XII.2003; 1 ♂, same data except Ituberá, Fazenda Vale da Juliana, 26.I.2007, “Bana Teste.” 1 ♀ from BRAZIL, Espírito Santo, Alfredo Chaves, Picadão, 8–15.X.2007, Malaise trap, COAzevedo *et al.*, 1 ♀, same data except Cariacica, Reserva Biológica de Duas Bocas, 16–17.IX.2006, RKawada *et al.*; 1 ♀, same data except Domingos martins, Pico do Eldorado, Pt. B2, 26.XI–3.XII.2004, MTTavares *et al.*; 1 ♀, same data except 3–10.XII.2004; 1 ♀, same data except Linhares, Desengano, Pt. 2, 3–10.VI.2004, FGRampinelli *et al.*; 1 ♀, same data except Santa Maria de Jetibá, Pt. B3, 29.XI–6.XII.2002, COAzevedo *et al.* 1 ♀, same data except Fazenda Clarindo Krüger, Pt. B8, 29.XI–6.XII.2002, MTTavares *et al.*; 1 ♀, same data except Fazenda Paulo Seick, Pt. B4. 1 ♀ 1 ♂ from BRAZIL, MG, Dionísio, Fazenda Morro do Gavião, primary forest, Pt. 2, 22.X.2005, Malaise trap, JCRFontenelle; 1 ♀, same data except Ipaba, Fazenda Macedônia, Pt. 2, 22–29.X.2005; 1 ♀, same data except Parque Estadual do Rio Doce, Área da Tereza, Pt. 2, 14.XI.2002; 2 ♂♂, same data except Pt. 1, 24–31.X.2002; 1 ♂, same data except Pt. 2; 1 ♂, same data except Pt. 3; 1 ♀, same data except Pt. 1, 28.X–4.XI.2002; 1 ♀, same data except Pt. 2, 31.VII–7.VIII.2002; same data except Pt. 2, 22–29.X.2005; 1 ♀, same data except Campolina, primary forest with helicones, Pt. 4, 23.XI.2003; 1 ♀, same data except Pt. 2, 21–28.VII.2005; 1 ♀, same data except 15–22.II.2006; 1 ♀, same data except Trilha da Lagoa do Gambá, low secondary forest, 3–10.XI.2004; 1 ♀, same data except 10.XI–17.XI.2004; 1 ♀, same data except Pt. 1, 18–25.XI.2007; 1 ♀, same data except Trilha do Vinhático, Pt. 2, 2.XI.2000; 1 ♀, same data except Pt. 1, 24–31.VII.2002; 1 ♀, same data except Pt. 3, 19–26.X.2003; 1 ♀, same data except Pt. 2, 27.X–3.XI.2004; 1 ♀, same data except Pt. 1, 31.VII–7.VIII.2007; 1 ♀, same data except Fazenda Sacramento, secondary forest, Pt. 1, 18–25.XI.2007. 2 ♀♀ from BRAZIL, São Paulo, Rio Claro, Floresta Estadual Edmundo Navarro de Andrade, 10–11.IX.2005, Malaise trap, JTDias. 1 ♂ from BRAZIL, Rio Grande do Sul, Morro Redondo, 101 m, 15.XI.2002, Malaise trap, RFKrüger; 1 ♀, same data except 23.V.2003; 1 ♀, same data except pelotas, 22.XI.2002; 1 ♀, same data except 6.III.2002 (UFES). 1 ♀ from BRAZIL, Rio de Janeiro, Represa Rio Grande, VIII.1969, Malvarenga (AEIC). 1 ♀ from BRAZIL, São Paulo, Nova Granada, Fazenda São João, 5.XII.2008, Malaise trap, BIOTA-FAPESP; 1 ♀, same data except São João de Iracema, Fazenda São Francisco, 26.X.2008; 1 ♀, same data except Palestina, Fazenda Boa Vista, 116 ha fragment, Pt. 1, 12.VIII.2009 (UJMF). 1 ♀ from BRAZIL, São Paulo, Luiz Antônio, Estação Ecológica do Jataí, Mata Ciliar, Pt. 1, 16.VIII.2007, Malaise trap, NWPerioto *et al.*; 1 ♀, same data except Pt. 2, 30.XI.2009 (IBRP). 1 ♂ from BRAZIL, Paraná, Ponta Grossa, Reserva IAPAR Br376, 13.X.1986, Malaise trap, PROFAUPAR; 1 ♀, same data except 24.XI.1986; 1 ♀, same data except 12.I.1987; 1 ♂, same data except 1.XII.1986 (DZUP). 1 ♀ from BRAZIL, Santa Catarina Nova Teutônia, 300–500 m, III.1968, FPlaumann (AEIC). 1 ♀, same data except III.1969 (CNCI).

Distribution. *Messatoporus euryoikos* is a very widespread species, occurring from Panama to southern Brazil (Fig. 325). The collection sites encompass many different environments and climates, from subtropical (southern Brazil) to equatorial (Amazon Basin and Panama), from semi-arid (northeastern Brazil) to very humid (Amazon Basin). That indicates a large environmental flexibility, and suggests that *M. euryoikos* may occur throughout all South America.

Messatoporus femorator Kasparyan & Ruíz 2005

(Fig. 326)

**Messatoporus femorator* Kasparyan & Ruíz 2005: 107, 112. Description, distribution, keyed. Holotype ♂ (UATM, pictures examined). Type data: México, Tamaulipas, Gómes Farías, Alta Cima, 900 m, Malaise trap, 3–10.VII, S. Hernández A.

Messatoporus femorator: Kasparyan & Ruíz 2008: 308–309, 312, 318–320. Description, distribution, figure, keyed.

Female. Unknown.

Male. Fore wing 8.10 mm. **HEAD:** Antenna with 26 flagellomeres; flagellum subapically slightly compressed; all flagellomeres except apical one ventrally covered by dense and coarse setae.

THORAX: Pronotum glabrous, shiny, epomia apparently moderately strong, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly curved, shiny. Subalar ridge moderately projected; epicnemial carina complete, reaching subalar ridge; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous. Transverse sulcus at base of propodeum apparently very wide.

PROPODEUM: Shiny. Propodeal wrinkles strong, closely spaced; posterior transverse carina represented by very weak sublateral ridges.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 2Cua much shorter than crossvein 2cu-a; cell 1+2Rs small; crossvein 3r-m present, 2r-m and 3r-m apparently subparallel; vein 3-M much shorter than 2-M; 4-Rs distinctly sinuous; 4-M slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; Cua slightly longer than 1-cua 1.02; vein Cub distinctly convex on posterior half, forming straight angle with cu-a.

METASOMA: First tergite short, about $0.32 \times$ as long as T2–8, approximately cylindrical; spiracle at about 0.55 of its length; median depression distinct; thyridium apparently longer than wide, without small circular depression just behind it.

Color. Head, meso- and mesosoma black and pale yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, small ventral spot at scape and complete orbital band, pale yellow (237,224,116); f11–15 entirely white dorsally, f10 and f16 partially white. Mesosoma: mostly pale yellow; mesoscutum except subcircular spot, scuto-scutellar area, apex of scutellum, both axillary through, postscutellum, epicnemium dorsally, scrobe and hypoepimeron, posterior spot on metapleuron, transverse sulcus and propodeum except arc-shaped mark, black; fore and mid coxa and trochanters, pale yellow; mid first trochanter longitudinal blackish stripe; fore and mid femora, tibiae and tarsi light orange, femora with dorsal brownish marks, tibiae with basal brownish marks; fore t5 blackish; hind coxa pale yellow with anterior and posterior longitudinal blackish stripes, anterior one only on basal 0.5; hind first trochanter pale yellow with ventral longitudinal blackish stripe; second trochanter blackish; hind femur orange with dorsal face entirely, basal 0.3 and apical 0.25 of lateral face blackish; hind tibia light orange, basal 0.05 and apical 0.2 blackish; basal 0.4 of t1 blackish, remainder of tarsus light yellow, apically gradually turning to whitish. Metasoma: mostly blackish; anterior 0.4 and posterior 0.2 of T1, pale yellow; S1 pale yellow; T2–7 with apical, progressively wider, light yellow stripe.

Comments. Recognized by the dorsal margin of mesopleuron entirely yellow, hind femur mostly blackish and S1 black. Another notable character is the dense and coarse setae covering all flagellomeres except the apical one. The dorsal margin of mesopleuron yellow is an unusual feature among species of *Messatoporus*, found only in *M. maculipes*, *M. elektor* **sp. nov.** and *M. atrifoveus* **sp. nov.** The hind femur has a color pattern more or less similar to that found in *M. complexifemur* **sp. nov.** and *M. tenuissimus* **sp. nov.** The male holotype is the only known specimen.

Biology. Unknown.

Material examined. Pictures of the holotype. Pinned. Mid tarsi missing; otherwise apparently in good shape.

Distribution. Recorded only from the type locality, in northeastern Mexico (Fig. 326).

Messatoporus fulvator Kasparyan 2006

(Figs 84, 173, 327)

**Messatoporus fulvator* Kasparyan 2006: 222. Description, figure. Holotype ♀ (TAMU; currently at UATM; not examined).

Type data: México, Chiapas, 4 km W San Cristóbal, San Felipe, 10–13.VIII.1990, JBWooley, 90/058.

Female. Fore wing 7.35 mm. HEAD: Mandible densely covered with long hairs; MLW 2; MWW 0.45; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.29. Clypeus basally evenly convex, apically gradually flattened, centrally straight; CHW 2.44; CWW 2.54; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 22 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, with moderately dense punctation, distinctly striate near antennal sockets, ventrally very weakly concave, without median line. Occipital carina uniformly curved, apically very faint, meeting hypostomal carina very far from mandible base. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, with moderately strong wrinkles at ventral half of posterior margin; epomia weak (, apically very faint), complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, subcircular, $1.07 \times$ as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 0.75 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove shallow, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina complete, reaching subalar ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, smooth; scrobe very shallow; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about $0.86 \times$ as long as anterior area of propodeum, posteriorly with longitudinal wrinkles; metapleuron weakly punctate-rugulose, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.15 \times$ as long as wide, shiny, moderately pilose; anterior area moderately punctate; spiracle elongate, SWL 5.33; anterior transverse carina medially straight. Propodeal wrinkles anteriorly faint, posteriorly moderately strong, very closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.43 of its own length; vein 2Cua $0.51 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.87, pentagonal, about as high as wide, AWH 1.06; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.02; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.73 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.4 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.42; T1WW 1.83; spiracle on 0.49 of its length, slightly prominent; median depression elongate, distinct; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 0.98; T2WW 2.53; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.28; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head whitish, mesosoma whitish, orange and dark brown; metasoma mostly orange. Head: whitish (233, 223, 168); mandible, supra-antennal area except orbital band, vertex and occiput blackish; scape and pedicel orange (202, 110, 057); flagellum basally brownish, blackish towards apex, 8–13 entirely white, 7 partially white. Mesosoma: orange, generally darker dorsally and ventrally pale yellow (226, 192, 085); pronotum, subcircular spot on mesoscutum, scutellar carina, scutellum, tegula, subalar ridge, central 0.8 of mesopleuron, mesosternum centrally, dorsal division of metapleuron and transverse sulcus, whitish; posterior margin of pronotum at ventral 0.8, anterior margin of mesopleuron at dorsal 0.2, most of mesoscutum and small central spot over anterior

transverse carina of propodeum, dark brown (151, 091, 063); postscutellum blackish; most of fore coxa, basal mark at mid coxa, anterior face of fore trochanters, femur, tibia and mid tibia, whitish; dorsal face of fore first trochanter and tibia marked with brownish; mid tarsus fuscous; apical 0.1 of hind tibia, tibial spurs and basal 0.3 of t1, blackish; apical 0.7 of t1 and t2–4, white; t5 fuscous. Metasoma: orange (214, 118, 047) anterior 0.18 dorsally and posterior 0.12 of T1 whitish; T2 with posterior pale yellow stripe.

Male. Unknown.

Variation. Fore wing 6.00–7.35 mm long. Antenna sometimes with 21 flagellomeres; pronotal wrinkles sometimes very weak; mesoscutum sometimes light brown; propodeal wrinkles sometimes apically very weak and irregular; hind wing vein 2-1A sometimes very short, reaching only 0.3 of distance to wing margin; whitish posterior stripe at T2 sometimes indistinct.

Comments. More similar to *M. copiosus* **sp. nov.**, from which it can be differentiated mainly by having mandible entirely blackish or dark brown (vs. mostly whitish); T2–4 bright orange except posterior whitish stripe at T2 (vs. T2–4 basally dark brown, medially orange and posteriorly whitish); metasomal sternites bright orange (vs. whitish); and propodeum bright orange with small whitish marks (vs. marked with black, whitish and orange). Also somewhat similar to *M. ellipsicavus* **sp. nov.**, from which it can be readily isolated by the complete orbital band (vs. widely interrupted at gena); mesopleuron mostly whitish (vs. almost entirely bright orange); and hind coxa orange, without blackish mark (vs. with large longitudinal blackish mark). It does also resembles *M. pallidus* **sp. nov.**, from which it can be separated by several features, mainly by T1–2 with posterior whitish stripes, T1 also dorsally whitish on basal 0.2 (vs. T1–2 entirely pale orange); hind wing vein Cub straight (vs. distinctly convex on posterior half, otherwise straight); and spiracle of propodeum elliptic, SWL 2.14 (vs. elongate, SWL 5.33).

Biology. Unknown.

Material examined. 6 ♀♀. 1 ♀ from MEXICO, Chiapas, San Cristóbal de las Casas, 2195 m, 3–7.VI.1969, Malaise trap; 1 ♀, same data except 1–12.VI.1969; 1 ♀, same data except 2160 m, 1–3.VI.1969, BVPeterson (CNCI). 1 ♀ from GUATEMALA, Guatemala Franjanes, Finca San Antonio, 1800 m, VI.1987, Mauger. 1 ♀ from COSTA RICA, Escazú, 23.V.1987, Townes & Townes; 1 ♀, same data except Monteverde, 19.VI.1987, Jbrambila (AEIC).

Distribution. Rainforest highlands (1800–2200 m) from Southern Mexico to Costa Rica (Fig. 327).

***Messatoporus grandis* Kasparyan & Ruíz 2005**

(Figs 77, 328)

**Messatoporus grandis* Kasparyan & Ruíz 2005: 106, 112. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Tamaulipas, Gómez Farías, Alta Cima, 900 m, Malaise trap, 9–16.IX.2000, DRKasparyan. *Messatoporus grandis*: Kasparyan & Ruíz 2008: 308, 310, 321–323. Description, distribution, figure, keyed.

Female. Fore wing 10.60 mm long. HEAD: Mandible densely covered with moderately long hairs; MLW 1.6; MWW 0.46; dorsal tooth in front view not distinctly projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.28. Clypeus almost entirely flattened, centrally concave; CHW 2.22; CWW 2.22; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, distinctly striate near antennal sockets, ventrally and around ocelli distinctly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum sparsely pilose, shiny, densely punctate, with strong wrinkles along collar; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, 1.29 × as long as wide, sparsely pilose, shiny, moderately punctate at center of each lobe, laterally almost impunctate; notaulus reaching about 0.68 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, almost straight; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles;

median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum moderately wide, about $0.67 \times$ as long as anterior area of propodeum, asperous; metapleuron densely punctate, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter, dorsally foveolate.

PROPODEUM: $1.29 \times$ as long as wide, shiny, sparsely pilose; anterior area densely punctate; spiracle elongate, SWL 6.67; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly faint, posteriorly strong, closely spaced, mostly complete, distinctly curved backwards; posterior transverse carina sublaterally faintly suggested, not forming distinct crests.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.51 of its own length; vein 2Cua $0.42 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.49, subquadratic, distinctly wider than high, AWH 1.39; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, 3r-m distinctly longer; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.14; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.98 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally sparsely pilose; T1LW 3.56; T1WW 2.2; spiracle on 0.49 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.2; T2WW 1.96; thyridium much longer than wide, without small circular depression just behind it; T2–8 scarcely punctate and minutely and weakly coriaceous, laterally moderately pilose, dorsally T2 glabrate, T3–8 sparsely to moderately pilose. OST 1.3; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 8 teeth, 1st and 2nd widely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supraclypeal area and complete orbital band, pale yellow (220, 211, 122); f6–9 entirely white, f5 and f10 almost entirely white, f11–13 dorsally partially white. Mesosoma: black; pronotal collar, dorsal margin of pronotum, propleuron, subcircular spot on mesoscutum, scutellum except posterior margin, scutellar carina, axillar carinae, tegula, ventral spot at epicnemium, subalar ridge connected to central mark on mesopleuron, covering most of mesopleuron, mesosternum, dorsal division of metapleuron, dorsal half of metapleural triangle, almost all metapleuron, transverse sulcus of propodeum and longitudinal ovoid marks at posterior area of propodeum, pale yellow; legs pale yellow, whitish towards apex; fore coxa and first trochanter with small dorsal brown mark; mid coxa with large longitudinal dark brown mark; mid trochanter, all second trochanters and femora, mid and hind first trochanters with dorsal longitudinal blackish stripe; all tibiae with dorsal brown mark on basal 0.15; fore and mid t5 marked with dark brown. Metasoma: black; T1 dorsally pale yellow at anterior 0.7; T1–8 with progressively longer posterior pale yellow stripes, except narrow at dorsal T8; S2–6 pale yellow, S2–3 with lateral brownish marks.

Male. Not examined. According to Kasparyan & Ruíz (2008), similar to female, except for the following: thorax usually slightly lighter; prepectus sometimes with large yellow spots, surface over sternaulus yellow, scutellum sometimes entirely yellow dorsally, metapleuron dorsally with black spot.

Comments. Very similar to *M. covarrubiasi*, from which it can be differentiated by having mandible basally yellow (vs. entirely black); posterior area of propodeum propodeum with two lateral, ovoid yellowish marks (vs. with distinctly arc-shaped yellow mark); supra-antennal area distinctly striate near antennal sockets (vs. not striate); epomia short, complete (vs. long, though distinct only after diverging from collar); propodeal wrinkles distinctly curved backwards (vs. oblique and approximately straight); and cell 1+2Rs subquadratic, 3r-m distinctly longer than 2r-m (vs. 1+2Rs pentagonal, 2r-m and 3r-m with about the same size).

Biology. Unknown.

Material examined. 1 ♀ from COSTA RICA, Monteverde, 9.II.1964, C. Palmer (AEIC).

Distribution. Recorded only from northeastern Mexico and northern Costa Rica (Fig. 328).

***Messatoporus igneus* Santos, sp. nov.**

(Figs 119, 329)

Female. Unknown.

Male. Fore wing 4.69 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.92; MWW 0.35; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.15. Clypeus basally evenly convex, apically gradually flattened, centrally straight; CHW 1.91; CWW 1.91; apical area medially concave, laterally slightly projected, its margin regular, not raised. Antenna with 23 flagellomeres; flagellum uniform. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, without median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia very weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, ovoid, $1.26 \times$ as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.66 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture without wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter moderately long, arched backwards. Transverse sulcus at base of propodeum very wide, about $1.22 \times$ as long as anterior area of propodeum, very weakly rugulose; metapleuron sparsely and finely punctate, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina absent. Hind coxa with moderately strong punctures separated by more than their own diameter, dorsally rugulose.

PROPODEUM: $1.22 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate, medially strigulate; spiracle elliptic, SWL 3.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.26 of its own length; vein 2Cua $0.28 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.73, pentagonal, distinctly higher than wide, AWH 0.83; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs somewhat irregular, apically slightly upcurved; 4-M tubular, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, not reaching wing margin; HW1C 0.63; vein Cub almost straight, very slightly convex, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.84 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.33 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, uniformly, moderately pilose; T1LW 4.7; T1WW 1.33; spiracle on 0.49 of its length, slightly prominent; median depression subcircular, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 2.5; T2WW 1.87; thyridium longer than wide, without small circular depression just behind it; T2–8 smooth between punctures, densely and uniformly pilose.

Color. Head black, mesosoma orange, black and whitish; metasoma brown and whitish. Head: black; clypeus, mandible except apex, mouthparts, supra-clypeal area, scape and pedicel ventrally and orbital band at ventral half of supra-antennal area, whitish (246,231,199); scape and pedicel dorsally brown; f11–13 entirely white, f14 dorsally white, f10 and f15 dorsally white at about half of their length. Mesosoma: orange (207,093,019); pronotum whitish, except semicircular mark at posterior margin, anteriorly dark brown, posteriorly orange; central lobe of mesoscutum, very weak median stripe on scutellum, ventral 0.4 of prepectus, mesopleuron along sternaulus, posterior half of mesosternum centrally, metasternum, ventral margin of metapleuron, anterior area of propodeum and small mark at transverse sulcus, dark brown (071,051,036); lateral portions of mesosternum and apex of metapleuron, whitish; fore and mid coxa and fore trochanters, whitish; fore femur and tibia dorsally brown, ventrally whitish; fore tarsus light fuscous; mid first trochanter whitish with apical brown mark; mid second

trochanter and femur light brown, lighter anteriorly; mid tibia anteriorly whitish, posteriorly light brown; mid and hind tibial spurs and mid tarsus dark brown; hind coxa outer face dark brown, inner face light brown, with posterior whitish mark on apical 0.6; hind trochanters dark brown; hind femur deep orange, brown at base and apex; basal 0.05 and apical 0.7 of tibia dark brown, elsewhere whitish; basal 0.8 of hind t1 dark brown, remainder of tarsus white. Metasoma: brown (085,044,018), lighter towards posterior tergites; anterior 0.25 of T1 whitish; T1–4 with posterior whitish stripe, almost indistinct at T4.

Variation. Fore wing 4.20–5.49 mm long. Flagellum light brown to black; median stripe on scutellum sometimes distinct; mesosternum sometimes almost entirely whitish; transverse sulcus sometimes with weak brownish mark; anterior face of hind leg sometimes dark brown; brown areas at mesosoma sometimes weak, light, or almost indistinct, sometimes very dark, blackish; metasoma sometimes dark brown (177,077,228) or blackish at anterior tergites. Specimens from Caruaru with orange areas at mesosoma ferruginous (221,156,066) and propodeal wrinkles weak.

Comments. *Messatoporus igneus* is one of the few species of *Messatoporus* with orange mesoscutum in which the mesosoma have blackish marks. For that reason, it can be mistaken as the male of *M. copiosus* **sp. nov.**, or, more likely, of *M. ellipsicavus* **sp. nov.** Specimens of *M. igneus* can be distinguished from males of both species by having pronotum with distinct blackish mark (vs. entirely whitish); mesopleuron and mesosternum mostly orange with blackish marks (vs. mostly whitish with dorsal orange marks); metapleuron orange (vs. mostly whitish); orbital band widely interrupted at gena (vs. complete or only shortly interrupted at dorsal margin of eye); and central lobe of mesoscutum dark brown, without subcircular spot (vs. mesoscutum orange or dark brown with subcircular yellow spot).

Biology. Unknown.

Etymology. From the Latin *igneus*, meaning “on fire”; in reference to the mostly bright orange body.

Material examined. 16 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Santa Maria de Jetibá, Fazenda Paulo Seick, Pt. B3, 29.XI–6.XII.2002, MTTavares, COAzevedo *et al.* (UFES). Mounted on triangle point. Most of right flagellum broken and re-glued to specimen; otherwise in good shape.

Paratypes: 2 ♂♂ from BRAZIL, Pernambuco, Caruaru, 900 m, V.1972, JLima (AEIC); 1, same data except IV.1972, MAlvarenga (CNCI). 1 ♂ from BRAZIL, Espírito Santo, Conceição do Castelo, Ribeirão do Meio, próx. cafezal (inclinado), 17–24.III.2007, Malaise trap, APAguiar *et al.*; 1 ♂, same data except Santa Maria de Jetibá, Fazenda Paulo Seick, Pt. T4, 29.XI–6.XII.2002, MTTavares, COAzevedo *et al.*; 1 ♂, same data except Santa Teresa, Propriedade rural, Pt. 4, 19–26.VIII.2007, FGRampinelli *et al.* (UFES). 1 ♂ from BRAZIL, SP, Águas Vermelhas, 800 m, XII.1983, MAlvarenga; 6 ♂♂, same data except São José dos Barreiros, Serra da Bocaina, 1650 m, XI.1968, Alvarenga & Seabra. 1 ♂ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 11.IV.1952, FPlaumann; 1 ♂, same data except 16.X.1952 (AEIC).

Distribution. Southern to northeastern Brazil. Most records are from Atlantic Forest, but the northernmost, Caruaru, correspond to a transitional area between rainforest and semi-arid, xeromorphic vegetation (Fig. 329).

Messatoporus interceptus Santos, **sp. nov.**

(Figs 69, 227, 330)

Female. Fore wing 11.31 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.34; MWW 0.44; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.26. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.61; CWW 1.32; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 25 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli distinctly concave, with slight median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum sparsely pilose, shiny, densely punctate, ventrally with strong wrinkles; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, 1.25 × as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.71 of mesoscutum length,

moderately impressed, surface over notaulus with weak and short transverse wrinkles (, wrinkles strong at apex of notaulus); scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with vestigial vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum very wide, about $0.95 \times$ as long as anterior area of propodeum, impunctate; metapleuron punctate-rugulose, without transverse wrinkles, densely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarious.

PROPODEUM: $1.23 \times$ as long as wide, shiny, moderately pilose; anterior area punctate-coriarious; spiracle elongate, SWL 7.4; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.44 of its own length; vein 2Cua $0.83 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.64, pentagonal, about as high as wide, AWH 1.12; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.03; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.95 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 3.91; T1WW 2.17; spiracle on 0.49 of its length, distinctly prominent; median depression elongate, distinct; median posterior depression subcircular; lateral depressions absent; ventrolateral carina absent. T2LW 1.05; T2WW 1.83; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarious, densely and uniformly pilose. OST 1.24; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with three moderately strong ridges; ventral valve apex with 4 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and light yellow. Head: black; clypeus, mouthparts, supra-clypeal area orbital band shortly interrupted at dorsal margin of eye, light yellow (228,205,113); f7–10 entirely white, f11 mostly white, f6 with small white area apically. Mesosoma: black; collar, posterior 0.6 of dorsal margin of pronotum, propleuron laterally, subcircular spot on mesoscutum, scutellar carina, scutellum, tegula, subalar ridge, central mark on mesopleuron, mesosternum except area just ventral to sternaulus, dorsal division of metapleuron, posterior 0.8 of metapleuron except small posterior spot and lateral ovoid marks at posterior area of propodeum, light yellow; fore leg pale yellow, except posterior face of coxa, dorsal stripe at first trochanter and femur, black; fore t5 blackish; mid and hind coxae and trochanters and hind femur, deep orange (182,083,050), hind coxa with small basal light yellow mark; mid femur, mid and hind tibiae and tarsi, bright yellow (222,192,099), except dorsal and ventral blackish stripes at mid femur. Metasoma: black; T1 laterally and posterior 0.2 light yellow; S1 brownish; T2–7 with posterior and lateral light yellow stripes, T8 only with lateral stripe; S2–6 light yellow, S2–3 with small lateral brownish marks.

Male. Fore wing 9.70 mm long. Very similar to female, except by the following: basal half of the mandible yellow; f10–12 entirely white; f9 and 13–14 partially white; black area just ventrad to sternaulus very narrow; propodeal wrinkles centrally slightly more irregular; apical 0.7 of hind femur brownish; T1 laterally brown on basal 0.3.

Variation. Fore wing 10.30–12.71 mm long. Antenna with 22–25 flagellomeres; hind femur sometimes with small apical blackish mark; S4 sometimes also with lateral brownish mark; light and bright yellow areas sometimes pale yellow; S4-5 sometimes almost entirely dark brown. Specimen from Arroio Grande with cell 1+2Rs distinctly longer, APH 0.82.

Comments. Very similar to *M. amplithorax* **sp. nov.**, from which it can be differentiated by having orbital band interrupted at dorsal margin of eye (vs. complete); propodeum small and somewhat rounded, distinctly shorter than thorax in lateral view (vs. large, in lateral view almost as high as thorax—Figs 68, 69); T1 laterally yellow (vs. at least partially blackish); central mark on mesopleuron approximately rectangular (vs. somewhat S-shaped); and ovipositor dorsal valve with three moderately strong ridges (vs. five).

It is also similar to *M. transversostriatus*, from which it can be isolated by having anterior area of propodeum entirely black (vs. with two sublateral yellowish spots); yellow marks at posterior area ovoid (vs. distinctly wider anteriorly, Fig. 181); mandible entirely black (vs. mostly pale yellow); central mark on mesopleuron distinctly separated from yellow spot at subalar ridge (vs. connected with spot at subalar ridge or almost so); ovipositor dorsal valve with three moderately strong ridges (vs. five); and ovipositor ventral valve with four teeth (vs. eight). It can be further differentiated from *M. allomeros* **sp. nov.** by having mid and hind coxae and hind trochanters and femur mostly bright to deep orange (vs. coxae yellow and black, trochanters and femur dark brown).

Biology. Unknown.

Etymology. From the Latin *interceptus*, meaning “interruption”; in reference to the interrupted orbital band, one of features that differentiates this species from other close species.

Material examined. 9 ♀♀, 1 ♂. Holotype ♀ from BRAZIL, Rio Grande do Sul, Morro Redondo, 101 m, 11.IV.2003, Malaise trap, RFKrüger (UFES). Mounted on triangle point. Left antenna missing; otherwise in good shape.

Paratypes: 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, I.1948, FPlaumann; 1 ♀, same data except 14.III.1966; 1 ♀, same data except I.1966; 1 ♀, same data except XI.1966; 1 ♀, same data except I.1967; 1 ♂, same data except III.1967; 1 ♀, same data except II.1968; 1 ♀, same data except XI.1968 (CNCI). 1 ♀, same data except XII.1967 (DZUP).

Distribution. Recorded from two subtropical areas in southern Brazil (Fig. 330).

***Messatoporus jalapa* Kasparyan & Ruíz 2005**

(Figs 14, 79, 124, 195, 215, 248, 331)

**Messatoporus jalapa* Kasparyan & Ruíz 2005: 107, 114. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Veracruz, Jalapa, bosque, 26.X.1995, MMolina.

Messatoporus jalapa: Kasparyan & Ruíz 2008: 309, 312, 323–324. Description, distribution, figure, keyed.

Female. Fore wing 6.37 mm. HEAD: Mandible densely covered with long hairs; MLW 1.94; MWW 0.31; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.34. Clypeus basally evenly convex, apically gradually flattened, centrally straight; CHW 2.42; CWW 1.61; apical area medially straight, laterally slightly projected, its margin regular, not raised. Antenna with 26 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, with moderately dense punctation, not striate near antennal sockets, ventrally and around ocelli slightly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrate, shiny, scarcely punctate, ventrally with strong wrinkles; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, ovoid, 1.25 × as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.76 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina complete, reaching subalar ridge, distinctly sinuous; sternaulus moderately strong, wider on posterior apex, weakly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, distinctly arched forwards. Transverse sulcus at base of propodeum very wide, about 0.81 × as long as anterior area of propodeum, impunctate; metapleuron with very fine and moderately dense punctures, with vestigial wrinkles, moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen; hind coxa punctate-coriarius.

PROPODEUM: 1.26 × as long as wide, shiny, moderately pilose; anterior area scarcely punctate; spiracle elliptic, SWL 3.14; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, anteriorly strongly curved, posteriorly somewhat irregular; posterior transverse carina distinct as very weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.37 of its own length; vein 2Cua 0.67 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs of moderate size, APH 0.85, pentagonal, distinctly higher than wide, AWH 0.82; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.43; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.83 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.41 × as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 4.3; T1WW 1.7; spiracle on 0.48 of its length, distinctly prominent; median depression absent; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.38; T2WW 2.86; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.72; ovipositor slender, straight, basally cylindrical, apically distinctly depressed; dorsal valve without ridges; ventral valve apex with 6 teeth, 1st, 2nd and 3rd widely spaced; surface anterior to first tooth not rugulose.

Color. Head, mesosoma and metasoma black with pale yellow marks. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, bright yellow; (239,224,099); flagellum basally dark brown, blackish towards apex; f8–13 entirely white, f14 mostly white, f7 apically white. Mesosoma: black; pronotum bright yellow except posterior black mark; U-shaped mark over notaulus and small lateral mark at mesoscutum, scutellar carina, scutellum, tegula, subalar ridge, central mark covering almost all mesopleuron, mesosternum, dorsal division of metapleuron, metapleuron except small posterior mark and arc-shaped mark on propodeum, bright yellow; fore and mid coxa bright yellow with small apical blackish marks; fore and mid first trochanters bright yellow with dorsal brown marks; fore and mid femora pale orange, fore one dorsally with weak brown stripe on basal 0.8, mid one with very small basal mark; fore and mid tibiae and tarsi light yellow, darker apically, t5 blackish; hind coxa bright yellow, with three longitudinal black marks, anterior and posterior ones reaching apical 0.8, median one apically bifurcated and reaching apex of coxa; hind trochanters and femur bright yellow, first trochanter and femur with basal dark brown marks, second trochanter with apical brown mark; basal 0.05 of hind tibia orange, median 0.8 bright yellow, gradually turning to blackish on apical 0.15; basal 0.2 of t1 and t5, blackish; remainder of tarsus white. Metasoma: dark brown; anterior 0.4 and posterior 0.2 of T1, bright yellow; T2–8 with posterior bright yellow stripe; S2–6 bright yellow with small brownish lateral marks.

Male. Fore wing 4.87–8.50 mm long. Generally similar to female, except for the following: black mark on pronotum more extensive, covering about 0.6 of its surface; ventral 0.5 of epicnemium bright yellow; mid femur with weak dorsal brownish stripe on basal 0.8; anterior longitudinal marks at hind coxa extending only on basal 0.6; hind femur pale orange; T1 laterally dark brown until its base.

Variation. Fore wing 6.29–9.4 mm. Antenna with 25–27 flagellomeres; area over sternaulus variously marked with black; apical dark mark at fore coxa sometimes almost indistinct; hind coxa sometimes pale orange on apical 0.4; hind femur sometimes deep yellow, sometimes dorsally with apical blackish mark, basal and apical marks sometimes covering about 0.6 of dorsal face of femur, area between them sometimes brown; hind tibia on basal 0.05 sometimes blackish; basal 0.4 of t5 sometimes whitish; one male with apical 0.6 of hind tibia dark brown. Specimens from Honduras with hind femur apically black. One male from San Cristobal de las Casas with U-shaped mark over notaulus reduced to central subcircular spot and very short anterior longitudinal dash or spot. Yellow areas sometimes pale (233,216,136).

Comments. Very similar to *M. mesonotator*, from which it can be differentiated by the yellow mark on mesopleuron distinctly separated from yellow subalar ridge (vs. connected to yellow subalar ridge); T1 laterally entirely yellow (vs. black at anterior 0.8); ovipositor slender, dorsal valve without ridges (vs. moderately stout,

dorsal valve with four weak ridges); ventral tooth of mandible distinct and triangular (vs. indistinct); and supra-antennal area not striate near antennal sockets (vs. distinctly striate). Also somewhat similar to *M. maculipes*, from which it can be differentiated mainly by the yellow mark at mesoscutum U-shaped (vs. subcircular); anterior area of propodeum entirely black (vs. with lateral yellow marks); mesopleuron with black area between central mark and subalar ridge (vs. subalar ridge and central mark connected by yellow area); posterior transverse carina of propodeum distinct as weak sublateral crests (vs. entirely absent); and ovipositor slender, dorsal valve without ridges (vs. moderately stout, dorsal valve with five moderately strong ridges).

Biology. Specimens from Honduras were collected at shadowed coffee plantations.

Material examined. 14 ♀♀, 21 ♂♂. 1 ♀ from MEXICO, Chiapas, 3 km NE San Cristóbal de las Casas, 8.VI.1969, BVPetersen; 1 ♀, same data except San Cristóbal de las Casas, 2195 m, 27.V.1969 (AEIC). 1 ♀, same data except Montebello National Park, 17.V.1969, HJTeskey; 1 ♀, same data except 15–31.VII.1969, Malaise trap, WRMMason. 1 ♀, same data except San Cristóbal de las Casas, 24.VI.1969, WRMMason; 1 ♀, same data except 13.VI.1969; 1 ♂, same data except 2195 m, 18.V.1969; 1 ♂, same data except 2160 m, 29.VI.1969, BVPeterson; 2 ♂♂, same data except 20.V.1969, Malaise trap, WRMMason; 1 ♂, same data except 18.VIII.1969; 1 ♂, same data except 3–7.VI.1969. 1 ♂ from MEXICO, Sinaloa, 20 mi. E Concordia, 12.VIII.1964, WRMMason (CNCI). 1 ♀ from HONDURAS, Francisco Morazan, San Antonio de Oriente, Cerro Uyuca, near cloud forest, 13–21.V.1990, Malaise trap, RSeracin; 1 ♀, same data except 19–26.III.1990; 1 ♀, same data except 2–27.IV.1990; 1 ♀, same data except El Zamorano, coffee plantation under *Inga* sp., 5–15.IV.1990, Malaise trap; 2 ♂♂, same data except 29.III.–5.IV.1990; 2 ♂♂, same data except 23.II.–2.III.1990, RCave; 1 ♂, same data except 9–15.III.1990; 1 ♂, same data except 19–25.IV; 1 ♂, same data except 15–22.II.1990; 2 ♂♂, same data except 15–22.III.1990; 1 ♂, same data except 2–8.II.1990; 1 ♂, same data except 9–14.II.1990; 1 ♂, same data except 8–14.VI.1991. 1 ♂ from HONDURAS, El Paraíso, Yuscaran, Cerro Monserrat, 10–31.III.1993 (FSCA). 1 ♀, same data except 1800 m, 30.V.1994, AHowden (AEIC). 1 ♀ from COSTA RICA, Puntarenas, Las Alturas, forest edge, Pt. 1, 1600 m, 10–13.VI.1998, Brown & Berezovski (AEIC). 1 ♂ from COSTA RICA, San Juan, La Caja, JHSchmidt (NHNW). 2 ♀♀ from PANAMA, Chiriqui, 2 km W Cerro Punta, 1700 m, 19.V–8.VI.1977, Peck & Howden (CNCI).

Distribution. Western Mexico to northern Panama (Fig. 331). *Messatoporus jalapa* seems to occur typically in highlands. Where altitudinal data is available, they reach from 1600–2200 m. Many specimens without altitudinal data were collected in highland areas (“Cerros”).

Messatoporus keraiopetalus Santos, sp. nov.

(Figs 74, 277, 332)

Female. Fore wing 9.76 mm. HEAD: Mandible densely covered with long hairs; MLW 1.84; MWW 0.43; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.29. Clypeus basally strongly convex, emarginated in its mid-length, abruptly flattened, centrally concave; CHW 2.89; CWW 3.9; apical area medially straight, laterally slightly projected, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, shiny, impunctate, ventrally moderately striate; epomia weak, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, subcircular, $1.17 \times$ as long as wide, sparsely pilose, shiny, asperous; notaulus reaching about 0.75 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, distinctly sinuous; sternaulus moderately strong, wider on posterior apex, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum very wide, about $1.07 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, moderately pilose; juxtacoxal carina absent. Fore

tibia distinctly swollen (doubt). Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with weak punctures separated by more than their own diameter.

PROPODEUM: 1.18 × as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elongate, SWL 4.86; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles strong, closely spaced, anteriorly complete, posteriorly mostly incomplete and overlapped, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly irregular, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.45 of its own length; vein 2Cua 0.24 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.58, pentagonal, distinctly wider than high, AWH 1.23; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly longer than 2-M; 4-Rs straight, apically slightly upcurved; 4-M semi-spectral, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.12; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.87 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.42 × as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.32; T1WW 1.6; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.07; T2WW 2.05; thyridium longer than wide, with small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.86; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and whitish. Head: black; clypeus, mandible except apex and small basal spot, mouthparts, malar space, supra-clypeal area, ventral spot at scape and complete orbital band, light yellow (227,212,149); f5–7 entirely white, f4 partially white, f8 almost entirely white and f9–14 with dorsal white longitudinal band. Mesosoma: black; collar, dorsal margin of pronotum, propleuron, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron, mesosternum, dorsal division of metapleuron, metapleural triangle, metapleuron except posterior apex and arc-shaped, quadratic mark on propodeum, light yellow; fore and mid coxae and first trochanters whitish, coxae with apical and posterior dark brown marks, first trochanters with basal dark brown mark; fore and mid second trochanter, femur, tibia and tarsus bright yellow (227,178,068), with strong dorsal and weak ventral brown stripes on femora, with ventral brown marks at all length of fore tibia and basal 0.3 of mid tibia, mid tarsus fuscous, fore and mid t5 blackish; hind coxa whitish with three longitudinal stripes, anterior and posterior ones reaching 0.5 of its length, lateral one reaching coxa apex; hind first trochanter whitish with basal blackish mark; second trochanter blackish, with apical 0.2 dark yellow; hind femur dorsally bright yellow, ventral face blackish, wider apically; hind tibia bright yellow, with apical blackish mark, hind tarsus basally bright yellow, whitish towards apex. Metasoma: black; T1 laterally with anterior and posterior 0.2 whitish, dorsally anterior 0.5 whitish; T2–7 with posterior and lateral whitish stripes, T8 only with lateral stripes; S1–6 whitish, S2–5 with progressively smaller brown lateral marks.

Male. Fore wing 5.09–9.64 mm long. Very similar to female, except for the following: scape with ventral whitish spot; antenna with 20–23 flagellomeres; hind femur ventrally blackish only at posterior 0.4; S6 with small lateral brownish mark.

Variation. Fore wing 6.02–11.64 mm long. Mandible sometimes mostly black; antenna with 21–24 flagellomeres; wrinkles over notaulus sometimes very weak or absent; metapleural triangle sometimes marked with yellow; hind tibia sometimes without apical black mark; hind tarsus sometimes entirely light yellow. All whitish areas sometimes bright yellow or buff.

Comments. *Messatoporus keraiopetalus* **sp. nov.** is part of a group of four very close species, which apparently form a monophyletic group (Figs 71–75; see Comments under *M. compressicornis*). Among these species, *M. keraiopetalus* can be differentiated from *M. depressifrons* **sp. nov.** by having clypeus basally strongly convex, emarginated in its mid-length, abruptly flattened (vs. very slightly and more or less uniformly convex); supra-antennal area with median smoother area (vs. with a median depression); epomia weak, complete (vs.

moderately strong but distinct only after diverging from collar); transverse sulcus of propodeum very long, $1.07 \times$ as long as anterior area of propodeum (vs. moderately long, $0.59 \times$ as long as anterior area); and fore wing vein 3-M distinctly longer than 2-m (vs. about the same size).

It can be separated from *M. nigriscapus* sp. nov. by the orbital band complete (vs. shortly interrupted); mandible basally yellow (vs. entirely black); collar yellow (vs. black); supra-antennal area with median smoother area (vs. with slight median carina); median portion of posterior transverse carina of the mesothoracic venter arched backwards (vs. arched forwards); and spiracle of propodeum elongate, SWL 4.86 (vs. elliptic, SWL 3.37). It can also be separated from *M. compressicornis* by the hind femur ventrally black, dorsally deep yellow (vs. entirely orange); fore and mid femora dorsally with strong longitudinal brown stripes (vs. entirely orange); ovipositor dorsal valve with four moderately strong ridges (vs. five); supra-antennal area with median smoother area (vs. with slight median carina); and mesosternum medially with short transverse wrinkles (vs. without transverse wrinkles).

Biology. Unknown.

Etymology. From the Greek words *keraiia*, for “any horn like structure”, or “antenna”, and *petalos*, meaning “broad”; in reference to the widened and compressed flagellum.

Material examined. 12 ♀♀, 22 ♂♂. Holotype ♀ from PANAMA, El Cemen, IV–V.1939, Zetek (USNM). Pinned. In good shape.

Paratypes: 1 ♀ from GUATEMALA, Sacapa, 2 km N Santa Cruz, XI.1986, MJSharkey (AEIC). 1 ♀ from GUATEMALA, Suchitepéques, Variedades, 150 m, 1.IX.1946, CVaurie & PVaurie (AMNH). 1 ♀ from HONDURAS, Sangrelaya, 13.IV.1924 (USNM). 1 ♂ from COSTA RICA, Guanacaste, San Rosa park, Dry hill, 2.I.1976, DHJanzen; 1 ♂, same data except 12.VII.1978; 1 ♂, same data except 25.VI.1978; 1 ♂, same data except 28.V.1978; 1 ♂, same data except 25.X.1978; 1 ♂, same data except 10.I.1978; 1 ♂, same data except 9.IX.1978; 1 ♂, same data except 24.VI.1978; 1 ♂, same data except 15.I.1978; 1 ♂, same data except 6.IX.1977; 1 ♂, same data except Riparian, 20.I.1978; 1 ♂, same data except 20.V.1978; 1 ♂, same data except 12.VIII.1978; 1 ♂, same data except 1.I.1978; 1 ♂, same data except 10.I.1978; 1 ♂, same data except 25.V.1978; 3 ♀♀, same data except 20 km SW Cañas, Estación Experimental Enrique Nuñez, 5–17.XI.1991, ASMenke. 2 ♀♀ 2 ♂♂ from COSTA RICA, Escazú, 21.V.1987, Townes & Townes; 1 ♂, same data except 23.V.1987; 1 ♀ 1 ♂, same data except 24.V.1987; 1 ♂, same data except 25.V.1987. 1 ♀ from PANAMA, Las Cumbres, 26.V–8.VI.1982, HWolda (AEIC). 1 ♀ from PANAMA, Canal Zone, Barro Colorado Island, IV–V.1939, JZetek; 1 ♂, same data except IV–V.1942; 1 ♀, same data except El Cemen, I.1941 (USNM).

Distribution. Central America, from Guatemala to Panama (Fig. 332).

Messatoporus kerzhneri Kasparyan & Ruíz 2008

(Fig. 333)

**Messatoporus kerzhneri* Kasparyan & Ruíz 2008: 325–327. Description, keyed. Holotype ♀ (UATM, pictures examined). Type data: México, Veracruz, Estación Los Tuxtlas, 20 m, bosque tropical, 17.IX.1989, IMKerzhner.

Female. Fore wing 11.00 mm long. HEAD: Antenna with 23 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered.

THORAX: Mesoscutum shiny and almost impunctate, apparently strongly and uniformly convex. Mesopleuron sparsely pilose; epicnemial carina complete, reaching subalar ridge, distinctly sinuous; Metapleuron moderately punctate, without transverse wrinkles.

PROPODEUM: Propodeal wrinkles distinct posteriorly to anterior transverse carina.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by about 0.7 of its own length; vein 2Cua distinctly shorter than crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, pentagonal, about as wide as high; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about the same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs reaching wing margin; crossvein Cua slightly longer than cu-a; vein Cub distinctly convex on posterior half, forming somewhat acute angle with vein Cua.

METASOMA: First tergite moderately long. OST 1.70; ovipositor moderately stout, straight.

Color. Head, meso- and mesosoma black and yellow, with orange marks. Head: black; clypeus, mandible except apex, mouthparts, malar space, supraclypeal area, scape ventrally and complete orbital band, pale yellow (241,236,177); f6–11 entirely white, f5 and f12 partially white. Mesosoma: black; pronotal collar, dorsal margin of pronotum, propleuron, [subcircular spot on mesoscutum not visible, possibly hidden by pin hole] scutellum except posterior margin, tegula, subalar ridge connected to central mark that covers most of mesopleuron, mesosternum, dorsal division of metapleuron, almost all metapleuron, and arc-shaped, medially narrower mark on propodeum, pale yellow; fore and mid coxa pale yellow, mesal face with brownish to blackish marks; fore and mid trochanters and femora pale yellow, with blackish posterior stripes; fore and mid tibiae and tarsi pale yellow, t5 dorsally brownish; hind coxa anteriorly orange, posteriorly pale yellow, with blackish marks between orange and yellow areas on basal 0.5; hind trochanters marked with blackish and brown; hind femur brownish, basal 0.8 of ventral face and apical 0.2 blackish; hind tibia and tarsus entirely yellow lighter towards apex. Metasoma: black; T1 dorsally pale yellow at anterior 0.7; T1–6 with progressively longer posterior pale yellow stripes, medially indistinct at T7–8; S1–6 pale yellow, S2–3 with anterior brownish mark.

Male. Unknown.

Comments. More similar to *M. arcuatus*, *M. grandis* and *M. covarrubiasi*, all these species sharing features like the generally large size, hind tibia uniformly yellow, hind trochanters posteriorly blackish, fore and mid femora posteriorly blackish and hind femur mostly blackish. It can be distinguished from those species in having hind coxa orange and yellowish, with a dorsal black mark. Other noteworthy features are the central mark on mesopleuron connected to the yellow subalar ridge and the long ovipositor, OST 1.70. The female holotype is the only known specimen.

Biology. Unknown.

Material examined. Pictures of the holotype. Pinned. Head and prothorax partially detached from remainder of thorax; fore femora, tibiae and tarsi missing; right mid leg after first trochanter broken and glued to the pin; left tarsus missing.

Distribution. Recorded only from the type locality, in southeastern Mexico (Fig. 333).

***Messatoporus laevilatus* Santos, sp. nov.**

(Figs 43, 142, 334)

Female. Fore wing 9.19 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.65; MWW 0.52; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.19. Clypeus basally convex, apically abruptly flattened, centrally very slightly concave; CHW 3.16; CWW 2.39; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, apically weak, meeting hypostomal carina far from mandible base. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, wrinkles at posterior margin vestigial; epomia very weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, ovoid, 1.35 × as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.71 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, medially indistinct, weakly sinuous, smooth; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about 1.13 × as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron entirely coriarius, without transverse wrinkles, dorsally glabrate, ventrally sparsely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter, internal face coriarius.

PROPODEUM: 1.1 × as long as wide, shiny, glabrate; anterior area almost impunctate; spiracle elongate, SWL 4.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous, anteriorly converging inwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.33 of its own length; vein 2Cua 0.34 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.54, pentagonal, distinctly higher than wide, AWH 0.66; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly longer than 2-M; 4-Rs somewhat irregular, apically slightly upcurved; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.19; vein Cub almost straight, very slightly convex, forming straight angle with Cua; vein 2-1A reaching 0.91 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.38 × as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.47; T1WW 1.64; spiracle on 0.53 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.28; T2WW 1.92; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely and very weakly coriaceous, densely and uniformly pilose. OST 1.07; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with three moderately strong ridges; ventral valve apex with 6 teeth, 1st, 2nd and 3rd widely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma orange (208,088,043), black and pale yellow (233,216,112), metasoma orange and fuscous. Head: black: f7–11 entirely white, f6 and 12 partially white; scape, ventrally clypeus, mouthparts, supra-clypeal area and narrow orbital band briefly interrupted at malar space, whitish; scape dorsally, pedicel and mandible except apex, brownish orange (285,115,065). Mesosoma: orange; pronotum, subalar ridge, dorsal 0.1 of mesopleuron, mesoscutum, scutellum posteriorly, postscutellum and postscutellum, black; collar, subcircular spot on mesoscutum, most of scutellum, and tegula, whitish; fore and mid legs gradually lighter towards apex; hind tibia yellow; hind tarsus white except t1 basally light yellow. Metasoma: bright orange; T2–3 weakly marked with dark fuscous at median portion.

Male. Fore wing 6.53 mm long. Similar to female, except for the following: mandible whitish (except apex); scape dorsally and pedicel dark brown; antenna with 25 flagellomeres; orbital band wide and complete, malar space whitish; hypopimeron whitish; anterior area of propodeum slightly narrower than in female and dark brown; anterior transverse carina raised; apical 0.3 of mid t1, t2–5 and hind tibial spurs, blackish; T1 mostly dark brown, dorsally whitish on basal 0.4, at posterior 0.25 changing from bright orange to whitish; S1 orange; T2 anteriorly dark brown, at posterior 0.3 changing from orange to whitish; T3–6 and S2–5 anteriorly light brown, posteriorly with progressively longer orange stripes, T7 and S6 entirely orange.

Variation. Fore wing 8.57–9.74 mm long. Specimen from Serra do Navio with darker orange tones of mesosoma and metasoma (202,104,051), mandible mostly whitish, orbital band widely interrupted at gena, t1–2 light yellow and marks at T2–3 stronger. Specimen from Ibagué with body less pilose, almost glabrate.

Comments. Very similar to *M. paraguayensis*, from which it can be differentiated by having posterior transverse carina completely absent (vs. complete in *M. paraguayensis*); propodeal wrinkles moderately strong and very closely spaced (vs. very weak anteriorly to posterior transverse carina, posteriorly strong, moderately closely spaced); spiracle of propodeum elongate, SWL 4.00 (vs. elliptic, SWL 2.57); areolet distinctly higher than wide, AWH 0.66 (vs. about as wide as high, AWL 0.97); and scape ventrally with whitish spot (vs. whitish spot absent). Also superficially similar to *M. convexus* **sp. nov.**, from which it can be isolated by the areolet distinctly higher than wide (vs. about as wide as high, APH 1.09); T2–8 bright to deep orange (vs. black, with posterior whitish stripes); dorsal margin of mesopleuron black (vs. orange); supra-antennal area dorsally with weak median carina, ventrally fading (vs. without median carina); and epomia complete (vs. distinct only after diverging from collar).

Biology. Unknown.

Etymology. From the Latin words *laevis*, meaning “smooth”, and *latus*, meaning “side”, “flank”; in reference to the mostly impunctate pronotum, mesopleuron and mesoscutum (as seen in lateral view).

Material examined. 5 ♀♀, 1 ♂. Holotype ♀ from PANAMA, Darien, P.N. Darien, Pirre, Est. Rancho Frio, 80 m, 21.III–4.IV.2000, Cambra, Santos & Bermudez (AEIC). Pinned. In good shape.

Paratypes: 1 ♀ from COSTA RICA, Heredia, La Selva, Pt. 1, 1–6.VII.1993, Malaise trap, BBrown & DFeener. 1 ♂ from PANAMA, Darien, P.N. Darien, Pirre, Est. Rancho Frio, 80 m, 21.III–4.IV.2000, Cambra, Santos & Bermudez. 1 ♀ from COLOMBIA, Magdalena, SFF Tayrona Pueblito, 225 m, 1–19.IX.2000, Malaise trap, Rhenriquez (AEIC). 1 ♀ from COLOMBIA, Tolima, Ibagué, III.1901, Micholltz (ZMHB). 1 ♀ from BRAZIL, Amapá, Serra do Navio, X.1957, KLenko (DZUP).

Distribution. Recorded in Central America from Costa Rica and Panama, and at northern South America, from northern Colombia to the Brazilian Amazon Basin (Fig. 334).

***Messatoporus latissulcus* Santos, sp. nov.**

(Figs 47, 335)

Female. Fore wing 8.72 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.64; MWW 0.42; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.25. Clypeus basally strongly convex, emarginated in its mid-length, more or less triangular, centrally concave; CHW 2.2; CWW 2.5; apical area medially concave, laterally slightly projected, its margin regular, not raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, impunctate, not striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, ovoid, $1.22 \times$ as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.83 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter moderately long, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.81 \times$ as long as anterior area of propodeum, impunctate; metapleuron entirely coriarius, without transverse wrinkles, sparsely pilose; juxtacoxal carina absent. Fore tibia weakly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.16 \times$ as long as wide, shiny, glabrate; anterior area almost impunctate; spiracle elongate, SWL 5.14; anterior transverse carina medially straight. Propodeal wrinkles weak, very closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.42 of its own length; vein 2Cua $0.32 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.72, pentagonal, about as high as wide, AWH 0.99; crossvein 3r-m absent; vein 3-M distinctly longer than 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.07; vein Cub almost straight, very slightly convex, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.86 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.4 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally sparsely pilose; T1LW 3.87; T1WW 1.77; spiracle on 0.5 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.45; T2WW 2.3; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.45; ovipositor slender, straight, basally cylindrical, apically slightly

depressed; dorsal valve with three moderately strong ridges; ventral valve apex with 7 teeth, 1st, 2nd and 3th widely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma orange, metasoma orange, black and whitish. Head: black; f6–12 entirely white, 5 and 13 partially white; scape ventrally, clypeus, mandible borders, palpi, orbital band distinct only at supra-antennal area, whitish. Mesosoma: orange (216,113,044); fore and mid legs gradually lighter towards apex; hind tibia yellow; hind tarsus whitish. Metasoma: T1 orange, posteriorly marked with small blackish spot; anterior 0.25 of T2 orange, posterior 0.1 whitish, medially black; T3–6 black with posterior whitish stripe; T7–8 entirely black.

Male. Unknown.

Comments. More similar to *M. convexus* sp. nov., from which it can be isolated mainly by having pronotum, mesoscutum and postscutellum entirely bright orange (vs. mostly black); scutellar carina, scutellum, tegula and subalar ridge orange (vs. mostly or entirely whitish); mesoscutum moderately convex (vs. strongly convex); sternaulus complete (vs. medially indistinct); and median portion of posterior transverse carina of the mesothoracic venter moderately long (vs. indistinct).

Biology. Unknown.

Etymology. From the Latin words *latus*, meaning “wide”, and *sulcus*, meaning “furrow”, “groove”; in reference to the very long transverse sulcus at base of propodeum.

Material examined. Holotype ♀ from PERU, Pozuzo, SBHoffmans (ZMHB). Pinned. Both mid t5 and hind t3–5 missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in central Peru (Fig. 335).

***Messatoporus lissonotus* (Cameron 1911)**

(Figs 45, 153, 221, 251, 273, 336)

**Glodianus lissonotus* Cameron 1911: 173. Description. Holotype ♀ (BMNH, pictures examined). Type data: Guyana.

**Messatoporus lissonotus*: Townes & Townes 1966: 123. Generic transfer.

Messatoporus lissonotus: Yu & Horstmann 1997: 274. Listed.

Messatoporus lissonotus: Yu *et al.* 2005. Listed.

Female. Fore wing 14.93 mm. HEAD: Mandible densely covered with long hairs; MLW 2.4; MWW 0.56; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.4. Clypeus almost entirely flattened, centrally concave; CHW 2.65; CWW 3; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area mat, scarcely punctate, weakly rugulose near antennal sockets, ventrally and around ocelli distinctly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, punctulate to densely punctate, ventrally weakly striate (variation); epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, 1.25 × as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.65 of mesoscutum length, deeply impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, almost straight; sternaulus moderately strong, wide and shallow at posterior 0.25, weakly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum very wide, about 0.84 × as long as anterior area of propodeum, very weakly rugulose; metapleuron punctate-rugulose, dorsally with same wrinkling of propodeum, however less regular, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: 1.31 × as long as wide, shiny, moderately pilose; anterior area scarcely punctate; spiracle elongate, SWL 5.6; anterior transverse carina medially slightly arched backwards. Propodeal wrinkles strong, closely spaced, mostly complete but sometimes medially irregular, mostly slightly curved or somewhat sinuous; posterior transverse carina faintly suggested as a stronger wrinkle.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs entirely irregular; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.41 of its own length; vein 2Cua 0.48 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.82, pentagonal, about as high as wide, AWH 1.19; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, irregular. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 0.91; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.93 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.41 × as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 4.18; T1WW 1.57; spiracle on 0.51 of its length, distinctly prominent; median depression subcircular, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.63; T2WW 2.17; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriaceous, moderately and uniformly pilose except glabrate postero-dorsal area in T2–3. OST 1.66; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma mostly orange, metasoma black and whitish. Head: orange; pedicel and flagellum blackish except for f7–8 entirely white, f9–10 partially white; clypeus, mandible except apex, palpi, supra-clypeal area and weak orbital band around temple and gena, pale yellow (238,222,153); mandible apex blackish. Mesosoma: uniformly orange (216,115,046); fore and mid legs lighter towards apex, fore tarsus pale yellow; second hind trochanter fuscous, hind femur and tibia dark brown except ventral face of femur anteriorly; basal 0.5 of hind t1 dark brown; apical 0.5 and t2–5 whitish. Metasoma: T1 orange with posterior 0.5 of postpetiole brownish; T2–7 black, laterally white, with posterior semicircular whitish mark, T8 entirely black; metasomal sternites white with lateral black mark.

Male. Fore wing 10.49–13.52 mm long. Very similar to female, except for the following: antenna with 31 flagellomeres; propodeal crests almost indistinct, blackish marks on T1 usually less extensive.

Variation. Fore wing 10.71–16.66 mm. Orbital band sometimes complete, though weak, sometimes almost indistinct; clypeus, supra-clypeal area, mandible and malar space sometimes light orange; pronotal wrinkles sometimes very weak; mesopleuron whether covered with several very weak wrinkles or only densely punctate; fore t5 and mid t2–5 sometimes dark fuscous hind trochantellus completely orange to almost entirely blackish; hind tibia sometimes basally yellowish or whitish; dark mark on T1 laterally sometimes extending at posterior 0.5; T1 sometimes posteriorly. Specimen from Ecuador with T1 shorter, only slightly longer than T2.

Comments. Very similar to *M. albiaterartus* sp. nov., from which it can be differentiated by having supra-antennal area, vertex and occiput bright orange (vs. black); orbital band weak and widely interrupted (vs. distinct and complete); whitish posterior marks at T2–8 medially subcircular (vs. straight), flagellum with uniform width (vs. flattened and widened at subapical 0.3); posterior carina of propodeum not forming sublateral crests, only faintly suggested as a stronger wrinkle (vs. distinct as weak sublateral crests); and anterior area of propodeum with a cluster of median punctures (vs. uniformly and scarcely punctate).

Biology. Unknown.

Material examined. 24 ♀♀, 10 ♂♂. Pictures of the holotype. Pinned. Apical half of right antenna and both hind t5 missing; otherwise in good shape. **Other specimens:** 1 ♂ from FRENCH GUYANA, Nouragues, Saut Parraré, 22.IX.2009, S.E.A.G.; 1 ♂, same data except 10.XI.2009; 1 ♂, same data except X.2009, Malaise trap (UFES). 1 ♀ from ECUADOR, Sucumbios, Napo River, Sacha Lodge, 14–24.V.1995, PHibbs (CNCI). 1 ♀ from BRAZIL, Amazonas, Novo Aripuanã, Igarapé, floresta úmida, IX.2004, Silva & Pena (INPA). 1 ♀ from BRAZIL, Rodônia, Vilhena, XI.1973, Malvarenga. 1 ♀ from BRAZIL, Mato Grosso, Sinop, X.1975, Malvarenga (AEIC). 1 ♀ from BRAZIL, Minas Gerais, Parque Estadual do Rio Doce, Área da Tereza, Pt. 3, 2–9.XI.2003, Malaise trap, JCRFontenelle; 1 ♀, same data except Pt. 1, 7–11.XI.2005; 1 ♂, same data except Campolina, Pt. 3, 17–24.II.2005;

1 ♂, same data except Trilha da Lagoa do Gambá, Pt. 3, 20–26.X.2000; 2 ♀♀, same data except 20–27.X.2004; 1 ♀, same data except Pt. 1, 10–17.VII.2001; 1 ♀, same data except 26.X–2.XI.2003; 1 ♂, same data except Sacramento, 22.X.2005 (UFES). 1 ♀ from BRAZIL, Rio de Janeiro, Silva Jardim, VIII.1974, FMoliveira (AEIC). 1 ♀ from BRAZIL, São Paulo, São João de Iracema, Fazenda São Francisco, Pt. 1, 15.VIII.2009, BIOTA-FAPESP (UJMF). 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, II.1968, FPlaumann; 1 ♀ 3 ♂, same data except XI.1970; 1 ♂, same data except I.1968 (AEIC). 1 ♀, same data except 12.II.1937; 1 ♀, same data except 21.III.1937; 1 ♀, same data except 11.II.1939 (BMNH). 1 ♀, same data except 14.XII.1967; 1 ♀, same data except 19.II.1968; 2 ♀♀, same data except II.1968; 2 ♀♀, same data except XII.1968 (CNCI).

Distribution. Widely distributed at South America, with records reaching from southern Brazil to eastern Ecuador (Fig. 336). The records include both Atlantic and Amazonian rainforests and also areas of Cerrado.

***Messatoporus longicaudis* Santos, sp. nov.**

(Figs 38, 166, 260, 269, 337)

Female. Fore wing 9.09 mm. HEAD: Mandible densely covered with long hairs; MLW 2.18; MWW 0.37; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.21. Clypeus almost entirely flattened, centrally straight; CHW 2.55; CWW 1.88; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 27 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina, meeting hypostomal carina far from mandible base. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia very weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, subcircular, $1.22 \times$ as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.68 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture without wrinkles. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum moderately wide, about $0.63 \times$ as long as anterior area of propodeum, very weakly rugulose; metapleuron moderately punctate, with vestigial wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina absent. Fore tibia not distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter (, posteriorly weakly rugulose).

PROPODEUM: $1.24 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate, medially strigulate; spiracle elliptic, SWL 2.5; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, very closely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina faintly suggested as a stronger wrinkle.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.51 of its own length; vein 2Cua $0.32 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.84, pentagonal, distinctly wider than high, AWH 1.02; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly longer than 2-M; 4-Rs distinctly sinuous; 4-M tubular, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 0.96; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.86 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.37 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.69; T1WW 1.97; spiracle on 0.47 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.61; T2WW 2.16; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely and very weakly coriarius, densely and uniformly pilose. OST 2.5; ovipositor moderately stout, strongly upcurved, basally cylindrical, apically distinctly depressed; dorsal valve with four weak ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black; meso and metasoma orange (210,119,052). Head: black; f8–13 entirely white, 7 and 14 partially white; scape ventrally, clypeus, mandible except apex, palpi, supra-clypeal area, orbital band broadly interrupted at temple, whitish. Mesosoma: orange; mesoscutum centrally with weak blackish mark; fore and mid legs lighter than thorax, apical tarsomere dark fuscous; hind tibia yellow; hind tarsus whitish. Mesosoma: orange; T3–8 anteriorly dark fuscous.

Male. Fore wing 6.75–6.96 mm long. Very similar to female, except for the following: antenna with 26 flagellomeres; pronotum, central lobe of mesoscutum and anterior area of propodeum with brownish marks; apical 0.25 of hind tibia and basal 0.7 of t1, dark brown; T1–8 dark fuscous, T1–2 anteriorly dark brown.

Variation. Fore wing 8.80–9.53 mm long. Paratype females with mesosoma bright orange, without blackish marks at mesoscutum; scrobe less distinctly concave; propodeum slightly less elongate; fore and mid tibiae and tarsi yellow except apical tarsomere; metasoma entirely dark fuscous except posterior 0.2, orange.

Comments. Readily differentiated from all other species of *Messatoporus* by the very long ovipositor, $2.50 \times$ as long as hind tibia, mesoscutum very strongly convex, ventral portion of epicnemium strongly concave and fore tibia not distinctly swollen. It can be additionally isolated from the similar *M. aurantius* **sp. nov.**, by the propodeum in lateral view somewhat flattened (vs. rounded, subspherical), with moderately closely spaced transverse wrinkles (vs. very closely spaced), fore wing crossveins 2r-m and 3r-m distinctly convergent (vs. subparallel) and vein 3-M distinctly longer than 2-M (vs. two veins about the same size).

Biology. Unknown.

Etymology. From the Latin words *longus*, meaning “long”, and *cauda*, meaning “tail”; in reference to its very long ovipositor.

Material examined. 5 ♀♀, 4 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Santa Maria de Jetibá, Fazenda Paulo Seick, Pt. T4, 29.XI–6.XII.2002, Malaise trap, MTTavares, COAzevedo *et al.* (UFES). Mounted on triangle point. In good shape.

Paratypes: 1 ♂ from BRAZIL, Espírito Santo, Santa Maria de Jetibá, Fazenda Paulo Seick, Pt. T3, 29.XI–6.XII.2002, Malaise trap, MTTavares, COAzevedo *et al.*; 1 ♂, same data except Pt. B1; 1 ♂, same data except Pt. B3 (UFES). 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 18.II.1956, FPlaumann; 1 ♀, same data except 19.II.1954 (AEIC); 1 ♀, same data except XII.1968; 1 ♂, same data except 27.I.1960 (CNCI). 1 ♀ without label (DZUP).

Distribution. Recorded only from two sites in Atlantic Forest, in southern Brazil and the highlands of Espírito Santo, southeastern Brazil (Fig. 337).

***Messatoporus longitergus* Santos, sp. nov.**

(Figs 40, 338)

Female. Fore wing 6.48 mm. HEAD: Mandible densely covered with long hairs; MLW 2.44; MWW 0.39; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.33. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.57; CWW 1.9; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 25 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, with moderately dense punctation, distinctly striate near antennal sockets, ventrally and around ocelli distinctly concave, median line distinguishable only as a rugulose area. Occipital carina uniformly curved. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, shiny, densely punctate, weakly striate along posterior margin and collar; epomia absent. Mesoscutum moderately and uniformly convex, ovoid,

1.32 × as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 0.74 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about 0.88 × as long as anterior area of propodeum, anteriorly weakly colliculate, posteriorly with very weak longitudinal wrinkles; metapleuron minutely rugulose, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia not distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa rugulose-coriarius.

PROPODEUM: 1.1 × as long as wide, shiny, moderately pilose; anterior area asperous and densely punctulate; spiracle elongate, SWL 4.25; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles vestigial, most of posterior area rugulose; posterior transverse carina distinct, medially interrupted, forming weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs uniformly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.35 of its own length; vein 2Cua 0.61 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.55, pentagonal, about as high as wide, AWH 0.94; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.55; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.92 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.43 × as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally sparsely pilose, laterally moderately pilose; T1LW 5.65; T1WW 1.42; spiracle on 0.48 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina weak, medially interrupted. T2LW 2.23; T2WW 2.09; thyridium longer than wide, without small circular depression just behind it; T2–8 densely, finely punctate, densely and uniformly pilose. OST 0.73; ovipositor slender, slightly sinuous, basally cylindrical, apically slightly depressed; dorsal valve with three very weak ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head black and pale yellow, mesosoma black, orange and pale yellow, metasoma orange. Head: black; clypeus, basal 0.3 of mandible, malar space, supra-clypeal area and complete orbital band, pale yellow (221,180,122); mouthparts light brown; scape and pedicel ventrally dark brown; f7–14 entirely white, f6 and f15 mostly white. Mesosoma: mostly orange (198,101,043); small dorsal mark on pronotum, mesoscutum, scuto-scutellar groove and scutellum posteriorly, black; mesoscutum pronotum almost entirely, U-shaped mark at mesoscutum, scutellar carina, tegula, subalar ridge and central mark on mesopleuron, pale yellow; fore and mid t1–4 dark fulvous, t5 blackish; hind tibia basally orange, dorsally gradually turning to blackish on apical 0.75; basal 0.3 of t1 blackish; apical 0.7 of t1 and t2–5, whitish. Metasoma: orange; T3–7 with progressively smaller anterior dark brown marks; S4–5 with small lateral brown marks; T8 dark brown.

Male. Unknown.

Variation. Antenna sometimes with 26 flagellomeres; yellowish spot over mesoscutum either subcircular or bifurcated.

Comments. Similar to *M. advenus* sp. nov., from which it can be differentiated by having generally smaller size, with fore wing 6.48 mm long (vs. 10.75 mm long); pronotum almost entirely pale yellow (vs. almost entirely orange); supra-antennal area, occiput and mesoscutum dark brown (vs. mostly orange); scape ventrally dark brown (vs. orange); fore wing veins 2r-m and 3r-m, as well as 2-M and 3-M, about the same size (vs. 3r-m distinctly longer than 2r-m, and 2-M distinctly longer than 3-M); clypeus centrally concave (vs. straight).

Biology. Unknown.

Etymology. From the Latin words *longus*, meaning “long”, and *tergus*; in reference to its very long first metasomal tergite.

Material examined. 2 ♀♀. Holotype ♀ from RICA, Alajuela, Pena Blanca, 700 m, 7.VII.1987, E. Cruz (AEIC). Pinned. Right mid tarsus missing; otherwise in good shape.

Paratype: 1 ♀, same data as holotype except II.1987.

Distribution. Recorded only from the type locality, in Costa Rica (Fig. 338).

Messatoporus lordos Santos, sp. nov.

(Figs 53, 188, 339)

Female. Fore wing 9.32 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.68; MWW 0.36; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.21. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.53; CWW 2.25; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 26 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, distinctly striate near antennal sockets, ventrally distinctly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum densely pilose, shiny, punctate-reticulate, ventrally with strong wrinkles; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.26 \times$ as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 0.67 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, ventrally abruptly curved, dorsally straight; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, straight. Transverse sulcus at base of propodeum moderately wide, about $0.67 \times$ as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron densely punctate, ventrally also rugulose, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa laterally foveolate, dorsally punctate.

PROPODEUM: $1.14 \times$ as long as wide, shiny, glabrate; anterior area densely punctate; spiracle elongate, SWL 5.45; anterior transverse carina distinctly arched backwards, its very middle raised and slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, often ramificated, mostly slightly curved or somewhat sinuous, with two wrinkles medially arched backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly irregular, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.49 of its own length; vein 2Cua $0.79 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.42, subquadratic, distinctly wider than high, AWH 1.69; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, 3r-m distinctly longer; vein 3-M almost indistinct; 4-Rs distinctly sinuous; 4-M tubular, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.03; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.94 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.34 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 2.72; T1WW 1.96; spiracle on 0.54 of its length, slightly prominent; median depression elongate, very shallow; median posterior depression subcircular; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.18; T2WW 1.97; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, moderately and uniformly pilose except glabrate postero-dorsal area in T2–3. OST 1.87

Ovipositor moderately stout, slightly upcurved, basally cylindrical, apically distinctly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 6 teeth, widely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma black with bright yellow marks, metasoma mostly orange. Head: black; clypeus, mouthparts, supra-clypeal area and complete orbital band, bright yellow (237,220,108); mandible blackish but centrally somewhat lighter; f8–12 entirely white, f7 apically white. Mesosoma: black, turning to dark brown ventrally; collar, dorsal margin of propodeum, subcircular spot on mesoscutum, scutellar carina, scutellum except posterior 0.1, axillar carinae laterally, tegula, subalar ridge, central mark on mesopleuron almost reaching ventral margin, dorsal division of metapleuron, transverse sulcus medially, dorsal spot covering 0.2 of metapleuron and lateral marks on propodeum, bright yellow; fore and mid legs bright yellow, except posterior face of coxae, apical spot at first fore trochanter, basal spot at second fore and mid trochanter and dorsal stripe at fore and mid femur and first mid trochanter, blackish; fore t5 fuscous; hind coxa anteriorly dark brown, posteriorly bright yellow, with dark brown area extending posteriorly at coxa midlength; hind trochanters and femur bright orange (215,103,052); hind tibia and tarsus bright yellow, darker at tibia apex. Metasoma: bright orange; T1 black with anterior 0.4 dorsally bright yellow and posterior yellow stripe; T2 with posterior bright yellow mark, medially wider.

Variation. Female from Peru with fore wing 12.26 mm long; slightly less pilose; most dark areas somewhat reddish-dark brown; mandible mostly yellow; antenna with 28 flagellomeres; yellow marks at meso- and metapleuron and fore coxa more extensive; anterior transverse carina of propodeum not slightly arched forwards in its very middle; hind second trochanter entirely orange; T2 with narrow posterior yellow stripe.

Comments. Similar to *M. euryoikos* **sp. nov.** and *M. apiopharkis* **sp. nov.**, from which it can be differentiated by the following characters: mesosternum black (vs. mostly yellow, or at least partially yellow); metapleuron mostly black (vs. mostly yellow); propodeum densely pilose (vs. scarcely punctate); anterior transverse carina distinctly arched backwards (vs. straight or arched forwards); posterior area with sublateral short subtriangular marks (vs. with oval or arc-shaped marks); and dorsal valve ovipositor of ovipositor with five ridges (vs. four). It can be additionally isolated from *M. euryoikos* by having mid and hind coxae yellow and black (vs. mostly orange), and from *M. apiopharkis* by the black postscutellum (vs. yellow).

Biology. Unknown.

Etymology. From the Greek *lordos*, meaning “bent backward”; in reference to the anterior transverse carina arched backwards, a rare feature in *Messatoporus*.

Material examined. 2 ♀♀. Holotype ♀ from ARGENTINA, Vila Nogues, 1.I.1966, HTownes & MTownes (AEIC). Pinned. Apical third of right antenna and extreme tip of right antenna missing; otherwise in good shape. Paratype: 1 ♀ from PERU, Marcapata, Plaudinger (ZMHB).

Distribution. Recorded from highland areas in southern Peru and northern Argentina (Fig. 339).

***Messatoporus lunatus* Santos, sp. nov.**

(Figs 64, 147, 340)

Female. Fore wing 8.25 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.72; MWW 0.42; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.36. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.66; CWW 3.21; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, without median line. Occipital carina dorsally distinctly bell-shaped, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, shiny, impunctate, ventrally with strong wrinkles; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, subcircular, 1.13 × as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.81 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length.

Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, arched backwards. Transverse sulcus at base of propodeum very wide, about $0.74 \times$ as long as anterior area of propodeum, impunctate; metapleuron scarcely punctate, without transverse wrinkles, dorsally glabrate, ventrally sparsely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.13 \times$ as long as wide, shiny, glabrate; anterior area medially almost impunctate, laterally moderately punctate; spiracle elongate, SWL 3.5; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly faint, posteriorly strong, closely spaced, anteriorly faint at median portion, posteriorly partly complete and partly incomplete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.46 of its own length; vein 2Cua $0.36 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.77, pentagonal, about as high as wide, AWH 0.93; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.94; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.77 of distance to posterior wing margin.

METASOMA: First tergite short, $0.35 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 2.52; T1WW 2.04; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.12; T2WW 1.69; thyridium longer than wide, without small circular depression just behind it; T2–8 densely and finely punctate, moderately and uniformly pilose. OST 1.21; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four very weak ridges; ventral valve apex with 7 teeth, 1st, 2nd and 3rd widely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and whitish. Head: clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area except central oval spot and complete orbital band, whitish (236,225,186); white band at flagellum starting at f8. Mesosoma: black; collar and dorsal margin of pronotum connected, propleuron except dorsal marks, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, narrow and somewhat C-shaped central mark on mesopleuron, mesosternum and dorsal division of metapleuron, whitish; median 0.7 of metapleuron and arc-shaped mark on propodeum, light yellow (227,195,092); fore coxa and trochanter whitish, coxa with lateral longitudinal dark brown mark, first trochanter with dorsal dark brown mark; fore second trochanter, femur, tibia and t1–4 bright orange (217,134,062), lighter apically; fore t5 blackish; mid leg bright orange, tarsus gradually darker apically, t5 blackish; hind leg bright orange, tarsus dorsally blackish. Metasoma: black; basal 0.3 dorsally and apical 0.2 of T1, whitish; T2–8 with posterior whitish stripes; S1–6 whitish, S2–6 with progressively smaller lateral black marks.

Male. Fore wing 7.71–8.78 mm long. Very similar to female, except for the following: white band at flagellum restricted to dorsal face; fore tibia and tarsus ventrally whitish; mid and hind tarsus entirely blackish; hind t3–4 whitish; S2–6 black with apical whitish stripe.

Variation. Fore wing 8.25–9.10 mm long. Black mark at supra-clypeal area sometimes reduced or absent; mid coxa sometimes with small basal whitish mark; hind femur dark orange; apical 0.2 of hind tibia and t1–2 and t5, blackish; t3–4 sometimes whitish; all light areas either whitish or light yellow.

Comments. Very similar to *M. dominicanus* sp. nov., from which it can be differentiated by having postscutellum yellow (vs. black); yellow spot on mesopleuron distinctly C-shaped (vs. elongate, somewhat sinuous); mandible mostly whitish (vs. mostly blackish, with dorsal yellow spot); mesopleuron without wrinkles along epicnemial carina (vs. with weak longitudinal wrinkles along epicnemial carina, stronger on basal 0.3); posterior transverse carina of propodeum entirely absent (vs. distinct as very weak sublateral crests); supra-clypeal area with blackish spot at females, males usually with blackish spot (vs. without blackish spot); scape ventrally without whitish spot at females, males with weak ventral spot (vs. always with whitish spot).

Biology. Two specimens from Rio Piedras, Puerto Rico, were collected “on mango” (presumably at mango tree or plantation).

Etymology. From the Latin *lunatus*, meaning “shaped like a crescent moon”; in reference to the C-shaped mark at the mesopleuron.

Material examined. 2 ♀♀, 12 ♂♂. Holotype ♀ from DOMINICAN REPUBLIC, La Altagracia, Nisibon, near cacao plantation, 5–7.V.1978, flight trap, GBFairchild (FSCA). Pinned. Apical half of both antennae and right ovipositor valve missing; wings very dirty; otherwise in good shape.

Paratypes: 2 ♂♂ from DOMINICAN REPUBLIC, La Altagracia, Nisibon, 8–10.VI.1976, Malaise trap, REWoodruff & EEGrissell; 1 ♀ from DOMINICAN REPUBLIC, Santiago, La Cumbres, 915 m, 5–17.VI.1976, Malaise trap, REWoodruff & EEGrissell. 3 ♂♂ from DOMINICAN REPUBLIC, Pedernales, 21 km N Cabo Rojo, 19–20.VI.1976, Malaise trap, REWoodruff & EEGrissell (FSCA). 3 ♂♂, same data except Baboruso, 730 m, 19–23.VII.1990, LMasner (CNCI). 1 ♀ from HAITI, Bon Repas, 3.II.1930, HLDozler. 1 ♂ from PUERTO RICO, San Juan, Rio Piedras, 30.VII.1934; 1 ♂, same data except Pt. 12, 31.VII.1934; 1 ♂, same data except Trujillo Alto, 6.VI.1934, ASMills (USNM).

Distribution. Recorded from the islands of Hispaniola (both Haiti and Dominican Republic) and Puerto Rico (Fig. 340). *Messatoporus lunatus* occurs in sympatry with the very close species *M. dominicanus*.

***Messatoporus maculipes* Kasparyan & Ruíz 2005**

(Figs 80, 198, 341)

**Messatoporus maculipes* Kasparyan & Ruíz 2005: 106, 116. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Tamaulipas, Gómez Farías, Los Cedros, 300 m, Malaise trap, 6–13.II.1999, S. Hernández A. *Messatoporus maculipes*: Kasparyan & Ruíz 2008: 310, 312, 327–328, 373. Description, distribution, figure, keyed.

Female. Fore wing 7.35 mm. HEAD: Mandible densely covered with long hairs; MLW 1.92; MWW 0.49; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.18. Clypeus basally evenly convex, apically gradually flattened, centrally concave; CHW 2.55; CWW 2.11; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, with very weak, low median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, with moderately strong wrinkles at ventral half of posterior margin (weaker striate at dorsal half); epomia very weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, 1.25 × as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.7 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, straight. Transverse sulcus at base of propodeum very wide, about 0.78 × as long as anterior area of propodeum, posteriorly with longitudinal wrinkles; metapleuron with very fine and moderately dense punctures, with vestigial wrinkles, moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: 1.15 × as long as wide, shiny, sparsely pilose; anterior area densely punctate; spiracle elliptic, SWL 3.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly faint, posteriorly moderately strong, closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight,

posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.4 of its own length; vein 2Cua $0.46 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.58, pentagonal, distinctly wider than high, AWH 1.31; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, 3r-m distinctly shorter; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.17; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.94 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.37 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 2.54; T1WW 2.23; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.18; T2WW 1.57; thyridium longer than wide, with small circular depression just behind it; T2–8 minutely coriarius, moderately and uniformly pilose. OST 1.14; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma black and pale yellow, metasoma dark brown and pale yellow. Head: black; clypeus, mouthparts, supra-clypeal area, scape and pedicel ventrally and complete orbital band, pale yellow (224,118,117) scape and pedicel dorsally and flagellum, brown; f7–12 entirely white, f13 almost entirely white, f6 and f14 partially white. Mesosoma: pronotum black except collar and dorsal margin connected, pale yellow; mesoscutum black except pale yellow subcircular spot; remainder of mesosoma pale yellow except for the following black marks: scuto-scutellar groove, both axillary through, scutellum posteriorly, axillar carinae, postscutellum, ventral 0.6 of epicnemium, scrobe and part of hypopimeron, posterior apex of sternaulus, mesopleural suture, transverse sulcus, anterior area of propodeum except lateral portions, lateral border of propodeum and oval posterior spot; fore and mid legs pale yellow except apical brown spot at mid coxa, brownish stripe at fore and mid femora, fore t5 and mid tarsus dark brown; hind coxa pale yellow with three longitudinal brown stripes, anterior one on apical 0.6, posterior one on basal 0.6 and median one at full length of coxa, basally wider; hind trochanters mostly brownish, ventrally yellow; hind femur pale yellow with dorsal brownish stripe on basal 0.8; basal 0.3 of hind tibia pale yellow, turning to dark brown on apical 0.7. Metasoma: dark brown (058,051,045); T1 pale yellow, median 0.25 dark brown; T2–8 with posterior pale yellow stripes; S1–6 pale yellow, S2–4 with lateral brownish marks.

Male. Not examined. According to Kasparyan & Ruíz (2008), similar to female, except for the following: fore wing 5–8 mm long; mandible pale yellow (except apex); antenna with 24–26 flagellomeres; black marks on pronotum connected; epicnemium and metanotum partially to completely black; fore coxa entirely whitish; basal 0.7 of hind tibia whitish; T2 with small anterior whitish spot.

Variation. Fore wing 7.35–9.8 mm. Antenna sometimes with 23 flagellomeres; mesopleural suture sometimes pale yellow; anterior and posterior stripes at hind coxa sometimes distinguishable only as small brownish marks; hind femur dorsally mid brown to blackish; mid tarsi sometimes pale yellow, only slightly darker apically; black mark at mid coxa sometimes fading until its base; lateral portion of T1 sometimes black until the base. Yellowish spots at anterior area of propodeum almost indistinct at the smaller males.

Comments. Readily recognized by the following combination of characters: anterior area of propodeum with lateral yellowish marks over propodeal spiracle and surrounding area; arc-shaped mark at posterior area almost reaching borders of propodeum and anterior transverse carina; mandible entirely black; mesopleuron almost entirely yellow, central mark connected to yellow subalar ridge; and ovipositor dorsal valve with five moderately strong ridges.

Biology. Unknown.

Material examined. 4 ♀♀. 1 ♀ from MEXICO, Chiapas, Mustle, near Huixtlan, 440 m, 31.IX.1970, Malaise trap, Wellings (CNCI). 1 ♀ from COSTA RICA, Alajuela, pena Blanca, 700 m, IV.1987, ECruz. 1 ♀ from COSTA RICA, San Vito, Las Cruces, 1200 m, 17.VIII–12.IX.1982, BGill. 1 ♀ from PANAMA, Darien, Parque Nacional Darien, Pire, Estación Rancho Frio, 80 m, 21.III–4.IV.2000, Cambra, Santos & Bermudez (AEIC).

Distribution. Northeastern Mexico to Panama (Fig. 341), apparently occurring from lowlands to midlands (80–1200 m).

***Messatoporus maculiscus* Santos, sp. nov.**

(Figs 3, 57, 141, 178, 213, 342)

Female. Fore wing 6.52 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 2; MWW 0.34; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.26. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.83; CWW 1.42; apical area medially concave, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 26 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, mat, impunctate, ventrally with strong wrinkles; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, subcircular, $1.15 \times$ as long as wide, densely covered with short hairs, mat, densely punctulate notaulus reaching about 0.73 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum moderately wide, about $0.64 \times$ as long as anterior area of propodeum, impunctate; metapleuron minutely rugulose, with vestigial wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia not distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with weak punctures separated by about their own diameter.

PROPODEUM: $1.05 \times$ as long as wide, mat, moderately pilose; anterior area moderately punctate; spiracle elongate, SWL 4.00; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete or mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly irregular, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.29 of its own length; vein 2Cua $0.57 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.76, pentagonal, distinctly higher than wide, AWH 0.73; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.43; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.73 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.43 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.84; T1WW 1.56; spiracle on 0.48 of its length, slightly prominent; median depression absent; median posterior depression elongate; lateral depressions absent; ventrolateral carina absent. T2LW 1.24; T2WW 2.8; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.72; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head black, mesosoma black, orange and yellow, metasoma dark brown and yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and orbital band almost interrupted at dorsal margin of eye, pale yellow (239,224,136); f10–16 entirely white, f17 dorsally white. Mesosoma: mostly orange (206,089,042); pronotum, mesoscutum, scuto-scutellar groove, apical margin of scutellum, postscutellum, anterior area of propodeum, black; dorsal margin of mesopleuron, ventral portion of epicnemium, anterior 0.2 of area over sternaulus, hind femur, apical 0.6 of hind tibia, basal 0.3 of t1 and apical 0.5 of t5, dark brown (076,056,047); collar and dorsal margin of pronotum connected, subcircular spot on mesoscutum, scutellar carina, scutellum, postscutellum, tegula, subalar ridge, central rounded spot on mesopleuron, dorsal

division of metapleuron, lateral marks on propodeum, light yellow (233,220,124); fore leg pale yellow, fore femur dorsally light fuscous; mid tarsus fuscous; mid tibia, basal 0.4 of hind tibia, apical 0.7 of hind t1, t2–4 and basal 0.5 of t5, whitish. Mesosoma: dark brown, lighter towards posterior tergites; basal 0.4 of T1 light yellow; T1–8 with pale yellow posterior stripes; S1–6 light brown with posterior yellow stripes.

Male. Fore wing 6.53–8.57 mm long. Very similar to female, except for the following: antenna with 28 flagellomeres; orbital band shortly interrupted near dorsal margin of eye; propleuron, ventral 0.8 of mesopleuron and mesosternum light yellow; fore leg light yellow except femur, light brownish; mid coxa and trochanters pale yellow, femur light orange.

Variation. Fore wing 7.02–7.71 mm long. Antenna sometimes with 25 flagellomeres; first flagellomeres sometimes brown; central mark on mesopleuron covering 0.25–0.6 of its area; posterior corner of mesopleuron sometimes blackish; anterior area of propodeum sometimes laterally orange or brown; orange areas of propodeum sometimes turned to blackish; fore femur sometimes pale orange; basal 0.25 of hind femur sometimes ventrally orange; mid tibia sometimes with brownish mark; metasomal tergites and sternites sometimes black.

Comments. Similar to *M. tenuiorbis* sp. nov., from which it can be differentiated by the mesopleuron and mesosternum mostly orange, mesopleuron with central yellow mark (vs. mesopleuron and mesosternum mostly blackish); dorsal margin of pronotum yellow (vs. black); fore coxa not distinctly swollen (vs. distinctly swollen); fore wing vein 2-M about as long as 3-M (vs. 3-M distinctly shorter than 2-M); and pronotum impunctate (vs. densely punctate).

Biology. Unknown.

Etymology. From the Latin *macula*, meaning “mark”, added to the diminutive suffix *-iscus*; in reference to the small central mark on mesopleuron.

Material examined. 5 ♀♀, 1 ♂. Holotype ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, XII.1968, FPlaumann (CNCI). Pinned. Apical third of right antenna missing; otherwise in good shape.

Paratypes: 1 ♀ from BRAZIL, Rio de Janeiro, Rio de Janeiro, I.1939, RCS Shannon (USNM). 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 5.IV.1938, FPlaumann (BMNH). 1 ♀, same data except 21.VIII.1948; 1 ♂, same data except IV.1966; 1 ♀, same data except IV.1966 (CNCI). 1 ♀, same data except 30.VIII.1938 (WUR).

Distribution. Atlantic Forest in southern and southeastern Brazil (Fig. 316342)

***Messatoporus matucanus* Santos, sp. nov.**

(Figs 95, 343)

Female. Fore wing 7.92 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.94; MWW 0.39; dorsal tooth in front view projected upwards, long, ventral tooth distinct only as a very short lobe. MSM 0.36. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.21; CWW 1.56; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 28 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, laterally coriarius, centrally colliculate, weakly rugulose near antennal sockets, ventrally distinctly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, apically weak, meeting hypostomal carina far from mandible base. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin and pronotal collar, shiny, rugulose-colliculate, ventrally with strong wrinkles; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, ovoid, 1.35 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, mat, punctate-coriarius; notaulus reaching about 0.78 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina complete, reaching subalar ridge, distinctly sinuous; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, straight. Transverse sulcus at base of propodeum moderately wide, about 0.57 × as long

as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron minutely rugulose, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa rugulose-coriarius.

PROPODEUM: 1.08 × as long as wide, shiny, moderately pilose; anterior area almost impunctate; spiracle elliptic, SWL 2.42; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly weak, posteriorly strong, closely spaced, mostly complete, anteriorly distinctly arched forwards, posteriorly distinctly arched backwards; posterior transverse carina distinct as moderately strong crests.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous; crossvein 1m-cu more or less uniformly curved, totally continuous with 1-Rs+M; vein 1M+Rs entirely irregular; fore wing crossvein 1 cu-a based of 1M+Rs by 0.39 of its own length; vein 2Cua 0.61 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.83, pentagonal, about as high as wide, AWH 0.98; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.44; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.96 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.4 × as long as T2–8, approximately cylindrical, ventrolaterally angled, uniformly, densely pilose; T1LW 4.49; T1WW 1.36; spiracle on 0.51 of its length, slightly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.5; T2WW 2.23; thyridium much longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, densely and uniformly pilose. OST 0.68; ovipositor slender, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head black, mesosoma black and brownish orange, metasoma dark brown and pale yellow. Head: black; labrum, dorsal mark at mandible, dorsal spot at supra-clypeal area and weak orbital band distinct only at supra-clypeal area and part of gena, pale yellow (227,216,154); palpi and scape ferruginous; pedicel dark brown; flagellum basally ferruginous, gradually turning to blackish towards apex; f10–12 dorsally whitish. Mesosoma: black; small marks at pronotal collar, dorsal margin of pronotum, lateral scutellum and subalar ridge, whitish (247,238,182); dorsal division of metapleuron, posterior 0.3 of metapleuron and somewhat arc-shaped mark on propodeum, reddish brown (158,078,053); propodeal crests yellowish; fore coxa dark brown; fore trochanters, femur and tibia pale yellow; first trochanter and femur dorsally with longitudinal brownish stripes; fore tibia with dorsal and ventral brownish stripes; fore tarsus gradually turning from pale yellow basally to blackish at t5; mid coxa brownish orange with sparse brownish marks; mid trochanters ventrally light orange, dorsally brownish; mid femur light orange, dorsally brownish; mid tibia pale yellow, dorsally marked with blackish; mid t1–4 brown, t5 blackish; hind coxa dark orange, with small apical blackish mark; hind trochanters and extreme base and apex of femur, dark brown; hind femur dark orange; hind tibia and tarsus blackish, tibia with sub-basal whitish mark. Metasoma: blackish; T1–7 and S2–6 with posterior pale yellow stripes; T1 dorsally pale yellow on basal 0.25.

Male. Unknown.

Comments. More similar to *M. andinus* **sp. nov.**, from which it can be differentiated by having orbital band almost entirely absent (vs. complete); hind coxa reddish orange with apical blackish spot (vs. black or dark brown, with posterior yellow mark); propodeal spiracle elliptic, SWL 2.42 (vs. elongate, SWL 3.64); postscutellum black (vs. yellow); anterior area of propodeum almost impunctate (vs. asperous and densely punctate); epomia complete, approximately straight (vs. distinct only after diverging from collar, distinctly curved); occipital carina meeting hypostomal carina, tough apically weak (vs. not meeting hypostomal carina); scuto-scutellar deep, with vestigial wrinkles (vs. shallow, without wrinkles); and ovipositor ventral valve with eight teeth (vs. eleven).

Biology. Unknown.

Etymology. Latinized form of *Matucana*, in reference to its type locality.

Material examined. 3 ♀♀ 3 ♂♂. Holotype ♀ from PERU, Matucana, 29.VII.1982, 2389 m, CPorter & TO'Neil (FSCA). Pinned. In good shape.

Paratypes: 2 ♀♀ 3 ♂♂, same data as holotype.

Distribution. Recorded only from the type locality, in western Peru (Fig. 343).

***Messatoporus mesonotator* Kasparyan & Ruíz 2005**

(Figs 78, 197, 236, 344)

**Messatoporus mesonotator* Kasparyan & Ruíz 2005: 107, 116. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Tamaulipas, Gómez Farías, Alta Cima, 900 m, Malaise trap, 7–14.X.2000, S. Hernández A. *Messatoporus mesonotator*: Kasparyan & Ruíz 2008: 309, 312, 329–330, 373. Description, distribution, figure, keyed.

Female. Fore wing 7.5 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.74; MWW 0.31; dorsal tooth in front view projected upwards, long, ventral tooth indistinct. MSM 0.33. Clypeus slightly and more or less uniformly convex, centrally straight; CHW 2.53; CWW 2.24; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 26 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, distinctly striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, apically very faint, meeting hypostomal carina far from mandible base. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, mat, scarcely punctate, ventrally moderately striate; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, $1.19 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.68 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.84 \times$ as long as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron impunctate, covered with the same wrinkling of propodeum, however less regular, covered with moderately dense, very short hairs; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.15 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elongate, SWL 4.44; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, closely spaced, anteriorly complete, posteriorly mostly incomplete and overlapped, distinctly curved backwards; posterior transverse carina distinct as very weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.4 of its own length; vein 2Cua $0.57 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.55, pentagonal, about as high as wide, AWH 0.97; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 0.93; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.89 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.37 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally sparsely pilose, laterally moderately pilose; T1LW 3.75; T1WW 1.83; spiracle on 0.48 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.09; T2WW 2.26; thyridium longer than wide, without small circular depression just behind it; T2–8 smooth between punctures, densely and uniformly pilose. OST 0.76; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four weak ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and whitish. Head: black; clypeus, basal spot at mandible, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, whitish (235,220,182); f8–14 entirely white, f7 and f15 mostly white. Mesosoma: black; collar and dorsal margin of pronotum connected,

propleuron, U-shaped mark at mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, mesopleuron except borders and scrobe, mesosternum, dorsal division of metapleuron, metapleural triangle, metapleuron except posterior apex and arc-shaped, quadratic mark on propodeum, yellowish (222,199,119); fore and mid coxae and first trochanters whitish, coxae with basal and apical brown marks, first trochanters dorsally with basal brown mark; fore femur, tibia and tarsus whitish, femur with weak dorsal brownish stripe, tibia with ventral brownish stripe, t5 blackish; mid femur ventrally whitish, dorsally pale orange; mid tibia and tarsus whitish, t5 blackish; hind coxa whitish with three longitudinal stripes, anterior and posterior ones reaching 0.5 of its length, lateral one reaching coxa apex; hind trochanters pale orange (198,104,042) with basal brownish marks; hind femur pale orange; basal 0.8 of hind tibia pale yellow, apical 0.2 dark brown; basal 0.25 of t1 dark brown, remainder of hind tarsus white. Metasoma: black; anterior 0.5 dorsally and posterior 0.2 of T1 whitish; S1 whitish; T2–8 and S2–6 with posterior whitish stripes.

Male. Fore wing 5.57–7.00 mm long. Very similar to female, except for the following: epicnemium ventrally whitish; blackish marks at tibia slightly more extensive.

Variation. Fore wing 6.50–8.78 mm long. Mandible sometimes mostly whitish; antenna sometimes with 25 flagellomeres; pronotum sometimes almost completely, or at males, completely, yellow; anterior portion of hind coxa sometimes pale orange; hind femur dorsally sometimes with small brownish basal marks; T2 often with anterior whitish spot; black areas at S5–6 sometimes reduced to small lateral brownish marks.

Comments. Very similar to *M. jalapa*, from which it can be differentiated by the yellow mark on mesopleuron connected to yellow subalar ridge (vs. not connected); T1 laterally black at anterior 0.8 (vs. laterally entirely yellow); ovipositor moderately stout, dorsal valve with four weak ridges (vs. slender, dorsal valve without ridges); ventral tooth of mandible indistinct (vs. distinct and triangular); and supra-antennal area distinctly striate near antennal sockets (vs. not striate). Also somewhat similar to *M. maculipes*, from which it can be differentiated mainly by the yellow mark at mesoscutum U-shaped (vs. subcircular); anterior area of propodeum entirely black (vs. with lateral yellow marks); T1 laterally black at anterior 0.8 (vs. laterally entirely yellow); sternaulus posterior transverse carina of propodeum distinct as weak sublateral crests (vs. entirely absent); and ovipositor dorsal valve with four weak ridges (vs. five moderately strong ridges).

Biology. Unknown.

Material examined. 7 ♀♀, 6 ♂♂. 1 ♂ from MEXICO, Chiapas, Mpio, San Cristobal, San Felipe, 2195 m, 20–25.VII.1990, Malaise trap, RWJones (TAMU). 1 ♀ from COSTA RICA, Guanacaste, San Rosa Park, Dry hill, 7.VII.1978, DHJanzen; 1 ♂, same data except 11.XI.1977; 1 ♂, same data except 10.VII.1977; 1 ♂, same data except 4.IX.1977; 1 ♂, same data except 15.IX.1977; 1 ♂, same data except 26.VIII.1977. 1 ♀ from COSTA RICA, Puntarenas, Monteverde, 5.I.1962, CPalmer; 1 ♀, same data except 17–19.II.1968; 1 ♀ from COSTA RICA, San José, Escazú, 22.V.1987, Townes & Townes (AEIC). 1 ♀ from PANAMA, Canal Zone, Barro Colorado Island, IV–V.1942, JZetek; 1 ♀, same data except IX–X.1939; 1 ♀, same data except X.1939 (USNM).

Distribution. Northeastern Mexico, Costa Rica and Panama (Fig. 344).

***Messatoporus mesosternalis* Kasparyan & Ruíz 2005**

(Figs 103, 239, 345)

**Messatoporus mesosternalis* Kasparyan & Ruíz 2005: 105, 118. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Tamaulipas, Gómes Farías, Alta Cima, 900 m, Malaise trap, 7–14.X.2000, D.R. Kasparyan.

Messatoporus mesosternalis: Kasparyan & Ruíz 2008: 308, 330–331, 373. Description, distribution, figure, keyed.

Female. Fore wing 7.92 mm. HEAD: Mandible densely covered with long hairs; MLW 1.66; MWW 0.34; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth somewhat rhomboid. MSM 0.23. Clypeus almost entirely flattened, centrally concave; CHW 2.21; CWW 2.34; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, medially with a distinct depression but without a distinct line. Occipital carina dorsally acuminate, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, with weak and short wrinkles at ventral half of posterior margin; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, subcircular, $1.11 \times$ as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.69 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, distinctly arched forwards. Transverse sulcus at base of propodeum moderately wide, about $0.56 \times$ as long as anterior area of propodeum, impunctate; metapleuron scarcely punctate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.11 \times$ as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elliptic, SWL 2.83; anterior transverse carina medially straight. Propodeal wrinkles anteriorly faint, posteriorly moderately strong, closely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.49 of its own length; vein 2Cua $0.52 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.63, subquadratic, distinctly higher than wide, AWH 0.79; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly longer than 2-M; 4-Rs straight, apically slightly upcurved; 4-M spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HWIC 1.53; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.87 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.31 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally sparsely pilose, laterally moderately pilose; T1LW 3.45; T1WW 1.66; spiracle on 0.55 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.18; T2WW 1.92; thyridium about as long as wide, without small circular depression just behind it; T2–8 smooth between punctures, laterally moderately pilose, dorsally T2–3 and 8 glabrate, T4–7 sparsely to moderately pilose. OST 1.32; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four weak ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and yellow. Head: black; clypeus, mandible except apex and borders, mouthparts, supraclypeal area except small lateral marks and complete orbital band, pale yellow (228,220,141); f5–9 entirely white; f10 almost entirely white, f11–12 partially white. Mesosoma: black; pronotal collar, propleuron ventrally, subcircular spot on mesoscutum, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron, dorsal division of metapleuron, posterior 0.5 of metapleuron and large trapezoidal marks at posterior area of propodeum, pale yellow; mesal face of fore and mid coxae with large blackish mark, mid coxa with small apical brown spot; all legs apically to first trochanter bright yellow, whitish towards apex; fore and mid femora with longitudinal blackish stripes at posterior face; fore and mid t5 dark brown; hind coxa anteriorly black, posteriorly pale yellow with narrow lateral blackish line; first trochanter ventrally black, second trochanter almost entirely blackish; ventral face and apical 0.15 of dorsal face of hind femur black; extreme base of hind tibia marked with blackish. Metasoma: black; T1–8 with posterior pale yellow stripes, expanding laterally at T2–8; S2–6 brown on basal 0.5, posteriorly pale yellow.

Male. Not examined. According to Kasparyan and Ruíz (2008), similar to female, except for the following: fore wing 5.00–6.00 mm long; antenna with 23–24 flagellomeres; propleuron, fore and mid coxae and trochanters completely whitish; whitish central spot on mesopleuron connected with whitish color at fore coxa; mesepimeron whitish; black portion at posterior area of propodeum weak, not connected with anterior black portion; fore and mid femora not ventrally black; hind femur reddish, with apical 0.2 black; hind tibia yellowish with apical 0.35 blackish; tibial spurs and basal 0.4 of t1 blackish; T2 about $3.0 \times$ as long as maximum width.

Variation. Fore wing 7.92–9.53 mm long. Specimen from Fortín de las Flores with yellowish spots on mesosternum ventrally to sternaulus and median anterior portion of transverse sulcus of propodeum, without narrow blackish stripe at hind coxa, and with ventrolateral yellowish mark on apical 0.4 of T1. Specimen from Puntarenas with longitudinal black mark on propodeum very narrow anteriorly. posterior face of hind coxa sometimes without narrow blackish stripe.

Comments. *Messatoporus mesosternalis* is part of a group of five very close species, all very similar although not forming a strictly monophyletic group (see Analysis 2). Along with the recovered synapomorphies, species of that group are generally similar in size and share features like body very shiny and scarcely punctate to almost impunctate; pronotum mostly black, yellow or whitish only at collar, but not at dorsal margin (which is unusual; species with yellow collar usually do also have the dorsal margin of pronotum marked with yellowish); mesosternum entirely black; hind tibia entirely bright yellow or blackish only on apical 0.2; T1 short, 0.31–0.38 × as long as T2–8, with posterior yellow or whitish stripe, anteriorly entirely black except in *M. basiflavus* **sp. nov.**; and ovipositor dorsal valve with four ridges. Most body proportions are also similar.

Among these species, *M. mesosternalis* can be readily identified by its unique color pattern at hind femur, which is mostly black, dorsally bright yellow on basal 0.7. *Messatoporus occidentalis* **sp. nov.** and *M. basiflavus* can be readily differentiated from *M. mesosternalis* by the mostly or entirely orange hind coxa, trochanters and femur, and by having the yellow mark on propodeum distinctly arc-shaped (vs. posterior area of propodeum with distinctly separated yellow marks, black area T-shaped). In *M. semiaurantigaster*, the yellow mark on the propodeum is arc-shaped, but very narrow medially; it can be promptly isolated from *M. mesosternalis* by the T4–8 entirely bright orange, orbital band shortly interrupted at dorsal margin of eye and hind tibia blackish on apical 0.2. *Messatoporus orientalis* **sp. nov.** is the most similar to *M. mesosternalis*, from which it can be separated by having orbital band incomplete, hind femur entirely dark brown or blackish; crossvein 3r-m absent (vs. present, though spectral); T2 with circular depressions just posteriorly to thyridium (vs. without depressions); thyridium longer than wide (vs. about as wide as high); and yellow marks on propodeum smaller.

Biology. Unknown.

Material examined. 3 ♀♀. 1 ♀ from MEXICO, Veracruz, Fortin de las Flores, Sumidero, Planta de la Cervecería, Ing. Daniel Rabago Res, 760–915 m, 12.VII.1968, Malaise trap, HVWeens Jr. 1 ♀ from COSTA RICA, Puntarenas, Prov. Piedras Blancas, 23–26.VII.1981, HVWeens Jr. & GBEdwards (FSCA). 1 ♀ from COSTA RICA, Alajuela, Pena Blanca, 700 m, 7.VII.1987, ECruz (AEIC).

Distribution. Northeastern Mexico to Costa Rica (Fig. 345).

Messatoporus nigriangulatus Santos, **sp. nov.**

(Figs 59, 157, 346)

Female. Fore wing 6.88 mm. HEAD: Mandible densely covered with long hairs; MLW 2.09; MWW 0.41; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.34. Clypeus slightly and more or less uniformly convex, centrally straight; CHW 2.06; CWW 1.78; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 27 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, median line distinguishable only as a weakly smoother area. Occipital carina dorsally distinctly bell-shaped, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, shiny, impunctate, with strong wrinkles at ventral half of posterior margin; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, 1.3 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, anteriorly densely punctate, posteriorly almost impunctate; notaulus reaching about 0.74 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove shallow, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial.

Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, distinctly arched forwards. Transverse sulcus at base of propodeum very wide, about 1.2 × as long as anterior area of propodeum, posteriorly with longitudinal wrinkles; metapleuron moderately punctate, posteriorly also weakly rugulose, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa foveolate-areolate, interior face rugulose.

PROPODEUM: 1.15 × as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elliptic, SWL 2.5; anterior transverse carina medially straight. Propodeal wrinkles anteriorly weak, posteriorly strong, closely spaced, anteriorly complete, posteriorly mostly incomplete and overlapped, anteriorly more or less straight, posteriorly slightly arched forwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, totally continuous with 1-Rs+M; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.29 of its own length; vein 2Cua 0.31 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.52, subquadratic, about as high as wide, AWH 1.09; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M spectral, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.08; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.77 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.42 × as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 4.64; T1WW 1.1; spiracle on 0.5 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.74; T2WW 2.09; thyridium much longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriaceous, densely and uniformly pilose. OST 0.67; ovipositor slender, slightly sinuous, basally cylindrical, apically distinctly depressed; dorsal valve without ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head black and whitish, mesosoma black, orange, whitish and pale yellow, metasoma black and pale yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, pale yellow (238,219,156); f8–15 entirely white, f7 with small white mark. Mesosoma: mostly pale yellow, slightly darker than head (229,207,121); mesoscutum except subcircular spot, scuto-scutellar groove, scutellar carina, posterior 0.15 of scutellum, postscutellum, dorsal 0.4 of epicnemium and dorsal margin of mesopleuron, black; ventral 0.6 of epicnemium, transverse sulcus medially, metapleuron and propodeum orange (214,104,038), propodeum darker anteriorly (150,067,036); fore second trochanter, femur ventrally, tibia and t1–4, light fuscous; fore femur dorsally brownish, tibia with dorsal brown mark; t5 blackish; mid coxa, trochanters and femur light orange; mid tibia dorsally whitish, ventrally blackish on basal 0.8; mid tarsus blackish; hind coxa, trochanters and basal 0.6 of femur (dorsally 0.8) bright orange; apical 0.2–0.4 of hind femur, apical 0.75 of tibia and basal 0.3 of t1, blackish; basal 0.25 of hind tibia, apical 0.7 of t1 and t2–5, white. Metasoma: black; T1–7 with posterior whitish stripes; T1 dorsally whitish at anterior 0.5; S1 whitish; S2–6 dark brown, with posterior whitish stripes; T8 laterally whitish.

Male. Unknown.

Comments. Similar to *M. maculiscus* sp. nov., from which it can be differentiated by having pronotum entirely yellowish (vs. with distinct posterior blackish mark); anterior area of propodeum entirely orange (vs. mostly blackish); transverse sulcus of propodeum very wide, 1.20 × as long as anterior area (vs. moderately wide, 0.62 × as long as anterior area); hind femur blackish on apical 0.4 (vs. entirely orange, though apically darker); and fore wing veins 2r-m and 3r-m subparallel (vs. distinctly convergent).

Biology. Unknown.

Etymology. From the latin words *niger*, meaning “black”, and *angulus*, meaning “angle”, “corner”; in reference to the mesopleuron with only the anterior margin blackish.

Material examined. Holotype ♀ from PANAMA, Coclé, El Copé, P.N. Torrijos, 23–30.IX.1999, yellow pans, ASantos (AEIC). Pinned. Apical two thirds of left antenna missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in Panama (Fig. 346).

***Messatoporus nigriscapus* Santos, sp. nov.**

(Figs 72, 347)

Female. Fore wing 10.00 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.74; MWW 0.35; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.27. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.71; CWW 1.08; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 22 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, with slight median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, ventrally with strong wrinkles; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, subcircular, $1.07 \times$ as long as wide, sparsely pilose, shiny, asperous; notaulus reaching about 0.72 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, distinctly arched forwards. Transverse sulcus at base of propodeum moderately wide, about $0.62 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.17 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elliptic, SWL 3.37; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles strong, closely spaced, anteriorly faint at median portion, posteriorly partly complete and partly incomplete, mostly slightly curved or somewhat sinuous; posterior transverse carina faintly suggested as a stronger wrinkle.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.41 of its own length; vein 2Cua $0.31 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.71, pentagonal, about as high as wide, AWH 0.93; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.1; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.83 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.34 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.27; T1WW 1.79; spiracle on 0.51 of its length, slightly prominent; median depression subcircular, distinct; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.1; T2WW 2.26; thyridium much longer than wide, without small circular depression just behind it; T2–8 smooth between punctures, moderately and uniformly pilose. Ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head, mesosoma and metasoma black with light yellow marks. Head: black; clypeus, mouthparts, supra-clypeal area except small ventral spot and orbital band shortly interrupted at dorsal margin of eye, light yellow (234,205,108); f5–8 entirely white, f4 apically white and f9–15 with dorsal white longitudinal band. Mesosoma: black; anterior 0.2 of collar, posterior 0.6 of dorsal margin of pronotum, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron somewhat S-shaped, mesosternum almost entirely, dorsal division of metapleuron, transverse sulcus

anteriorly, metapleuron except anterior and posterior margins and arc-shaped mark on propodeum, light yellow; fore and mid legs light yellow, brighter apically, except posterior face of fore coxa, sparse marks at mid coxa, basal mark at first fore and mid trochanters, dorsal stripe on femora, both t5 and mid t3-4, black; hind coxa light yellow with two longitudinal stripes, posterior one reaching apical margin; hind first trochanter with basal blackish mark, second trochanter almost entirely black; hind femur deep yellow (219,163,050), dorsal face black. Metasoma: black; anterior 0.5 and posterior 0.2 of T1, light yellow; T1–7 with posterior bright yellow stripes, progressively wider and occupying lateral areas, T8 only laterally yellow; S1–7 yellow, S3–5 with anterior dark brown areas.

Male. Unknown

Comments. *Messatoporus nigriscapus* is part of a group of four very close species, which apparently form a monophyletic group (Figs 71–75; see Comments under *M. compressicornis*). Among these species, *M. nigriscapus* can be differentiated from *M. compressicornis* by having hind femur deep yellow, dorsal face black (vs. entirely orange); mandible entirely black (vs. basally yellow); orbital band shortly interrupted at dorsal margin of eye (vs. complete); collar black (vs. yellow); thyridium much longer than wide (vs. about as wide as long); and ovipositor dorsal valve with four moderately strong ridges (vs. five).

It can be isolated from both *M. keraiopetalus* **sp. nov.** and *M. depressifrons* **sp. nov.** by the orbital band shortly interrupted (vs. complete); mandible entirely black (vs. basally yellow); collar black (vs. yellow); supra-antennal area with slight median carina (vs. median carina indistinct, represented only by a smoother area or depression); median portion of posterior transverse carina of the mesothoracic venter arched forwards (vs. arched backwards); and spiracle of propodeum elliptic, SWL 3.37 (vs. elongate, SWL 4.86–6.25).

Biology. Unknown.

Etymology. From the Latin words *nigrum*, meaning “black”, and *scapus*; in reference to the entirely black scape, in contrast to the very close species *M. keraiopetalus* and *M. depressifrons*.

Material examined. Holotype ♀ from COSTA RICA, Puntarenas, 1959, CWPalmer (AMNH). Pinned. Apical third of right antenna, right mid leg apicad to coxae, right hind leg and left hind leg apicad to femur missing; apical half of left antenna broken and re-glued to the specimen.

Distribution. Recorded only from the type locality, in southern Costa Rica (Fig. 347).

***Messatoporus nigriscutus* Santos, sp. nov.**

(Figs 2, 8, 13, 16, 50, 139, 174, 218, 266, 285, 348)

Female. Fore wing 13.08 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 2.21; MWW 0.51; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth somewhat rhomboid. MSM 0.29. Clypeus basally convex, apically abruptly flattened, centrally straight; CHW 2.41; CWW 1.71; apical area medially straight, laterally slightly projected, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina, meeting hypostomal carina far from mandible base. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, shiny, finely punctate at dorsal margin and collar, centrally weakly rugulose, weakly striate restricted to ventral corner; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, ovoid, $1.33 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.74 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus complete and strong, wider on posterior apex, weakly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about $0.75 \times$ as long as anterior area of propodeum, impunctate; metapleuron punctate-rugulose, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia

distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: $1.26 \times$ as long as wide, shiny, densely pilose; anterior area densely punctate; spiracle elongate, SWL 5.33; anterior transverse carina medially straight. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, central wrinkles complete, anterior and posterior ones incomplete and overlapped, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly irregular, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.49 of its own length; vein 2Cua $0.34 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.66, pentagonal, distinctly wider than high, AWH 1.24; crossvein 3r-m partially spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 0.99; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.99 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally glabrate, laterally densely pilose; T1LW 4.17; T1WW 1.7; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.47; T2WW 1.98; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, moderately and uniformly pilose except glabrate postero-dorsal area in T2–3. OST 1.59; ovipositor moderately stout, slightly upcurved, basally cylindrical, apically slightly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head and metasoma black with whitish marks, metasoma mostly black and dark orange. Head: black; clypeus, mouthparts, supra-clypeal area except small ventral mark and narrow orbital band with two short interruptions at supra-antennal area dorsal margin of eye, pale yellow (235,205,133); f6–10 entirely white, f11 partially white. Mesosoma: black; scutellar carina, lateral portion of scutellum, axillar carinae, tegula, subalar ridge, anterior margin of epicnemium dorsally, dorsal 0.3 of dorsal division of metapleuron, transverse sulcus medially and small spot over propodeal crest, pale yellow (226,192,095); ventral 0.6 of epicnemium and mesopleuron, hypoepimeron and mesosternum, deep orange (201,091,047), except black mark over anterior 0.4 of sternaulus; ventral 0.7 of dorsal division of metapleuron, metapleuron and posterior spot surrounding propodeal crest, dark orange; all coxae, fore and mid femora, dark orange, except fore femur dark orange, sparse marks at fore coxa, dorsal narrow stripe on basal 0.8 of fore femur and ventral stripe on apical 0.6 of mid femur, brownish; fore tibia and tarsus, whitish; mid and hind tibiae and tarsi, bright yellow (231,181,070); hind trochanter sparsely marked with dark orange and black; hind femur black. Metasoma: black; T1–8 with posterior and lateral whitish stripes; S1–7 whitish.

Male. Fore wing 10.06–12.71 mm long. Very similar to female, except for the following: antenna with 30 flagellomeres; scape ventrally light brown; white band at flagellum distinctly only dorsally; orbital band complete, though much narrower near dorsal margin of eye, very wide at gena; pronotum smaller, with dorsal margin anteriorly slightly concave; fore and mid coxae, trochanters and femora without distinct dark marks; apical stripe on T1 very narrow.

Variation. Fore wing 11.38–13.08 mm long. Orbital band sometimes not interrupted at supra-antennal area, at gena very narrow to moderately wide; ventral mark at supra-clypeal area sometimes indistinct; vertical wrinkles on propodeum sometimes strong; posterior area of propodeum medially dark brown to black; fore trochanters and femur sometimes deep yellow; mid and hind tibiae and tarsi sometimes light yellow or whitish; posterior whitish stripes on T1–8 sometimes almost indistinct; S3–6 sometimes with lateral dark brown marks; orange areas at mesosoma varying from bright (218,112,044) to dark orange (182,077,049). Specimens from Paraná and Santa Catarina usually with less extensive black marks at mesosoma, showing some or all of the following variations: epicnemium and mesopleuron sometimes entirely orange; propodeum sometimes almost entirely orange, black marks restricted to the borders of anterior area and small median spot posterior to anterior transverse carina; stripes at fore and mid femora sometimes indistinct.

Comments. Similar to *M. albiaterartus* **sp. nov.**, from which it can be isolated mainly by having anterior area and part of posterior area of propodeum black (vs. entirely orange); pronotum entirely black (vs. collar pale yellow or whitish); mesopleuron dorsally black (vs. orange); orbital band widely interrupted near dorsal margin of eye (vs. complete); and hind tibia bright yellow (vs. mostly black).

M. nigriscutus can also be mistaken with the most extensively orange specimens of *M. transversostriatus*, particularly because both species have generally large size (*M. nigriscutus* 11.38–13.08 mm; *M. transversostriatus* 14.69–16.66 mm) and occur in sympatry along southern and southeastern Brazil. However, *M. nigriscutus* can be isolated from *M. transversostriatus* by having pronotum, mesoscutum and anterior area of propodeum entirely black (vs. with whitish or pale yellow marks); orbital band widely interrupted (vs. complete); epomia distinct only after diverging from collar (vs. complete); notaulus smooth (vs. with distinct transverse wrinkles); and anterior transverse carina of propodeum medially straight (vs. slightly arched forwards).

Biology. Unknown.

Etymology. From the Latin words *nigrum*, meaning “black”, and *scutum*, meaning “shield”; in reference to the entirely black mesoscutum.

Material examined. 14 ♀♀, 7 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Domingos Martins, Pico do Eldorado, Pt. B1, XI–XII.2004, Malaise trap, MTTavares *et al* (UFES). Mounted on black triangle point. Left mid leg apical to femur missing; otherwise in good shape.

Paratypes: 1 ♂ from BRAZIL, Espírito Santo, Domingos Martins, Pico do Eldorado Pt. B4, 3–10.XII.2004, Malaise trap, MTTavares *et al.*; 1 ♀, same data except Santa Maria de Jetibá, Fazenda Clarindo Krüger, Pt. T8, 29.XI–6.XII.2002 (UFES). 1 ♀ from BRAZIL, Paraná, Colombo, Embrapa, Br476, 9.III.1987, Malaise trap, PROFAUPAR; 2 ♀♀, same data except Ponta Grossa, Reserva IAPAR Br376, 1.XII.1986; 1 ♀, same data except 17.XI.1986; 1 ♀, same data except 29.XII.1986; 1 ♀, same data except 4.V.1987; 1 ♂, same data except Telêmaco Borba, Reserva Samuel Klabin, 3.XI.1986; 1 ♀, same data except 13.IV.1987; 1 ♀, same data except 16.II.1987; 1 ♂, same data except 2.II.1987; 1 ♀, same data except 30.III.1987 (DZUP). 1 ♀ from BRAZIL, Paraná, Campina Grande, nr. Curitiba, 19.II.1966, Townes & Townes. 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, XI.1968, FPlumann; 1 ♂, same data except I.1968; 1 ♀, same data except 12.III.1954 (AEIC). 1 ♂, same data except 19.II.1938 (BMNH). 1 ♀ 1 ♂, same data except XII.1967; 1 ♂, same data except II.1968 (CNCI).

Distribution. Atlantic Forest in southern and southeastern Brazil (Fig. 348).

***Messatoporus occidentalis* Santos, sp. nov.**

(Figs 102, 192, 229, 349)

Female. Fore wing 9.28 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.79; MWW 0.43; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.3. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.55; CWW 2.3; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli distinctly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrate, shiny, impunctate, ventrally with strong wrinkles; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, subcircular, 1.21 × as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.73 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove shallow, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter short, straight. Transverse sulcus at base of propodeum moderately wide, about 0.42 × as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina

absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: 1.15 × as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elongate, SWL 4.6; anterior transverse carina medially straight. Propodeal wrinkles anteriorly faint, posteriorly strong, closely spaced, anteriorly complete, posteriorly mostly incomplete and overlapped, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.43 of its own length; vein 2Cua 0.42 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.69, pentagonal, distinctly higher than wide, AWH 0.753; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.32; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.85 of distance to posterior wing margin.

METASOMA: First tergite short, about 0.33 × as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally densely pilose; T1LW 2.61; T1WW 1.73; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.15; T2WW 1.66; thyridium longer than wide, without small circular depression just behind it; T2–8 changing from covered with small, shallow foveae in T2–3 to minutely coriarius in T4–8, dorsally sparsely pilose, laterally moderately pilose. OST 0.99; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 5 teeth, widely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and light yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area and complete orbital band, light yellow (238,226,151); f6–10 entirely white; f5 and f11 partially white. Mesosoma: black; collar, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron reaching ventral margin, dorsal division of metapleuron, small spot at metapleural triangle, posterior mark covering 0.4 of metapleuron and arc-shaped mark on propodeum, light yellow; fore and mid legs turning from light yellow to bright yellow towards apex, except small posterior mark at fore coxa, small marks between first and second mid trochanters, dorsal stripe at fore and mid femora, ventral stripe on basal 0.8 of fore tibia and both t5, blackish; hind coxa mostly bright orange (199,072,041), with large posterior light yellow spot and very narrow blackish line between orange and yellow areas; hind trochanters and femur bright orange, with small yellow marks at apex of trochanters and base of femur; basal 0.6 of hind tibia bright yellow, apical 0.4 blackish; basal 0.3 of t1 and apical 0.5 of t5, blackish; remainder of hind tarsus whitish. Metasoma: black; T1–7 and S2–6 with posterior light yellow stripes; T2 near thyridium with small orangish mark; T8 with lateral light yellow mark; S1 black; S2–6 anteriorly dark brown, with progressively larger light yellow posterior areas.

Male. Fore wing 4.82–8.70 mm long. More or less similar to female, but differing from it by the following characters: head more distinctly subspherical; mandible less projected and curved; occipital carina dorsally stronger, forming distinct flange; antenna with 22–26 flagellomeres; yellow mark at collar expanded and covering about 0.6 of pronotum surface; central mark on mesopleuron larger, covering about 0.7 of its surface; mesosternum mostly yellow; arc-shaped mark on propodeum wider; hind coxa yellow, with large lateral and mesal blackish marks; hind trochanters mostly blackish, its extreme apex yellow; hind femur extreme base yellow, with sub-basal and apical blackish marks; hind tibia blackish on apical 0.7.

Variation. Fore wing 7.76–10.04 mm long. Antenna with 21–30 flagellomeres; pronotal and pronotal wrinkles sometimes weak; metapleural triangle sometimes entirely yellow; metapleuron sparsely to densely punctate; fore coxa sometimes with posterior blackish mark; posterior face of mid tibia sometimes pale to bright orange; mid trochanters sometimes entirely yellow; hind coxa sometimes without black line; hind tibia sometimes with only apical 0.2 black; t5 with 0.5–1.0 black; black areas at metasoma sometimes turning to dark brown; brownish marks at S5–6 sometimes almost indistinct. Specimens from Maquiné and Cochabamba with yellow areas at hind tibia and tarsus turning to whitish, blackish areas turning to deep yellow; light yellow areas sometimes pale yellow

(234,219,126) or whitish (239,233,206). Two specimens from Trinidad with anterior area of hind coxa blackish, one also with mid coxa with small blackish spot, mid tarsus blackish and hind femur with basal and apical blackish spots.

Comments. *Messatoporus occidentalis* is part of a group of five very close species; (Figs 101–105; see Comments under *M. mesosternalis*). Among these species, it is more similar to *M. basiflavus* **sp. nov.**, from which it can be differentiated by having T1 black at anterior 0.8, whitish or yellowish on apical 0.2 (vs. laterally entirely yellow, dorsally yellow on basal 0.4 and posterior 0.2); S1 black (vs. yellowish); fore and mid femora whitish or light yellow, dorsally with distinct longitudinal brown stripe (vs. orange, fore femur with weak brownish mark on basal 0.3, mid femur without brown marks); mid coxa mostly whitish (vs. mostly orange); and ovipositor ventral valve with five teeth (vs. nine).

Messatoporus occidentalis can be isolated from the other close species *M. mesosternalis*, *M. orientalis* **sp. nov.** and *M. semiaurantigaster* **sp. nov.** by the following combination of characters: orbital band complete; propodeum with distinctly arc-shaped whitish or yellowish mark; hind coxa, trochanter and femur mostly orange; hind tibia bright yellow on basal 0.75, blackish on apical 0.25; T2–8 black with posterior whitish or yellowish stripes.

Biology. Unknown.

Etymology. From the Latin *occidentalis*, meaning “western”; in reference to its mostly western distribution along South America, in comparison to the very close species *M. orientalis*.

Material examined. 7 ♀♀, 7 ♂♂, 1 specimen of unknown sex. Holotype ♀ from TRINIDAD, Curepe, 7–9.XII.1977, Malaise trap (CNCI). Pinned. In good shape.

Paratypes: 1 specimen of unknown sex from TRINIDAD, VII.1899, FWUrich (USNM). 1 ♀ from TRINIDAD, Curepe, 28–30.III.1979, Malaise trap; 1 ♂, same data except 31.XI.1978; 1 ♂, same data except 9 km N Arima, Simla Reserve Station, 240 m, tropical forest, 6–10.VI.1993, Malaise trap, SPEck & JPeck, 93-10 (CNCI); 1 ♂ from TRINIDAD, Caroni, 2.III.1961, NGopaul (AMNH). 1 ♂ from GUYANA, Bartica, 4.VI.1901, [Higne?]. (ZMHB); 1 ♂, same data except Kartabo, WMyers; 1 ♀, same data except 16.VIII.1920; 1 ♂, same data except 12.V.1924 (AMNH). 1 ♂ from COLOMBIA, Vichada, PN Tuparro, Cerro Tomas, 140 m; 18–28.VIII.2000, Wvilalba (AEIC). 1 ♀ from ECUADOR, Sucumbios, Sacha Lodge, 270 m, 4–14.III.1994, Malaise trap, PHibbs. 1 ♀ from BOLIVIA, Cochabamba, Vila Tunari, 325 m, 4–6.IX.2000, Malaise trap, Hauser (CNCI). 1 ♀ from BRAZIL, Amazonas, Parque Nacional Jaú, Rio Carabiani, Igarapé, 29–31.VII.1995, Malaise trap, Rafael & Jvida (INPA). 1 ♀ from BRAZIL, RS, Maquiné, Estação Experimental FEPAGRO, secondary forest, Transect 4, 10–12.I.2006, fogging, ABarcellos *et al* (UFES).

Distribution. *Messatoporus occidentalis* is recorded from many widely spaced sites in South America, but it seems to be more common at the north of the continent (Fig. 349). Except for one record at Rio Grande do Sul, southern Brazil, the species is spatially separated from the very close *M. semiaurantigaster* and *M. orientalis*, which have parapatric distribution along eastern South America.

***Messatoporus opacus* Santos, sp. nov.**

(Figs 12, 61, 145, 159, 179, 224, 267, 350)

Female. Fore wing 7.35 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.81; MWW 0.3; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.22. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.46; CWW 1.73; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, with moderately dense punctation, distinctly striate near antennal sockets, ventrally distinctly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrate, mat, impunctate, ventrally moderately striate; epomia very weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, subcircular, 1.19 × as long as wide, densely covered with short hairs, mat, densely punctulate; notaulus reaching about 0.92 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with

vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, with vestigial vertical wrinkles; scrobe very shallow; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter short, straight. Transverse sulcus at base of propodeum moderately wide, about $0.64 \times$ as long as anterior area of propodeum, impunctate; metapleuron densely and finely punctulate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina absent. Fore tibia weakly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.11 \times$ as long as wide, mat, moderately pilose; anterior area punctate-coriarius; spiracle elliptic, SWL 2.8; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, mostly slightly curved or somewhat sinuous (and anteriorly with two converging areas fore and backwards); posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.31 of its own length; vein 2Cua $0.76 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.66, pentagonal, about as high as wide, AWH 0.99; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.25; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.91 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally sparsely pilose, laterally moderately pilose; T1LW 4.4; T1WW 1.48; spiracle on 0.49 of its length, slightly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina weak, medially interrupted. T2LW 1.41; T2WW 2.49; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.61; ovipositor slender, slightly sinuous, basally cylindrical, apically distinctly depressed; dorsal valve without ridges; ventral valve apex with 6 teeth, 1st, 2nd and 3rd widely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma, black with pale yellow marks, metasoma dark brown with whitish stripes. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, pale yellow (225,205,128); scape dorsally and pedicel, dark brown; f10–15 entirely white, f9 and f16 partially white. Mesosoma: black; collar mostly pale yellow except posterior black mark covering 0.4 of its surface; propleuron, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula subalar ridge, central mark covering about 0.8 of mesopleuron, most of mesosternum, dorsal division of metapleuron, most of transverse sulcus, metapleuron except anterior 0.2 and arc-shaped mark on propodeum, pale yellow; anterior 0.2 of metapleuron light orange; fore leg pale yellow except dorsal stripe at femur, orange, and t5, blackish; mid coxa whitish with sparse brown marks; mid trochanters sparsely marked with blackish and orange; mid femur light orange, ventrally brown; mid tibia pale yellow with ventral brown stripe on basal 0.7; mid t1 light fuscous, t2–4 whitish, t5 blackish; hind coxa mostly dark orange (189,087,054), posteriorly yellowish, medially with black mark on basal 0.7; hind trochanters dark orange, hind femur black with dorsal face dark orange on basal 0.6; basal 0.4 of hind tibia, apical 0.7 of t1, t2–4 and basal 0.5 of t5, whitish; apical 0.6 of hind tibia, basal 0.3 of t1 and apical 0.5 of t5, blackish. Metasoma: mostly dark brown (099,059,045); dorsal face of T1 whitish (231,222,167) at anterior 0.5 and posterior 0.2, medially blackish; S1 whitish; T2–8 and S2–7 with posterior whitish stripes.

Male. Unknown.

Variation. Fore wing 7.49–8.03 mm long. Antenna with 24–27 flagellomeres; hind femur sometimes almost completely orange, only apical 0.25 black; apical 0.5 of hind t1 sometimes blackish; blackish mark at hind coxa sometimes very weak.

Comments. Very similar to some specimens of *M. discoidalis*, from which it can be differentiated by orbital band narrow at dorsal margin of eye (vs. wide); postscutellum pale yellow (vs. black); posterior blackish spot on

propodeum weak (vs. strong); posterior transverse carina of propodeum entirely absent; (vs. distinct as very weak sublateral crests); clypeus centrally concave (vs. straight); supra-antennal area, pronotum and mesoscutum mat (vs. shiny); ovipositor shorter, OST 0.61 (vs. 0.83–0.90), its ventral valve with six teeth (vs. nine to eleven); and supra-antennal area distinctly striate near antennal sockets (vs. not striate).

Biology. Unknown.

Etymology. From the Latin *opacus*, meaning “shady”, “dim”; in reference to the mat supra-antennal area, pronotum and mesoscutum, as opposed to most species in which those areas are shiny.

Material examined. 5 ♀♀. Holotype ♀ from BRAZIL, Espírito Santo, Santa Maria de Jetibá, Fazenda Clarindo Kruger, Pt. B8, 29.XI–6.XII.2002, Malaise trap, MTTavares *et al.* (UFES). Mounted on triangle point. In good shape.

Paratypes: 1 ♀ from BRAZIL, Espírito Santo, Domingos Martins, Pico do Eldorado, Pt. B1, 3–10.XII.2004, Malaise trap, MTTavares *et al.*; 1 ♀, same data except Pt. T7, 26.XI–3.XII.2004; 1 ♀, same data except Santa Maria de Jetibá, Fazenda Clarindo Kruger, Pt. B6, 29.XI–6.XII.2002 (UFES). 1 ♀ from BRAZIL, Minas Gerais, Santa Bárbara, Serra do Caraça, I.1970, FMOliveira (AEIC).

Distribution. Atlantic Forest highlands in southeastern Brazil (Fig. 350).

***Messatoporus orientalis* Santos, sp. nov.**

(Figs 4, 5, 7, 11, 104, 158, 183, 223, 351)

Female. Fore wing 9 mm. HEAD: Mandible densely covered with long hairs; MLW 1.54; MWW 0.37; dorsal tooth in front view not distinctly projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.25. Clypeus almost entirely flattened, centrally concave; CHW 2.65; CWW 2.56; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 22 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, with weak and short wrinkles at ventral half of posterior margin; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, subcircular, $1.08 \times$ as long as wide, glabrate, shiny, minutely punctulate; notaulus reaching about 0.66 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove shallow, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus complete and strong, wider on posterior apex, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, straight. Transverse sulcus at base of propodeum moderately wide, about $0.58 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.1 \times$ as long as wide, shiny, moderately pilose; anterior area scarcely punctate; spiracle elongate, SWL 3.5; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly sinuous; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.36 of its own length; vein 2Cua $0.66 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.71, pentagonal, about as high as wide, AWH 0.87; crossvein 3r-m absent, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C

1.61; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.82 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.38 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 3.85; T1WW 1.52; spiracle on 0.49 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.22; T2WW 1.85; thyridium longer than wide, with small circular depression just behind it; T2–8 minutely coriarius, densely and uniformly pilose (except T2 dorsally sparsely pilose). OST 1.55; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black with whitish and yellow marks. Head: black; clypeus, mandible except apex and ventral margin, mouthparts, supra-clypeal area, orbital band shortly interrupted at dorsal corner of eye, whitish (246,237,176); f7–9 entirely white, f10 almost entirely white, f6 and f11 white only at small portion. Mesosoma: black; collar, subcircular spot on mesoscutum, scutellum except apical margin, postscutellum, tegula, subalar ridge, central mark on mesopleuron reaching ventral margin and bordering dorsal edge of hypoepimeron, dorsal division of metapleuron, posterior mark covering 0.6 of metapleuron and lateral triangular marks on propodeum, whitish; fore and mid legs turning from light yellow to bright yellow towards apex, except posterior face of fore and mid coxa, dorsal face of fore and mid trochanters and femora and t5, blackish; hind coxa anterior 0.6 black, posterior 0.4 light yellow; hind trochanters sparsely marked with dark orange and blackish; hind femur dorsally light brown (139,081,051), ventrally blackish; hind tibia and tarsus bright yellow, lighter towards apex. Metasoma: black; T1–8 and S1–6 with posterior whitish stripes, at S1–6 covering most of their surface and progressively wider.

Male. Fore wing 4.95–6.02 mm long. Similar to female, except for the following: hind femur more or less uniformly dark brown or blackish; apical 0.2 of hind tibia blackish; apical 0.5 of hind t1 and t2–5 white; median depression on T1 much stronger.

Variation. Fore wing 9.10–10.04 mm long. Orbital band sometimes almost complete; axillar carinae sometimes brownish; one male with central mark on mesopleuron almost reaching posterior edge of subalar ridge; posterior mark on metapleuron covering 0.4–0.6 of its surface; stripe at dorsal face of fore trochanters sometimes reduced; mid tibia of male ventrally sometimes with pale brown stripe hind femur dorsally buff, brownish or black, ventrally brownish to black; apical 0.3 of hind t5 sometimes blackish; T1–2 sometimes with lateral yellowish marks. Specimen from Misiones with flagellum subapically moderately widened and strong median depression on T1. All whitish areas sometimes buff (215,167,098) or bright yellow (225,181,075); all black areas on legs and metasoma sometimes brownish.

Comments. *Messatoporus orientalis* is part of a group of five very close species; (see Comments under *M. mesosternalis*). Among these species, females can be differentiated from the apparently parapatric (see Distribution) *M. semiaurantigaster* **sp. nov.** by the T4–8 black with posterior yellowish stripes (vs. entirely orange); hind femur dark brown to blackish (vs. bright orange), hind tibia entirely yellow (vs. with apical blackish mark), t5 whitish (vs. blackish), and yellow marks yellow marks on propodeum small and distinctly separated medially (vs. propodeum with a single, arc-shaped though medially narrow mark). The males of the two species are almost undistinguishable (see Comments under *M. semiaurantigaster*).

Messatoporus orientalis can be isolated from the other close species *M. mesosternalis*, *M. occidentalis* **sp. nov.** and *M. basiflavus* **sp. nov.** by the following combination of characters: orbital band shortly interrupted at dorsal margin of eye; propodeum posteriorly with two small sublateral yellowish marks; hind coxa anteriorly blackish, posteriorly yellowish; hind femur dark brown or blackish.

Biology. Unknown.

Etymology. From the Latin *orientalis*, meaning “eastern”; in reference to its mostly eastern distribution along South America, in comparison to the very close species *M. occidentalis*.

Material examined. 23 ♀♀, 14 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Domingos Martins, Pico do Eldorado, Pt. T8, 26.XI–3.XII.2004, Malaise trap, MTTavares *et al.* (UFES). Mounted on triangle point. In good shape.

Paratypes: 1 ♀ from BRAZIL, Bahia, Encruzilhada, 980 m, XI.1974, MAlvarenga. (AEIC). 1 ♀ from BRAZIL, Goiás, Barro Alto, Propriedade Pedro Ferreira, XI.2009, Malaise trap, MPimenta & LLBergamini. 1 ♀ from

BRAZIL, Espírito Santo, Alfredo Chaves, Picadão, 8–15.X.2007, Malaise trap, COAzevedo *et al.*; 1 ♀, same data except Domingos Martins, Pico do Eldorado, Pt. T8, 26.XI–3.XII.2004, MTTavares *et al.*; 1 ♂, same data except Guarapari, Parque Estadual Paulo César Vinha, Restinga, Pt. 8, 2–9.XI.2006, BC Araújo & MSantos (UFES). 2 ♀♀ from BRAZIL, Minas Gerais, Águas Vermelhas, XII.1983, 800 m, XII.1983, MAIvarenga. 1 ♀ from BRAZIL, Rio de Janeiro, Represa Rio Grande, XII.1967, MAIvarenga (AEIC). 1 ♂ from BRAZIL, Rio Claro, Floresta Estadual Edmundo Navarro de Andrade, 11.IX–1.X.2005, Malaise trap, JTDias *et al.* (UFES). 1 ♂ from BRAZIL, Paraná, Colombo, Embrapa Br476, km 20, 2.II.1987, Malaise trap, PROFAUPAR; 1 ♀, same data except Guarapuava, Estação de águas Santa Clara, 28.X.1986; 1 ♀, same data except 6.IV.1987; 1 ♀ 1 ♂, same data except Jundiá do Sul, Fazenda Monte Verde, 13.X.1986; 1 ♂, same data except 15.XII.1986; 2 ♂, same data except 20.X.1986; 1 ♂, same data except 24.XI.1986; 1 ♀, same data except 27.X.1986; 1 ♂, same data except 3.XI.1986; 2 ♂♂, same data except 6.X.1986; 1 ♀ 1 ♂, same data except 12.I.1987; 1 ♀, same data except 18.VII.1987; 1 ♀ 2 ♂, same data except 26.I.1987; 2 ♀♀, same data except 9.III.1987; 2 ♂♂, same data except Ponta Grossa, Fazenda IAPAR Br376, 24.XI.1986 (DZUP). 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, III.1968, FPlaumann; 4 ♀♀, same data except I.1968; 1 ♀, same data except II.1968; 1 ♀, same data except XII.1967; 1 ♀, same data except 13.XII.1952 (AEIC); 1 ♀, same data except I.1968; 1 ♀, same data except II.1968 (CNCI). 1 ♂ from BRAZIL, Rio Grande do Sul, Arroio Grande, 101 m, 8.XI.2002, Malaise trap, RFKrüger; 1 ♀ 1 ♂, same data except Morro Redondo, 11.IV.2003 (UFES). 1 ♀ from URUGUAY, Cerro Largo, Sierra de Vaz, Rio Tacuari, 20 km SE Melo, 23–26.III.1963, JKBouseman (AMNH).

Distribution. Widely distributed at Atlantic Forest, from central to southern Brazil, including also Uruguay and northern Argentina (Misiones) (Fig. 351). It seems to be spatially separated from the very close species *M. semiaurantigaster*, which occurs from Espírito Santo to southern Bahia. However, the two species were not recorded at the same localities; at Espírito Santo, *M. orientalis* only occurs at highlands above 500 m, whereas *M. semiaurantigaster* is recorded from sea level localities (Fig. 361).

***Messatoporus paeneater* Santos, sp. nov.**

(Figs 92, 152, 223, 265, 352)

Female. Fore wing 8.53 mm. HEAD: Mandible densely covered with long hairs; MLW 2.62; MWW 0.44; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.31. Clypeus almost entirely flattened, centrally straight; CHW 3.04; CWW 2.09; apical area medially concave, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 27 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, scarcely punctate, distinctly striate near antennal sockets, ventrally distinctly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, shiny, minutely punctulate (punctulate at dorsal corner and collar), with moderately strong striation restricted to ventral corner; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, subcircular, 1.34 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, anteriorly densely punctate, posteriorly almost impunctate; notaulus reaching about 0.74 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled (doubt); scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, weakly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, arched backwards. Transverse sulcus at base of propodeum very wide, about 0.91 × as long as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron punctate-rugulose, without transverse wrinkles, densely pilose; juxtacoxal carina absent. Fore tibia not distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa weakly and densely punctate.

PROPODEUM: 1.17 × as long as wide, shiny, moderately pilose; anterior area moderately punctate; spiracle elongate, SWL 4.8; anterior transverse carina medially straight. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.47 of its own length; vein 2Cua 0.29 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.49, pentagonal, distinctly wider than high, AWH 1.2; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, irregular. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.74; vein Cub almost straight, very slightly convex, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.86 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.42 × as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 5.07; T1WW 1.23; spiracle on 0.52 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 2.42; T2WW 1.6; thyridium much longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.6; ovipositor slender, slightly upcurved, basally cylindrical, apically distinctly depressed; dorsal valve without ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head, mesosoma and metasoma black, with sparse whitish marks. Head: black; mandible medially, mouthparts, small marks at supra-clypeal area and thin orbital band at supra-clypeal area, supra-antennal area and median part of gena (almost opposite to eye), whitish; triangular mark at mandible base, scape, pedicel and flagellum, dark brown; f10–16 entirely white, f9 and f17 partially white. Mesosoma: black; collar and dorsal division of metapleuron dark brown; small mark at subalar ridge, lateral portions of scutellum, small marks on apical metapleuron and propodeum, whitish; fore and mid coxae dark brown, mid coxa with small whitish mark; fore trochanters and femur whitish with dorsal face brown; fore and mid tibia with whitish ventral face brown; fore t1–4 light fuscous; fore t5 and mid tarsus dark fuscous; hind femur, apical 0.8 of tibia and basal 0.5 of t1, dark brown; basal 0.2 of hind tibia, apical 0.5 of t1 and t2–5, white. Metasoma: dark brown; anterior 0.4 of T1 dorsally whitish; T1–3 with narrow posterior and wide lateral whitish stripes; metasomal sternites whitish, laterally brown.

Male. Similar to female, except for the following: whitish marks at supra-clypeal area from indistinct to extensive, forming irregular stripe; flagellum dark brown to blackish; apex of fore coxa and fore trochanters sometimes whitish; mid coxa sometimes not marked with white; all dark brown areas sometimes black or blackish; whitish marks at mesosoma and metasoma sometimes almost indistinct; whitish apical stripes at T2–3 indistinct to extensive, semicircular.

Variation. Fore wing 7.82–9.32 mm long. Whitish marks at supra-clypeal area sometimes reduced or absent; antenna sometimes with 30 flagellomeres; mesosternum sometimes dark brown; fore first trochanter sometimes almost entirely black; mid coxa often; without whitish spot; One specimen with two small yellow spots at posterior end of sternaulus.

Comments. Similar to *M. semialbiventris* sp. nov., from which it can be differentiated by having clypeus and supra-clypeal area mostly blackish (vs. pale yellow); pronotum entirely black (vs. collar and dorsal margin of pronotum with narrow yellowish marks); fore and mid coxae entirely dark brown or black (vs. with extensive yellow marks); dorsal division of metapleuron entirely black (vs. partially yellow); T2–3 with almost indistinct posterior yellowish stripes (vs. distinct, subcircular); epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular (vs. complete, more or less uniformly curved); fore tibia not swollen (vs. weakly swollen); and propodeal wrinkles distinctly curved backwards (vs. mostly slightly curved or somewhat sinuous).

Biology. Unknown.

Etymology. From the Latin words *paene*, meaning “almost”, and *ater*, meaning “black”; in reference to the almost entirely black body.

Material examined. 20 ♀♀, 12 ♂♂. Holotype ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 9.III.1939, FPlaumann (BMNH). Pinned. Right hind t5 missing; otherwise in good shape.

Paratypes: 2 ♂♂ from BRAZIL, Minas Gerais, Santa Bárbara, Serra do Caraça, II.1970, FM Oliveira; 2 ♂♂, same data except 1600 m, II.1969. 1 ♀ from BRAZIL, Rio de Janeiro, Represa Rio Grande, VII.1966, MAlvarenga. 1 ♂, same data except Teresópolis, 12.III.1966, Townes & Townes. 1 ♀ from BRAZIL, São Paulo, São José do Barreiro, Serra da Bocaina, 1600 m, 4–7.XI.1967, Alvarenga & Seabra (AEIC). 1 ♀ from BRAZIL, São Paulo, Montevidéo, 15.I.1942, Parker, “So. Amer Paras Lab” (USNM). 2 ♀♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, II.1968, FPlaumann; 1 ♀, same data except XI.1968; 2 ♀♀, same data except IV.1971; 1 ♀ 1 ♂, same data except I.1968; 1 ♀ 1 ♂, same data except II.1968; 1 ♂, same data except X.1970; 1 ♂, same data except I.1971; 1 ♂, same data except III.1971; 1 ♂, same data except XI.1970; 1 ♂, same data except 15.XII.1955; 1 ♀, same data except 2.XI.1953; 1 ♀, same data except 25.III.1952; 1 ♀, same data except 27.III.1952; 1 ♀, same data except 30.XI.1954 (AEIC); 1 ♀, same data except 18.XI.1958; 1 ♀, same data except XII.1968 (BMNH); 1 ♀, same data except 1.VI.1956; 1 ♀, same data except 9.XI.1952; 1 ♀, same data except XII.1967 (CNCI).

Distribution. Atlantic Forest in southern and southeastern Brazil (Fig. 352).

***Messatoporus pallidus* Santos, sp. nov.**

(Figs 42, 155, 172, 353)

Female. Fore wing 5.88 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.92; MWW 0.46; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.15. Clypeus basally evenly convex, apically gradually flattened, centrally concave; CHW 1.95; CWW 2.15; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 22 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, with very weak, low median line. Occipital carina uniformly curved, fading out at distance distinctly longer than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrate, shiny, impunctate, with weak and short wrinkles at ventral half of posterior margin; epomia very weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, subcircular, $1.09 \times$ as long as wide, densely covered with short hairs, shiny, asperous; notaulus reaching about 0.73 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove shallow, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, smooth; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about $0.7 \times$ as long as anterior area of propodeum, impunctate; metapleuron sparsely and finely punctate, without transverse wrinkles, dorsally glabrate, ventrally sparsely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with external face changing from basally foveolate-areolate to apically coriarius, internal face with sparse and fine punctures.

PROPODEUM: $1.2 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elliptic, SWL 2.14; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly and laterally faint, posteriorly moderately strong, closely spaced, each wrinkle incomplete, irregular but mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, totally continuous with 1-Rs+M (doubt); vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.32 of its own length; vein 2Cua $0.49 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.83, pentagonal, about as high as wide, AWH 1.11; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.96; vein Cub straight, forming straight angle with Cua; vein 2-1A reaching 0.97 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.37 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 3.57; T1WW 1.91; spiracle on 0.48 of its length, distinctly prominent; median depression absent; median posterior depression elongate; lateral depressions absent; ventrolateral carina absent. T2LW 1.22; T2WW 2; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, densely and uniformly pilose. OST 1.21; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma mostly pale orange and whitish, metasoma pale orange. Head: black; f8–13 entirely white, 7 and 14 partially white; scape and pedicel ventrally light brown; clypeus, palpi, supra-clypeal area and complete orbital band, whitish (227,212,152). Mesosoma: pale orange (206,122,053); pronotum, subalar ridge, most of mesopleuron, subcircular spot on mesoscutum, most of scutellum, dorsal division of metapleuron, transverse sulcus at base of propodeum, most of mesosternum, whitish; suture between pronotum and mesoscutum, scutellum posteriorly, and postscutellum, blackish; lateral lobes of mesoscutum dark brown; fore and mid legs gradually lighter towards apex; hind tibia apical 0.1 blackish; hind tarsus white, except basal 0.5 of t1, t4 and t5, blackish. Metasoma: pale orange.

Male. Unknown.

Comments. *Messatoporus pallidus* is not particularly similar to any other species of *Messatoporus*; it shows superficial similarities with some species, such as the color pattern resembling *M. longitergus* **sp. nov.** It can be readily differentiated from that species, however, by the ovipositor much longer, OST 1.21 (vs. 0.65), moderately stout (vs. slender), dorsal valve with four moderately strong ridges (vs. with three very weak ridges); first tergite much stouter, T1LW 3.57 (vs. 5.65); hind wing vein Cua about as long as 1cu-a, HW1C 0.96 (vs. much longer than 1cu-a, HW1C 1.55); and mesoscutum subcircular, $1.09 \times$ as long as wide (vs. ovoid, $1.32 \times$ as long as wide). It is also similar to *M. fulvator*, which can be isolated from *M. pallidus* by the T1–2 with posterior whitish stripes, T1 also dorsally whitish on basal 0.2 (vs. T1–2 entirely pale orange); median depression on T1 absent (vs. elongate, distinct); hind wing vein Cub straight (vs. distinctly convex on posterior half, otherwise straight); spiracle of propodeum elliptic, SWL 2.14 (vs. elongate, SWL 5.33); and ovipositor ventral valve with eleven apical teeth (vs. six).

Biology. Unknown.

Etymology. From the Latin *pallidus*, meaning “pale”; in reference to its mostly pale yellow and brown colors.

Material examined. Holotype ♀ from BOLIVIA, Cochabamba, Vila Tunari, 7.V.2001, Malaise trap, HHeider (CNCI). Mounted on triangle point. Tip of right antenna and right mid leg apicad to coxa missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in central Bolivia (Fig. 353).

***Messatoporus paradoxus* Santos, sp. nov.**

(Figs 89, 163, 280, 354)

Female. Fore wing 8.5 mm. HEAD: Mandible densely covered with long hairs; MLW 2.19; MWW 0.38; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.38. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.03; CWW 2.61; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 28 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, coriarius, very weakly striate near antennal sockets, ventrally and around ocelli distinctly concave, without median line. Occipital carina dorsally acuminate, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, shiny, minutely rugulose, with moderate striation along posterior margin and collar; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.24 \times$ as long as wide, densely covered with short hairs, mat, densely punctulate; notaulus reaching about 0.74 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus complete and strong, wider on posterior apex, strongly sinuous,

with weak vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, distinctly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.76 \times$ as long as anterior area of propodeum, laterally with strong longitudinal wrinkles, medially weakly rugulose; metapleuron minutely rugulose, without transverse wrinkles, densely covered with very short hairs; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa entirely coriarius.

PROPODEUM: $1.09 \times$ as long as wide, mat, densely pilose; anterior area asperous and densely punctulate; spiracle elliptic, SWL 3.17; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles vestigial, most of posterior area areolate-rugulose; posterior transverse carina distinct, medially interrupted, forming weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.37 of its own length; vein 2Cua $0.82 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.87, pentagonal, about as high as wide, AWH 0.87; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M spectral, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.22; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.91 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, approximately cylindrical, ventrolaterally angled, uniformly, densely pilose; T1LW 5.48; T1WW 1.45; spiracle on 0.49 of its length, slightly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina weak, medially interrupted. T2LW 1.44; T2WW 2.74; thyridium much longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriarius, densely and uniformly pilose. OST 0.83; ovipositor slender, slightly sinuous, basally cylindrical, apically distinctly depressed; dorsal valve with three very weak ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head brownish orange, mesosoma brownish orange and dark brown, metasoma orange and dark brown. Head: brownish (113,064,049); clypeus, labrum, malar space, supra-clypeal area and gena ventrally, light orange (223,147,063); base of mandible, palpi, scape and pedicel, brown; narrow orbital band widely interrupted at malar space and dorsal margin of eye, whitish; apical 0.7 of mandible and flagellum blackish; f6–11 entirely white, f4 and f12 partially white. Mesosoma: brownish; propleuron, scutellum posteriorly, axillar carinae, postscutellum, ventral 0.3 of epicnemium, part of hypopimeron, mesopleuron around anterior half of sternaulus, mesosternum, sparse marks at transverse sulcus, median portion of anterior area of propodeum and surface over anterior transverse carina, dark brown (075,053,043); legs mostly dark brown; ventral face of fore femur, fore and mid tibiae, whitish; dorsal face of fore and mid tibiae light orange; hind coxa with ventral orangish mark; sub basal 0.25 of hind tibia, apical 0.75 of t1, t2–4 and basal 0.5 of t5, white. Metasoma: orange (184,099,047); T1 brown, dorsally pale orange at anterior 0.25 and posterior 0.1; T2–3 brown at anterior 0.4; S2–6 with progressively smaller anterior brown areas.

Male. Unknown.

Comments. Similar to *M. badius* **sp. nov.**, from which it can be differentiated by having mesosoma mostly mid brown, with mesosternum and coxae dark brown (vs. mesosoma and legs uniformly reddish brown); T4–7 entirely bright orange (vs. anteriorly dark brown, posteriorly brownish orange); propodeal wrinkles vestigial, most of posterior area areolate-rugulose (vs. distinct and moderately strong); ovipositor dorsal valve with three very weak ridges (vs. without ridges); surface anterior to first tooth of ventral valve rugulose (vs. not rugulose) and epomia after diverging from collar approximately straight (vs. distinctly curved).

Biology. Unknown.

Etymology. From the Latin *paradoxus*, meaning “strange”, “contrary to expectation”; in reference to the weak ridges on dorsal valve of ovipositor, a synapomorphy of the “Ridges” group, that finds it only homoplasy in this species.

Material examined. Holotype ♀ from COSTA RICA, Monteverde, 1700 m, 1–15.VI.1988, B.V. Brown (AEIC). Pinned. Left flagellum missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in Costa Rica (Fig. 354).

***Messatoporus paraguayensis* (Szépligeti 1916)**

(Figs 44, 211, 247, 355)

**Neomesostenus paraguayensis* Szépligeti 1916: 304. Description. Holotype ♂ (HMNH, not examined). Type data: Paraguay: Assunción (Vezényi).

**Messatoporus paraguayensis*: Townes & Townes 1966 123. Generic transfer.

Messatoporus paraguayensis: Yu & Horstmann 1997:274. Listed.

Messatoporus paraguayensis: Yu *et al.* 2005. Listed.

Female. Fore wing 8.48 mm. HEAD: Mandible densely covered with long hairs; MLW 2.02; MWW 0.47; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.3. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.71; CWW 3.35; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, impunctate, not striate near antennal sockets, ventrally very weakly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, shiny, impunctate, with weak and short wrinkles along posterior margin of collar; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, ovoid, 1.22 × as long as wide, sparsely pilose, shiny, minutely punctulate; notaulus reaching about 0.78 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, irregular; sternaulus complete but weak, strongly sinuous, smooth; scrobe moderately deep; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, distinctly arched forwards. Transverse sulcus at base of propodeum moderately wide, about 0.65 × as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, densely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: 1.18 × as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elliptic, SWL 2.57; anterior transverse carina medially straight. Propodeal wrinkles very weak before posterior transverse carina, posteriorly strong, closely spaced, anteriorly faint at median portion, posteriorly complete, anteriorly more or less straight, posteriorly slightly arched forwards; posterior transverse carina complete, uniformly arched forwards, not forming distinct sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.36 of its own length; vein 2Cua 0.34 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 1.07, pentagonal, about as high as wide, AWH 0.97; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs somewhat irregular, apically slightly upcurved; 4-M semi-spectral, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.9; vein Cub straight, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.8 of distance to posterior wing margin.

METASOMA: First tergite very long, about 0.46 × as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally densely pilose; T1LW 3.26; T1WW 1.88; spiracle on 0.48 of its length, distinctly prominent; median depression elongate, distinct; median posterior depression absent; lateral depressions elongate, distinct; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW

0.91; T2WW 2.19; thyridium about as long as wide, with small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.28; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head black, mesosoma orange, whitish and black, metasoma orange. Head: black; clypeus, mandible except apex, mouth parts, supra-clypeal area, malar space and very wide, complete orbital band (covering gena entirely), whitish (238,220,158); scape and pedicel dark brown, flagellum blackish, f6–10 entirely white, f11 partially white. Mesosoma: orange (222,125,052), slightly lighter at hypopimeron and posterior area of propodeum; propleuron, collar and anterior margin of pronotum (near epomia), subcircular spot on mesoscutum, tegula, subalar ridge, scutellar carina, scutellum, axillar carina and dorsal division of metapleuron, pale yellow (233,211,112); fore coxa, tibia and tarsus, mid tibia and basal 0.75 of hind tibia, pale yellow; mid tarsus fuscous; apical 0.25 of hind tibia, tibial spurs and basal 0.25 of t1 blackish; t2–4 white; t5 blackish. Mesosoma: orange.

Male. Fore wing 4.42–7.28 mm long. Similar to female, but: scape and pedicel ventrally yellowish; antenna with 23–24 flagellomeres; f9–12 entirely white, f6–8 partially white, f13–17 with progressively smaller dorsal white marks; occiput almost entirely pale yellow, black only behind vertex; pronotum entirely pale yellow; mesopleuron except anterior corner and mesosternum completely whitish; propodeum apically pale yellow; fore and mid coxae, trochanters, anterior face of tibiae and tarsi, whitish; basal 0.4 of hind tibia white, apical 0.6 blackish.

Variation. Fore wing 6.36–8.48 mm long. Antenna sometimes with 20 flagellomeres; ventral corner of pronotum sometimes orange; dorsal division of metapleuron sometimes orange; posterior area of propodeum sometimes pale yellow laterally; hind tibia sometimes not blackish apically, and base of t1 orangish; postscutellum sometimes blackish; one specimen with scape and pedicel fulvous, anterior corner of mesopleuron black, spot on mesopleuron oval, wider than long, hind tibia medially orange between yellow and blackish areas. Meso and metasoma light orange (228,152,054) to deep orange (194,085,043).

Comments. Very similar to *M. laevilatus* **sp. nov.**, from which it can be differentiated by having posterior transverse carina complete (vs. absent); propodeal wrinkles very weak anteriorly to posterior transverse carina, posteriorly strong, moderately closely spaced (vs. moderately strong and very closely spaced); spiracle of propodeum elliptic, SWL 2.57 (vs. elongate, SWL 4.00); areolet about as wide as high, AWL 0.97 (vs. distinctly higher than wide, AWH 0.66); and scape ventrally without whitish spot (vs. whitish spot present). Also superficially similar to *M. convexus* **sp. nov.**, from which it can be isolated by having T2–8 bright to deep orange (vs. black, with posterior whitish stripes); propodeal wrinkles as described above (vs. moderately strong and very closely spaced); orbital band complete (vs. widely interrupted at gena); scape completely blackish (vs. with ventral whitish spot); and epomia complete (vs. distinct only after diverging from collar).

Biology. Unknown.

Material examined. 14 ♀♀, 31 ♂♂. 1 ♂ from BOLIVIA, Beni, Rio Itenez opposite Costa Marques (Brazil), 1–3.IX.1964, Bouseman & Lussenhop (AMNH). 1 ♀ 4 ♂♂ from BRAZIL, Rio Grande do Norte, Mossoró, Fazenda Santa Júlia, Pt. 1, 14.IV.2008, Malaise trap, Fernandes *et al.*; 2 ♂♂, same data except Pt. 2; 2 ♀♀ 1 ♂, same data except Patu, Serra do Lima, Pt. 1, IX.2008; 1 ♀ 1 ♂, same data except X.2008; 1 ♂, same data except Pt. 2; 1 ♀ 1 ♂, same data except Pt. 1, XI.2008 (IBRP). 1 ♂ from BRAZIL, Goiás, Niquelândia, Mica verde, II.2008, Malaise trap, MPimenta & LLBergamini, “grupo em regeneração” (UFES). 1 ♂ from BRAZIL, São Paulo, Luiz Antônio, Estação Ecológica do Jataí, Mata Ciliar, Pt. 1, 30.XI.2006, Malaise trap, NWPerioto *et al.* (IBRP). 1 ♀ from ARGENTINA, Buenos Aires, Punta Lara, 26.I.1966, Townes & Townes. 1 ♀ 1 ♂ from ARGENTINA, Jujuy, 15.I.1966, Townes & Townes; 1 ♀, same data except 11.I.1966. 1 ♂ from ARGENTINA, Tucumán, Horco Molle nr. Tucumán, 5.I.1966; 1 ♂, same data except 26.XII.1965; 1 ♀, same data except 25–30.V.1965, Lionel Stange; 1 ♀, same data except San Pedro de Colalao, III.1968; 1 ♂, same data except II.1968; 1 ♂, same data except 11 km W Las Cejas, 8–15.IV.1967; 1 ♂, same data except 8–30.XII. 1 ♂ from ARGENTINA, Salta, Pocitos, I.1971, MAFritz (AEIC). 1 ♂ from ARGENTINA, La Rioja, El Duraznillo, upland chaco, 15–30.XI.2002, Malaise trap, PFidalgo; 1 ♂, same data except Santa Cruz, humid ravine, 1700 m, 15–30.IV.2002; 1 ♀ 1 ♂, same data except 15–30.XI.2002; 2 ♂♂, same data except 1–14.XII.2002; 1 ♀, same data except XII.2002; 1 ♀ 2 ♂, same data except 1–15.I.2003; 1 ♂, same data except 15–31.I.2003; 2 ♂♂, same data except 1–15.IV.2003; 2 ♂♂, same data except ca. Anillaco, 6.IV.2002 (FSCA). 1 ♀ with illegible handwritten information: “N.Valeur / MoriAz?” (ZMHB).

Distribution. Widely distributed along areas of open vegetation in South America (Fig. 355). It is recorded from the Brazilian the semi-arid Caatinga, the savannah-like Cerrado and reaching Argentine Patagonia at south, with one record in Bolivia. It was not recorded at the more coastal Atlantic rainforest even after extensive sampling at this biome.

***Messatoporus paralissonotus* Santos, sp. nov.**

(Figs 46, 217, 356)

Female. Fore wing 11.19 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 2.04; MWW 0.47; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.24. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.65; CWW 2.04; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 25 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, impunctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, shiny, finely punctate, ventrally moderately striate; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, $1.29 \times$ as long as wide, sparsely pilose, shiny, scarcely punctate; notaulus reaching about 0.82 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, almost straight; sternaulus complete but weak, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter moderately long, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.82 \times$ as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron densely punctate, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: $1.3 \times$ as long as wide, shiny, moderately pilose; anterior area sparsely punctate, with a median cluster of punctures; spiracle elongate, SWL 6.33; anterior transverse carina medially straight. Propodeal wrinkles strong, closely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina distinct as very weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.5 of its own length; vein 2Cua $0.55 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.73, pentagonal, about as high as wide, AWH 1.18; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 0.84; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.95 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.44 \times$ as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.69; T1WW 1.8; spiracle on 0.52 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.29; T2WW 1.89; thyridium about as long as wide, without small circular depression just behind it; T2–8 minutely coriarius, moderately and uniformly pilose except glabrate postero-dorsal area in T2–3. OST 1.49; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with five moderately strong ridges;

ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head black, mesosoma mostly orange, metasoma orange, black and whitish. Head: black; f6–10 entirely white, f5 and f11–12 partially white; clypeus, mandible except apex, palpi, supra-clypeal area and complete orbital band, pale yellow (227,210,136). Mesosoma: orange (216,113,060); fore and mid apical tarsomere fuscous; hind second trochanter marked with dark brown; hind femur and tibia dark brown; hind tarsus white except basal 0.2 of t1, blackish. Metasoma: T1 orange, with posterior whitish stripe and small blackish mark just basad to stripe; T2–7 black with posterior whitish stripe, T4–7 also laterally whitish; T8 entirely black.

Male. Unknown.

Variation. Fore wing 11.05–11.90 mm long. Antenna with 23–25 flagellomeres. Most females with mesosoma light orange, with lateral portions of scutellum, scutellar carina and subalar ridge sometimes yellowish; hind femur ventrally orange to whitish; hind tibia sometimes with basal 0.6 whitish; T1 sometimes mostly black dorsally. Specimen from Rio Trinidad with metapleuron weakly rugulose.

Comments. Very similar to *M. lissonotus*, from which it can be differentiated by having supra-antennal area, vertex and occiput black (vs. bright orange); orbital band distinct and complete (vs. weak and widely interrupted); whitish posterior marks at T2–8 straight (vs. medially subcircular), posterior carina of propodeum distinct as weak sublateral crests (vs. not forming sublateral crests, only faintly suggested as a stronger wrinkle); and anterior area of propodeum uniformly and scarcely punctate (vs. with a cluster of median punctures).

Biology. Unknown.

Etymology. From the Greek prefix *para-*, meaning “near”; in reference to its similarity to *M. lissonotus*.

Material examined. 5 ♀♀. Holotype ♀ from PANAMA, Canal Zone, Barro Colorado Island, 31.V.1939, WKomp. Pinned. Tip of right antenna and right mid t5 missing; otherwise in good shape.

1 ♀ from PANAMA, Comarca, Juna Yala, Ustupo, Rio Abudi, 6–12.XII.1999, Malaise trap, PGonzales. 1 ♀ from PANAMA, Darien, PN Daerien, Pire, Estación Rancho Funco, 80 m, 15.XII.2000–17.I.2001, Cambra & Santos (AEIC). 1 ♀ from PANAMA, Canal Zone, Barro Colorado Island, IV–V.1942, JZetek; 1 ♀, same data except 31.V.1939, WKomp. 1 ♀ from PANAMA, Rio Trinidad, 6.VI.1912, ABusck (USNM).

Distribution. Recorded from four sites throughout Panama (Fig. 356).

***Messatoporus pleuriflavus* Santos, sp. nov.**

(Figs 58, 357)

Female. Fore wing 8.06 mm. HEAD: Mandible densely covered with long hairs; MLW 1.81; MWW 0.31; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.16. Clypeus basally convex, apically abruptly flattened, centrally straight; CHW 2.21; CWW 2.29; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Supra-antennal area shiny, scarcely punctate, distinctly striate near antennal sockets, ventrally distinctly concave, with very weak, low median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, shiny, finely punctate, not distinctly wrinkled; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, subcircular, $1.2 \times$ as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 0.78 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus complete but weak, weakly sinuous, smooth; scrobe very shallow; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about $0.92 \times$ as long as anterior area of propodeum, posteriorly with longitudinal wrinkles; metapleuron minutely rugulose, without transverse wrinkles, densely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with weak punctures separated by more than their own diameter.

PROPODEUM: Mat, sparsely pilose; anterior area densely punctate; spiracle elongate, SWL 4.29; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles weak, closely spaced, mostly complete but sometimes medially irregular, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.33 of its own length; vein 2Cua 0.51 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.59, pentagonal, about as high as wide, AWH 1.05; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs straight, apically slightly upcurved; 4-M semi-spectral, irregular. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.62; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.92 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.44 × as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.41; T1WW 1.86; spiracle on 0.47 of its length, slightly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.12; T2WW 2.08; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.88; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 10 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, meso and metasoma black and light orange. Head: black; clypeus, mouthparts, supra-clypeal area, ventral spot at scape and complete orbital band, light yellow (234,216,116); scape and pedicel dorsally dark brown; f7–12 entirely white, f6 and f13 mostly white. Mesosoma: mostly light yellow; pronotum except collar, mesoscutum except subcircular spot, scuto-scutellar groove, base of scutellum, axillar carinae medially, postscutellum, epicnemium, area on mesopleuron just ventral subalar ridge, small spot at scrobe and propodeum except arc-shaped mark, dark brown (050,042,039); fore leg light yellow, darker apically; mid leg light yellow, tarsus progressively darker, t2–4 fuscous; hind coxa, trochanters and femur light orange, tibia bright yellow, tarsus whitish. Metasoma: dark brown; T1 anterior 0.4 and posterior 0.2 light yellow; T2–8 with posterior light yellow stripe; S1–6 light yellow.

Male. Unknown.

Comments. Somewhat similar to *M. atlancitus* sp. nov., but readily differentiated from that species by the mid and hind coxae entirely orange (vs. yellowish and black); second trochanter and femur bright orange (vs. dark brown); orbital band complete (vs. shortly interrupted at dorsal margin of eye); propodeal wrinkles weak, distinctly curved backwards (vs. moderately strong to strong, mostly slightly curved or somewhat sinuous); epomia distinct only after diverging from collar (vs. distinct); and ovipositor dorsal valve with four moderately strong ridges (vs. five).

Biology. Unknown.

Etymology. From the Latin words *flavus*, meaning “yellow”, and *pleura*; from the almost entirely yellow meso- and metapleuron.

Material examined. Holotype ♀ from BOLIVIA, Coroico (ZMHB). Pinned; pin bent on midlength. Both antennae missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in western Bolivia (Fig. 357).

***Messatoporus propodeator* Kasparyan & Ruíz 2005**

(Figs 107, 127, 358)

**Messatoporus propodeator* Kasparyan & Ruíz 2005: 106, 119. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Yucatán, Sudzal Chico (SMSP), XII.1998, Rugo Delfín.

Messatoporus propodeator: Kasparyan & Ruíz 2008: 309–310, 312, 332–333. Description, distribution, figure, keyed.

Female. Fore wing 4.5 mm. HEAD: Mandible densely covered with long hairs; MLW 2.36; MWW 0.36; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.25. Clypeus

almost entirely flattened, centrally straight; CHW 1.87; CWW 2.26; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, apically very faint. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, sparsely pilose at dorsal margin, shiny, impunctate, wrinkles at posterior margin vestigial; epomia very weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum strongly and uniformly convex, ovoid, $1.35 \times$ as long as wide, glabrate, shiny, impunctate; notaulus reaching about 0.7 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, ventrally straight, dorsally slightly curved; sternaulus complete but weak, weakly sinuous, smooth; scrobe moderately deep; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum very wide, about $0.95 \times$ as long as anterior area of propodeum, impunctate; metapleuron impunctate, without transverse wrinkles, sparsely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.27 \times$ as long as wide, shiny, sparsely pilose; anterior area almost impunctate; spiracle elliptic, SWL 3.25; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles weak, very closely spaced, mostly complete, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, totally continuous with 1-Rs+M; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.34 of its own length; vein 2Cua $0.16 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.61, pentagonal, about as high as wide, AWH 0.92; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.84; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.55 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.33 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally sparsely pilose; T1LW 4.13; T1WW 1.3; spiracle on 0.47 of its length, slightly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.49; T2WW 2.33; thyridium longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriarius, densely and uniformly pilose. OST 0.91; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 9 teeth, 1st, 2nd and 3rd widely spaced; surface anterior to first tooth rugulose.

Color: Head and mesosoma dark brown and whitish; metasoma brown, orange and whitish. Head: dark brown (066,050,038); clypeus, mandible except apex, mouthparts, supra-clypeal area, scape and pedicel ventrally and complete orbital band, whitish (231,216,160); scape and pedicel dorsally dark brown; flagellum dark brown, blackish towards apex, apical flagellomere light brown; f9–15 entirely white, f8 and f16 partially white. Mesosoma: dark brown; pronotum, propleuron, subcircular spot on mesoscutum, scutellum except posterior 0.15, tegula, subalar ridge, hypopimeron, most of ventral portion of mesopleuron, mesosternum, dorsal division of metapleuron, transverse sulcus anteriorly, metapleuron, metasternum and arc-shaped mark on propodeum, whitish; fore and mid tibia and fore trochanters whitish; fore femur and tibia ventrally whitish, dorsally orangish with narrow brown line; mid trochanters sparsely marked with whitish and brown; mid femur light orange with small basal dark brown spot; mid tibia yellowish, ventrally brown on basal 0.4; mid t1–4 dark fuscous, t5 blackish; hind coxa whitish, with wide longitudinal black stripe; hind trochanters marked with whitish and brown, femur bright orange (228,153,048), basal 0.9 of tibia light orange, apical 0.1 of tibia and basal 0.3 of hind t1 blackish; apical 0.7 of t1 and t2–5 white. Metasoma: T1 dark brown, whitish at anterior 0.3 and posterior 0.2; S1 whitish; T2 anteriorly dark brown, medially orange, posteriorly whitish; T3–6 anteriorly brown (115,065,036), posteriorly whitish; T7–8 anteriorly brown, posteriorly light orange; S2–4 basally light orange, posteriorly whitish, S5–6 whitish.

Male. Fore wing 4.4 mm. Very similar to female, except for the following: antenna with 23–24 flagellomeres; epicnemium pale yellow at ventral 0.6; blackish marks on mesopleuron less extensive; hind tibia apically with extensive blackish marks; hind t1 blackish on basal 0.9.

Variation. Fore wing 4.5–5.3 mm long; hind coxa with one or two black stripes, dorsal one either more or less straight or somewhat S-shaped; hind tibia sometimes with distinct whitish basal mark; T2 sometimes anteriorly fulvous, lighter than T3–8.

Comments. Very similar to *M. amazonensis* **sp. nov.**, from which it can be differentiated by having T3–8 anteriorly brown, posteriorly whitish (vs. entirely bright orange); fore wing crossvein 3r-m distinct, though spectral (vs. entirely absent); hind wing vein Cub distinctly convex on posterior half (vs. almost straight, very weakly convex); supra-antennal area with median depression (vs. without median depression); and mesosternum medially without transverse wrinkles (vs. with short transverse wrinkles).

Biology. Unknown.

Material examined. 4 ♀♀, 5 ♂♂. 1 ♂ from MEXICO, Sinaloa, 20 mi. E Concordia, 915 m, 12.VIII.1964, WRMMason (CNCI). 1 ♀ from COSTA RICA, Puntarenas, Golfito, 28.VI.1987, JBrambila; 1 ♀, same data except 7 km SW Rincon, Pt. 1, 31.V–7.VI.1988, Malaise trap, BBrown & V. Berezovsky, 2nd growth vegetation. 3 ♂♂ from COSTA RICA, Guanacaste, San Rosa park, Riparian, 20.V.1978, D.H. Janzen; 1 ♂, same data except 26.V.1978. 2 ♀♀ from COSTA RICA, Heredia, La Selva, Pt. 1, 1–6.VII.1993, Malaise trap, B. Brown & D. Feener (AEIC).

Distribution. Recorded from northeastern Mexico to Costa Rica (Fig. 358). It seems to have a parapatric distribution with the very close species *M. amazonensis*.

***Messatoporus rufator* Kasparyan & Ruíz 2005**

(Fig. 359)

**Messatoporus rufator* Kasparyan & Ruíz 2005: 105, 118. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Tamaulipas, Llera, Rio Guayalejo, 11.VIII.2000, D.R. Kasparyan.

Messatoporus rufator: Kasparyan & Ruíz 2008: 309–310, 333–334. Description, distribution, figure, keyed.

Female. Fore wing 6.20 mm. HEAD: Antenna with 25 flagellomeres; flagellum subapically slightly flattened.

THORAX: Pronotum glabrous, shiny, impunctate; epomia apparently weak and short. Mesoscutum moderately and uniformly convex, shiny, scarcely punctate. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, irregular; scrobe very shallow. Transverse sulcus at base of propodeum very wide. Fore tibia distinctly swollen.

PROPODEUM: Shiny. Propodeal wrinkles weak; posterior transverse carina distinct as very weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M weakly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by about 0.3 of its own length; vein 2Cua much shorter than crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, pentagonal, about as high as wide; crossvein 3r-m fully spectral; vein 3-M about as long as 2-M; 4-Rs slightly sinuous; 4-M mostly spectral, irregular.

METASOMA: First tergite moderately long, about 0.36 × as long as T2–8, strongly depressed; spiracle on 0.42 of its length; median depression distinct. OST 0.85; ovipositor straight.

Color. Head, mesosoma and metasoma pale yellow with blackish marks. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, pale yellow (237,228,123); scape dorsally and pedicel brown; f8–14 white. Mesosoma: mostly pale yellow; mesoscutum except U-shaped mark, posterior margin of scutellum, scutellar and axillary carinae, axillary through, small marks ventrad to subalar ridge and at scrobe, anterior area of propodeum except small lateral spots, lateral borders and posterior spot on propodeum, black; fore and mid legs pale yellow; hind coxa anteriorly light orange, posteriorly pale yellow, on basal 0.4 with blackish mark between orange and yellow areas; hind trochanters and femur, orangish-yellow; hind tibia yellow with extreme apex brownish; hind tarsus white, except basal 0.2 of t1 and apex of t5, brownish.

Metasoma: mostly pale yellow; T1 with median blackish mark surrounded by brownish area; T2–8 anteriorly brownish to blackish.

Male. Unknown.

Comments. Readily recognized by the following combination of characters: yellowish spot on mesoscutum U-shaped, pronotum entirely yellow, postscutellum yellow, mesopleuron almost entirely yellow and tibial spurs basally blackish, apically whitish.

Biology. Unknown.

Material examined. Pictures of the holotype. Pinned. Left tarsus missing; otherwise in good shape.

Distribution. Recorded only from the type locality, in northeastern Mexico (Fig. 359).

***Messatoporus semialbiventris* Santos, sp. nov.**

(Figs 93, 117, 146, 156, 182, 360)

Female. Fore wing 7.5 mm. HEAD: Mandible densely covered with long hairs; MLW 2.16; MWW 0.31; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.24. Clypeus basally evenly convex, apically gradually flattened, centrally straight; CHW 2.48; CWW 1.91; apical area medially straight, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 27 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, with moderately dense punctation, distinctly striate near antennal sockets, ventrally and around ocelli distinctly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, shiny, mostly impunctate, scarcely punctate at dorsal corner and collar (and collar), with strong wrinkles at ventral half of posterior margin; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, $1.3 \times$ as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, anteriorly asperous, posteriorly almost impunctate; notaulus reaching about 0.76 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove deep, with vestigial longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina complete, reaching subalar ridge, more or less uniformly curved; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, distinctly arched forwards. Transverse sulcus at base of propodeum very wide, about $1.03 \times$ as long as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron punctate-rugulose, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with moderately strong punctures separated by about their own diameter, dorsally foveolate.

PROPODEUM: $1.28 \times$ as long as wide, shiny, densely pilose; anterior area scarcely punctate; spiracle elongate, SWL 4.00; anterior transverse carina medially straight. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, central wrinkles complete, anterior and posterior ones incomplete and overlapped, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.47 of its own length; vein 2Cua $0.24 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.41, pentagonal, about as high as wide, AWH 1.07; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.8; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.84 of distance to posterior wing margin.

METASOMA: First tergite short, about 0.45 × as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 5.06; T1WW 1.43; spiracle on 0.48 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 2.02; T2WW 1.61; thyridium much longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.69; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head, mesosoma and metasoma black, with whitish marks. Head: clypeus, mandible except apex, mouthparts, orbital band at supra-antennal area and gena, scape and pedicel ventrally, whitish (235,216,145); supra-clypeal area whitish with sparse black marks; scape and pedicel dorsally dark brown; flagellum black; f10–15 entirely white, f9 and f16 partially white. Mesosoma: black; collar, small subcircular spot on mesoscutum, tegula, subalar ridge, basal 0.8 of scutellum, dorsal division of metapleuron, posterior 0.2 of metapleuron and lateral marks at propodeal apex, whitish; fore leg whitish with sparse blackish marks at coxa, wide brown stripe at dorsal face of femur, tibia and tarsus, t5 fuscous; mid and hind coxae with posterior whitish spot; mid trochanters marked with whitish and black; mid and hind femora black, mid tibia except ventral face, apical 0.6 of t2 and t3–4 whitish; ventral face of mid tibia, t1, basal 0.4 of t2 and t5, blackish; basal 0.3 of hind tibia, apical 0.3 of hind t1 and t2–5, white; apical 0.7 of hind tibia and basal 0.7 of hind t1, blackish. Metasoma: black; T1 with dorsal triangular mark at anterior 0.5; T1–4 with posterior whitish stripe; S1–6 whitish.

Male. Fore wing 6.75–8.67 mm long. Similar to female, except for the following: black marks at supra-clypeal area absent; antenna with 28–29 flagellomeres; pronotum entirely black; subalar ridge with very small whitish mark; scutellum whitish only laterally; white mark at dorsal division of metapleuron restricted to anterior portion; whitish marks on metapleuron and propodeum very small; mid coxa sparsely marked with black and whitish; whitish mark at hind coxa small; posterior whitish stripes on T1–4 almost indistinct.

Variation. Paratype female scutellum with central blackish mark; fore coxa with extensive dark brown marks, mid coxa almost entirely dark brown; whitish stripe on T2–3 very weak.

Comments. Similar to *M. paeneater* **sp. nov.**, from which it can be differentiated by having clypeus and supra-clypeal area pale yellow (vs. mostly blackish); collar and dorsal margin of pronotum with narrow yellowish marks (vs. pronotum entirely black); fore and mid coxae with extensive yellow marks (vs. entirely dark brown or black); dorsal division of metapleuron partially yellow (vs. entirely black); T2–3 with distinct, subcircular posterior pale yellow stripes (vs. posterior stripes almost indistinct); epicnemial carina complete, more or less uniformly curved (vs. reaching about 0.7 of distance to subalar ridge, irregular); fore tibia weakly swollen (vs. not swollen); and propodeal wrinkles mostly slightly curved or somewhat sinuous (vs. distinctly curved backwards).

Biology. Unknown.

Etymology. From the Latin words *semi*, meaning “half”, *albus*, meaning “white” and *venter*, meaning “belly”; in reference to the yellow or whitish mark at the mesosternum of some males.

Material examined. 2 ♀♀, 8 ♂♂. Holotype ♀ from BRAZIL, Espírito Santo, Cariacica, Reserva Biológica de Duas Bocas, 31.VIII–1.IX.2002, RKawada (UFES). Mounted on triangle point. Apical half of left antenna, right mid t2–5 and left hind tarsus missing; otherwise in good shape.

Paratypes: 1 ♂ from BRAZIL, Espírito Santo, Alfredo Chaves, Picadão, Mata, Pt. 5, 710 m, 8–15.X.2007, Malaise trap, COAzevedo *et al.* (UFES). 1 ♀ from BRAZIL, Rio de Janeiro, Itatiaia, 800 m, XII.1933, SLOpes & ETRCunha (MNRJ). 1 ♂ from BRAZIL, Paraná, Colombo, Embrapa Br476 km 20, 2.III.1987, Malaise trap, PROFAUPAR; 1 ♂, same data except Guarapuava, Estação de Águas Santa Clara, 6.IV.1987; 2 ♂♂, same data except Jundiá do Sul, Fazenda Monte Verde, 30.III.1987; 1 ♂, same data except Ponta Grossa (Vila Velha), Reserva IAPAR Br376, 23.III.1987; 1 ♂, same data except São José dos Pinhais, Br277 km 54, 20.IV.1987 (DZUP). 1 ♂ from BRAZIL, Rio Grande do Sul, Arroio Grande, 101 m, 29.XI.2002, Malaise trap, RFKrüger (UFES).

Distribution. Atlantic Forest in southern and southeastern Brazil (Fig. 360).

Messatoporus semiaurantigaster Santos, sp. nov.

(Figs 105, 129, 191, 226, 287, 361)

Female. Fore wing 7.50 mm. HEAD: Mandible densely covered with long hairs; MLW 1.6; MWW 0.37; dorsal

tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.19. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.67; CWW 2.29; apical area medially straight, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 21 flagellomeres; flagellum strongly flattened and compressed on apical 0.3, or uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally distinctly concave, dorsally with very weak median line, ventrally fading. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, with moderately strong striation restricted to ventral corner; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, subcircular, $1.15 \times$ as long as wide, sparsely pilose, shiny, asperous; notaulus reaching about 0.68 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove shallow, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wide and shallow at posterior 0.25, strongly sinuous, with vestigial vertical wrinkles; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with a longitudinal series of depressions; median portion of posterior transverse carina of the mesothoracic venter moderately long, slightly arched forwards. Transverse sulcus at base of propodeum moderately wide, about $0.48 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.17 \times$ as long as wide, mat, moderately pilose; anterior area scarcely punctate; spiracle elliptic, SWL 3.11; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly faint, posteriorly strong, closely spaced, central wrinkles complete, anterior and posterior ones incomplete and overlapped, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.34 of its own length; vein 2Cua $0.36 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.64, pentagonal, about as high as wide, AWH 1.02; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 1.14; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.82 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.34 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally densely pilose; T1LW 3.32; T1WW 1.51; spiracle on 0.49 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.43; T2WW 1.88; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely and very weakly coriarius, densely and uniformly pilose. OST 0.94; ovipositor moderately stout, straight or slightly upcurved, basally cylindrical, apically slightly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma black and whitish, metasoma orange, black and whitish. Head: black; clypeus, mandible except apex, mouthparts, supra-clypeal area, orbital band shortly interrupted at dorsal corner of eye, light yellow (225,203,113); f7–10 entirely white; f6 and f11–12 only dorsally white, at f6 and f11 at about half of their length. Mesosoma: black; collar, subcircular spot on mesoscutum, scutellar carina, scutellum, axillar carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron reaching ventral margin, dorsal division of metapleuron, posterior mark covering 0.4 of metapleuron and arc-shaped mark on propodeum, light yellow; fore and mid legs turning from light yellow to bright yellow towards apex, except posterior face of fore and mid coxa, small marks between first and second mid trochanters, dorsal stripe at fore and mid femora and t5, blackish; hind coxa anterior 0.5 black, posterior 0.5 light yellow; hind trochanters blackish, with apical margin orangish; hind

femur deep orange (215,118,049), apical 0.1 blackish; hind tibia bright yellow, apical 0.15, tibial spurs, basal 0.2 of t1 and t5, blackish; apical 0.8 of t1 and t2–4, whitish. Metasoma: mostly orange; T1–2 and S1 black with posterior bright yellow stripe; T2 anterior 0.4 blackish, median 0.3 orange and posterior 0.3 bright yellow; T8 posteriorly marked with blackish.

Male. Fore wing 6.35–8.22 mm long. Generally similar to female, except for the following: antenna with 24–25 flagellomeres; arc-shaped mark on propodeum dorsally interrupted (black marks connected), making two separate somewhat triangular marks; dorsal black stripe at fore and mid femora distinct only on basal 0.1–0.2, remainder of femora orangish; fore and mid tibia light fuscous, tarsus basally dark fuscous, apically whitish except t5; T1–7 blackish with apical bright yellow stripes, S2–7 light brown with posterior yellow stripes.

Variation. Fore wing 6.02–11.38 mm long. Orbital band sometimes complete, but much narrower at dorsal margin of eye; scrobe sometimes shallow; arc-shaped mark on propodeum sometimes very narrow dorsally; dorsal face of mid first trochanter almost entirely blackish; fore and mid t5 sometimes fuscous; ventral face of hind femur sometimes black on apical 0.3; T2 sometimes anteriorly dark brown; black and yellow areas at T3 sometimes reduced; T2–3 sometimes without orange areas; T8 sometimes reddish brown; yellow tones varying from very light yellow to buff. Specimen from Nova Teutonia with all black areas dark brown and propodeal wrinkles closely spaced.

Comments. *Messatoporus semiaurantigaster* is part of a group of five very close species; (Figs 101–105; see Comments under *M. mesosternalis*). Among these species, females can be promptly identified by the T4–8 entirely orange. They can also be isolated from the apparently parapatric (see Distribution) *M. orientalis* **sp. nov.** by the hind femur bright orange (vs. dark brown to blackish), hind tibia with apical blackish mark (vs. entirely yellow), t5 blackish (vs. whitish), and yellow mark on propodeum arc-shaped, though medially narrow (vs. yellow marks small distinctly separated). Also readily differentiated from *M. occidentalis* **sp. nov.** and *M. basiflavus* **sp. nov.** by the hind coxa yellow and blackish and trochanters blackish (vs. hind coxa and trochanters orange).

Males of *M. semiaurantigaster*, however, have the T2–8 black with posterior yellowish stripes, as in other species with orange metasoma (*M. euryoikos* **sp. nov.**, *M. dissidens* **sp. nov.**). They also have the yellow mark on propodeum medially interrupted, forming two small sublateral spots. At the same time, males of *M. orientalis* often have the hind femur partially to mostly orange, although usually dark brown. Therefore, the males of the two species are distinguishable only by the hind tibia more extensively black in *M. semiaurantigaster* (blackish on apical 0.7–0.8, vs. only on apical 0.2 in *M. orientalis*).

Biology. Unknown.

Etymology. From the New Latin *aurantium*, meaning “orange”, and the Latin words *semis*, meaning “half”, and *gaster*, meaning “stomach”; in reference to the partially orange metasoma.

Material examined. 11 ♀♀, 7 ♂♂. Holotype ♀ from BRAZIL, Bahia, Coaraci, Pt. 2, 26.XI.2002, Malaise trap, JCardoso & JMaia (UFES). Mounted on triangle point. In good shape.

Paratypes: 1 ♀ 1 ♂ from BRAZIL, Bahia, Ipiáú, Fazenda Petrolina, Sítio Casca, West, 15.II.2007, Malaise trap, JCardoso & JMaia; 1 ♀, same data except East, 18.III.2007; 1 ♀, same data except Pt. 5; 1 ♂, same data except Iguai, Fazenda Montevideo, Pt. 7, 30.XI.2002; 1 ♂, same data except Itororó, fazenda Guanabara, Pt. 3, 25.XI.2002; 1 ♀, same data except Ubaitaba, Fazenda Fortaleza, 13.XII.2003; 1 ♂, same data except Pt. 2; 2 ♂♂, same data except Ituberá, Fazenda Vale da Juliana, 26.I.2008, “Banana Teste” (UFES). 2 ♀♀ from BRAZIL, Espírito Santo, Linhares, IX.1972, Malvarenga (AEIC). 1 ♀, same data except CEPLAC, Pt. 3, 30.VI.2001, CVillemant, “cacau, borda”; 1 ♀, same data except Cariacica, Reserva Biológica de Duas Bocas, 26.IV–3.V.2005, Malaise trap, RKawada; 1 ♀, same data except Guarapari, Parque Estadual Paulo César Vinha, Restinga, 15–23.V.2006; 1 ♂, same data except 2–9.XI.2006, BAráújo & MSantos; 1 ♀ from BRAZIL, Minas Gerais, Parque Estadual do Rio Doce, Trilha do Vinhático, Pt. 2, 7.XI.2002, Malaise trap, JCRFontenelle (UFES).

Distribution. Recorded from the Atlantic Forest from Espírito Santo to southern Bahia (Fig. 361). It seems to be spatially separated from the two very close species *M. orientalis* and *M. occidentalis*. The former is widely distributed at southern and southeastern Brazil, but all of the northernmost records are from highlands, indicating preference to colder, higher areas. Both *M. orientalis* and *M. semiaurantigaster* occur at Espírito Santo, but *M. orientalis* is only found above 500 m, whereas all records of *M. semiaurantigaster* from Espírito Santo were from sea level or close. *Messatoporus occidentalis*, for its turn, have almost all records at northern South America, from Bolivia to Trinidad (see below).

***Messatoporus subalaris* Santos, sp. nov.**

(Figs 122, 362)

Female. Unknown.

Male. Fore wing 5.04 mm. HEAD: Mandible densely covered with long hairs; MLW 1.97; MWW 0.37; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.23. Clypeus basally strongly convex, emarginated in its mid-length, more or less triangular, centrally straight; CHW 1.96; CWW 1.46; apical area medially concave, laterally with distinct triangular lobes, its margin regular, not raised. [Antenna with 26 flagellomeres; flagellum uniform]. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally very weakly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, wrinkles at posterior margin vestigial; epomia very weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, subcircular, $1.15 \times$ as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.71 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, distinctly sinuous; sternaulus complete but weak, weakly sinuous, smooth; scrobe very shallow; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, arched backwards. Transverse sulcus at base of propodeum very wide, about $1.31 \times$ as long as anterior area of propodeum, colliculate, posteriorly with transverse striation; metapleuron entirely coriarius, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina absent. Hind coxa punctate-coriarius.

PROPODEUM: $1.31 \times$ as long as wide, shiny, glabrate; anterior area almost impunctate; spiracle elongate, SWL 4.00; anterior transverse carina medially straight. Propodeal wrinkles moderately strong, very closely spaced, mostly complete, often ramificated, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.32 of its own length; vein 2Cua $0.26 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs of moderate size, APH 0.49, pentagonal, about as high as wide, AWH 0.88; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.85; vein Cub straight, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.92 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.3 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 4.67; T1WW 1.31; spiracle on 0.46 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 3.84; T2WW 0.95; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose.

Color. Head and mesosoma black with whitish marks, metasoma dark brown with whitish marks. Head: black: clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape and pedicel ventrally and complete orbital band, whitish (231,223,183); f9–16 entirely white, f17 mostly white, f8 apically white. Mesosoma: mostly whitish; mesoscutum except subcircular spot, scuto-scutellar groove, both axillary through, apical 0.25 of scutellum, axillar carinae, postscutellum, subalar ridge, epicnemium, mesopleural area just posterior to epicnemial carina, dorsal 0.3 of mesopleuron, metapleural triangle, transverse sulcus, anterior area and basal 0.6 of posterior area of propodeum, black; fore and mid legs whitish, except brown central stripe at fore tibia, marks at mid trochanters, fore and mid femora pale orange, mid tarsus and fore t5, blackish; hind coxa whitish with large longitudinal black mark; hind trochanters blackish, base of first one whitish, apex of second one orange; femur

bright orange (179,089,031) with basal and apical blackish marks; basal 0.3 of hind tibia, apical 0.6 of t1 and t2–5, whitish; apical 0.7 of tibia and basal 0.4 of t1, blackish. Metasoma: T1 black, dorsally with anterior 0.3 and posterior 0.2 whitish; T2–6 dark brown with posterior whitish stripes; T7 dark brown; S2–6 anteriorly very light brown, posteriorly whitish.

Variation. Fore wing 5.04–6.96 mm long. Antenna with 24–26 flagellomeres. Specimen from Pastaza with f8 entirely brown, f9 only partially white; fore femur with weak dorsal brown stripe on basal 0.8; light areas pale yellow (229,220,166) instead of whitish. Specimen from Cochabamba with epicnemium ventrally whitish, mesopleuron less extensively black, propodeum almost entirely black, mid coxa with apical black mark, hind femur medially dark brown, basal 0.8 of t1 black.

Comments. Very similar to the males of *M. tenuissimus* sp. nov., which have mesosternum and considerable portion of mesopleuron whitish (vs. mesosternum black and mesopleuron mostly black in females). The color pattern of the legs is almost identical between both species. *Messatoporus subalaris* can be distinguished by having subalar ridge black (vs. whitish); T1 dorsally with whitish spot at anterior 0.3 (vs. dorsally black at anterior 0.75); and T4–7 blackish with posterior whitish stripe (vs. T4 whitish with postero-dorsal and antero-lateral brownish marks, T5–6 almost entirely dark brown and T7 almost entirely whitish).

Biology. Unknown.

Etymology. From the Latin *ala*, meaning “wing”, added to the prefix *sub-*, meaning “under”; in reference to the black subalar ridge.

Material examined. 4 ♂♂. Holotype ♂ from ECUADOR, Sucumbios, Napo River, Sacha Lodge, 270 m, 31.X–10.XI.1994, Malaise trap, PHibbs (CNCI). Mounted on triangle point. Tip of right antenna, apical third of left antenna, right mid leg apicad to coxa, left hind wing and apical two thirds of right hind wing missing; right hind tarsus broken and re-glued to the triangle; both fore wing largely ripped.

Paratypes: 1 ♂ from ECUADOR, Pastaza, Pompeya, Napo River, 14–22.V.1965, LPena. 1 ♂ from BOLIVIA, Cochabamba, Vila Tunari, 15.III.2001, Malaise trap, HHeider (CNCI). 1 ♂ from BOLIVIA, Santa Cruz, Rio Mamoré, 2 km N mouth of Rio Chaparé, 31.VII.1965, JKBouseman (AMNH).

Distribution. Recorded from three rainforest sites at western South America, in Ecuador and Bolivia (Fig. 362).

***Messatoporus tenuiorbis* Santos, sp. nov.**

(Figs 56, 175, 363)

Female. Fore wing 7.57 mm. HEAD: Mandible densely covered with long hairs; MLW 2.16; MWW 0.34; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.34. Clypeus basally evenly convex, apically gradually flattened, centrally straight; CHW 2.83; CWW 2.97; apical area medially concave, laterally with distinct triangular lobes, its margin regular, not raised. Flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, coriarius, weakly rugulose near antennal sockets, ventrally and around ocelli distinctly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, shiny, densely punctate, with moderately strong striation restricted to ventral corner; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, 1.32 × as long as wide, densely covered with short hairs, shiny, densely punctulate; notaulus reaching about 0.65 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum moderately wide, about 0.56 × as long as anterior area of propodeum, laterally with weak longitudinal wrinkles, medially not wrinkled; metapleuron coriarius-rugulose, without

transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa entirely coriarius.

PROPODEUM: 1.06 × as long as wide, shiny, densely pilose; anterior area densely punctate; spiracle elliptic, SWL 3.14; anterior transverse carina medially straight. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.36 of its own length; vein 2Cua 0.6 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs of moderate size, APH 0.85, pentagonal, distinctly higher than wide, AWH 0.79; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.51; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.81 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about 0.4 × as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally densely pilose; T1LW 4.84; T1WW 1.71; spiracle on 0.47 of its length, slightly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 2.04; T2WW 2.18; thyridium much longer than wide, without small circular depression just behind it; T2–8 minutely coriarius. OST 0.65; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve without ridges; ventral valve apex with 9 teeth, widely spaced; surface anterior to first tooth not rugulose.

Color. Head black and pale yellow, mesosoma black, orange and pale yellow, metasoma black and pale yellow. Head: black; mandible, mouthparts, clypeus, supra-clypeal area except lateral blackish marks, ventral spot at scape and orbital band shortly interrupted at dorsal margin, pale yellow (232,224,151); white band at flagellum starting at f8. Mesosoma: black; dorsal 0.5 of pronotal collar, sparse marks at propleuron, central spot on mesoscutum, scutellar carina, scutellum, tegula, subalar ridge, dorsal division of metapleuron and sublateral, subquadratic posterior spots on propodeum, pale yellow; ventral margin of mesopleuron, most of mesosternum, metapleural triangle, metapleuron and T-shaped mark at posterior area of propodeum, orange (225,148,057); postscutellum, transverse sulcus of propodeum medially, anterior area and somewhat subcircular anterior mark at posterior area, dark brown; fore leg whitish, fore coxa with brownish mesal spot, femur ventrally with orange longitudinal stripe, t5 blackish; mid and hind coxae and trochanters orange, hind second trochanter marked with brownish; mid and hind femora brown; mid tibia whitish, ventrally with brownish longitudinal stripe; basal 0.4 of hind tibia and apical 0.75 of t1, whitish; apical 0.6 of tibia and basal 0.25 of t1, brown. Mesosoma: black; T1 orange, dorsally marked with brownish, posterior 0.15 pale yellow; T2–7 with posterior and lateral pale yellow stripes.

Male. Unknown.

Comments. Similar to *M. maculiscus* sp. nov., from which it can be differentiated by the mesopleuron and mesosternum mostly blackish (vs. mesopleuron and mesosternum mostly orange, mesopleuron with central yellow mark); dorsal margin of pronotum black (vs. yellow); fore coxa distinctly swollen (vs. not swollen); fore wing vein 3-M distinctly shorter than 2-M (vs. 2-M about as long as 3-M); and pronotum densely punctate (vs. impunctate).

Biology. Reared from a nest of unidentified Pompilidae (labeled as “Psammocharidae”).

Etymology. From the Latin words *tenuis*, meaning “thin”, and *orbis*, meaning “circle” or “ring”; in reference to its narrow orbital band.

Material examined. Holotype ♀ from BRAZIL, Minas Gerais, Belo Horizonte, Estação Ecológica UFMG, 13.I.1993, HRPimenta, “67A/(08.01.93) // ex. Psammocharidae” (UFES). Pinned. Badly broken; tip of left antenna, apical two thirds of right antenna, left fore leg apicad to coxa, both mid tarsi, left hind tarsus, right t2–5 and right hind wing missing; hind legs apicad to trochanter and metasoma broken and re-glued to the specimen; S3–4 with a large perforation.

Distribution. Recorded only from the type locality, in southeastern Brazil (Fig. 363).

***Messatoporus tenuissimus* Santos, sp. nov.**

(Figs 99, 230, 364)

Female. Fore wing 4.59 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 2.21; MWW 0.42; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.26. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 1.75; CWW 1.84; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Supra-antennal area shiny, impunctate, not striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, fading out at distance distinctly longer than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrous, shiny, impunctate, not distinctly wrinkled; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.25 \times$ as long as wide, sparsely pilose, shiny, minutely punctulate; notaulus reaching about 0.72 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove shallow, without wrinkles. Subalar ridge weakly projected; epicnemial carina weak, reaching about 0.6 of distance to subalar ridge, irregular; sternaulus complete but weak, medially indistinct, weakly sinuous, with vestigial vertical wrinkles; scrobe moderately deep; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about $0.89 \times$ as long as anterior area of propodeum, very weakly rugulose; metapleuron impunctate, covered with the same wrinkling of propodeum, however less regular, dorsally glabrate, ventrally sparsely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa entirely coriarius.

PROPODEUM: $1.42 \times$ as long as wide, shiny, sparsely pilose; anterior area scarcely punctate, medially strigulate; spiracle elliptic, SWL 2.67; anterior transverse carina medially straight. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, anteriorly almost straight, posteriorly slightly arched backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.26 of its own length; vein 2Cua $0.41 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.72, pentagonal, distinctly higher than wide, AWH 0.83; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs almost straight; 4-M tubular, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.7; vein Cub almost straight, very slightly convex, forming straight angle with Cua; vein 2-1A reaching 0.57 of distance to posterior wing margin.

METASOMA: First tergite short, about $0.29 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally sparsely pilose; T1LW 3.39; T1WW 1.55; spiracle on 0.43 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.93; T2WW 1.97; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.87; ovipositor slender, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 9 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma dark brown with whitish marks, metasoma mostly brown with whitish marks. Head: dark brown (074,054,047); clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area and complete orbital band, whitish (235,220,161); scape and pedicel ventrally ferruginous (203,110,057); scape and pedicel dorsally and flagellum, brown (065,0544,040). Mesosoma: black; pronotum whitish except posterior blackish mark covering 0.4 of its surface; subcircular spot on mesoscutum, scutellum, axillar carinae, tegula, subalar ridge, ventral mark covering 0.2 of mesopleuron, dorsal division of metapleuron, metapleuron and triangular posterior mark on propodeum, whitish; fore leg basally whitish uniformly darker towards apex, fore tarsus light fuscous; fore femur dorsally pale orange with brownish stripe on basal 0.6; mid coxa whitish with

apical brown mark, mid trochanters whitish with basal brown marks; mid femur ventrally whitish, dorsally pale orange with brownish stripe on basal 0.6; mid tibia whitish with ventral brown stripe; mid tarsus brown; hind coxa whitish with two basally connected longitudinal brown marks, anterior one broad and reaching basal 0.5, posterior one narrow and reaching apex of tibia; hind first trochanter basal 0.5 brown, apical 0.5 whitish; second hind trochanter brown with apical whitish mark; hind femur basal 0.1 whitish, sub-basal 0.1 and apical 0.1 brown, median 0.7 bright orange (207,105,027); basal 0.15 of hind tibia, apical 0.75 of t1 and t2–5, whitish; median 0.8 of hind tibia light brown, turning to dark brown sub-basally and apically, until basal 0.25 of t1. Metasoma: brown; T1–3 and S1–3 with posterior whitish stripes; T4 and S4 sparsely marked with whitish and brown; T5–6 with lateral whitish marks; T7 entirely whitish.

Male. Fore wing 4.37–5.35 mm long. Similar to female, except for the following: scape ventrally with whitish spot; antenna with 25 flagellomeres; f11–16 entirely white, f10 almost entirely white; pronotum with weak longitudinal wrinkles at posterior margin; brown mark on pronotum much smaller; mesosternum whitish; ventral mark on mesopleuron covering 0.4–0.6 of its surface; hypoepimeron whitish; transverse sulcus mostly whitish; mid femur pale orange except small brown spot at base; apical 0.8 of hind tibia dark brown; median depression on T1 stronger.

Comments. Somewhat similar to *M. dissidens* sp. nov., from which it can be differentiated mainly by body generally more slender (see Figs 99–100); mesopleuron with a small subcircular yellowish mark (vs. with an elongate, medium sized central mark and a small mark at hypoepimeron; metapleuron entirely yellowish (vs. about 0.4 of its surface black); first tergite short, 0.29 as long as T2–8 (vs. moderately long, 0.40 × as long as T2–8); and ovipositor dorsal valve with four moderately strong ridges (vs. without ridges).

Males of *M. tenuissimus* are very similar to the males of *M. subalaris*, in that the mesosternum and considerable portion of mesopleuron are whitish, and legs color pattern are almost identical. Males of *M. tenuissimus* can be distinguished by having subalar ridge whitish (vs. black); T1 dorsally black at anterior 0.75 (vs. with dorsal whitish spot at anterior 0.3); and by the color pattern of metasoma, with T4 whitish with postero-dorsal and antero-lateral brownish marks, T5–6 almost entirely dark brown and T7 almost entirely whitish (vs. T2–7 blackish with posterior whitish stripe).

Biology. Unknown.

Etymology. From the Latin *tenuis*, meaning “thin”, and the magnifier suffix *-issimus*; in reference to its very slender body.

Material examined. 1 ♀, 4 ♂♂. Holotype ♀ from ECUADOR, Sucumbios, Sacha Lodge, 270 m, 27.VIII–10.IX.1994, Malaise trap, PHibbs (CNCI).

Paratypes: 1 ♂ from FRENCH GUYANA, Nouragues, Saut Parraré, VII.2009, Malaise trap, S.E.A.G. (UFES) 1 ♂, same data as holotype except 4–14.III.1994; 1 ♂, same data except 3–16.VIII.1994. 1 ♂ from ECUADOR, Napo, 12 km W Tena, 500 m, 8–11.VII.1976, SPeck & JPeck (CNCI).

Distribution. Recorded only from the type locality, in eastern Ecuador (Fig. 364).

***Messatoporus terebrator* Kasparyan & Ruíz 2005**

(Figs 63, 365)

**Messatoporus terebrator* Kasparyan & Ruíz 2005: 106, 119. Description, distribution, keyed. Holotype ♀ (UATM, not examined). Type data: México, Tamaulipas, Gómez Farías, Los Cedros, 300 m, Malaise trap, 16–23.I.1999, S. Hernández A. *Messatoporus terebrator*: Kasparyan & Ruíz 2008: 309–310, 312, 335–336. Description, distribution, figure, keyed.

Female. Fore wing 7.20 mm. HEAD: Mandible densely covered with long hairs; MLW 1.94; MWW 0.44; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.32. Clypeus basally convex, apically abruptly flattened, centrally straight; CHW 2.37; CWW 1.64; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 23 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, distinctly striate near antennal sockets, ventrally distinctly concave, without median line. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, impunctate, with moderately strong striation restricted to ventral corner; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, subcircular, $1.11 \times$ as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, anteriorly densely punctate, posteriorly almost impunctate; notaulus reaching about 0.71 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove shallow, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, distinctly sinuous; sternaulus moderately strong, wider on posterior apex, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially without transverse wrinkles or depressions; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, straight. Transverse sulcus at base of propodeum very wide, about $0.85 \times$ as long as anterior area of propodeum, impunctate; metapleuron sparsely and finely punctate, without transverse wrinkles, moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with weak punctures separated by more than their own diameter.

PROPODEUM: $1.16 \times$ as long as wide, shiny, sparsely pilose; anterior area moderately punctate; spiracle elliptic, SWL 2.89; anterior transverse carina medially straight. Propodeal wrinkles very weak and restricted to posterior half of posterior area, closely spaced, each wrinkle incomplete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.24 of its own length; vein 2Cua $0.36 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs of moderate size, APH 0.96, pentagonal, about as high as wide, AWH 1.07; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, 3r-m distinctly shorter; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.95; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.78 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.4 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 2.81; T1WW 1.63; spiracle on 0.52 of its length, slightly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 0.95; T2WW 2.51; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.33; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black and whitish. Head: black; clypeus, mouthparts, malar space, supra-clypeal area and complete orbital band, whitish (228,212,141); scape and pedicel ventrally brown; f8–14 entirely white, f7 and f15 partially white. Mesosoma: mostly whitish; posterior semi-circular mark on propodeum, mesoscutum except subcircular spot, scuto-scutellar groove, both axillary through, scutellum posteriorly, axillar carinae medially, postscutellum, epicnemium, area of mesopleuron just ventral to subalar ridge, scrobe, mesopleural suture, posterior apex of sternaulus, transverse sulcus, posterior spot on metapleuron, anterior border and lateral borders of propodeum and posterior ovoid, somewhat pointed, spot on propodeum, black; fore leg whitish, darker towards apex, dorsal face of femur and tibia pale orange with brownish stripe on basal 0.6, t5 brown; mid leg pale orange (228, 178, 083) except whitish spot at coxa and tarsus brownish, t5 blackish; hind tibia pale orange with posterior whitish spot and black lateral mark on basal 0.5; hind trochanters, femur and tibia pale orange, apical 0.05 of tibia dark brown; basal 0.2 of t1 and t5 dark brown, remainder of tarsus whitish. Metasoma: black, turning to dark brown towards apex; T1 whitish, median 0.3 dorsally black; T2–8 with posterior whitish stripes; S1–6 whitish, S2–6 with progressively smaller lateral brownish marks.

Male. Not examined. According to Kasparyan & Ruíz (2008), similar to female, except for the following: fore wing 6.8 mm long; antenna with 24 flagellomeres; scape ventrally, mandible, fore and mid coxae and trochanters, whitish; hind tarsus white except basal 0.2 of t1, black.

Comments. Similar to *M. opacus* **sp. nov.** and to some specimens of *M. discoidalis*. It can be differentiated from both species, among other characters, by having T7–8 much longer than T5–6 (vs. about same length); and ovipositor longer, OST 1.33 (vs. 0.61–0.90), moderately stout, dorsal valve with four moderately strong ridges (vs. slender, dorsal valve without ridges). It can be additionally isolated from *M. opacus* by the posterior blackish mark on propodeum somewhat lanceolate, strong (vs. ovoid, weak); hind tibia pale orange, blackish on apical 0.05–0.20 (vs. pale to bright yellow on basal 0.4, blackish on apical 0.6); and T1 mostly whitish, except dorsal blackish spot at median 0.3 (vs. laterally entirely blackish, dorsally blackish at median 0.4–0.6). It can also be further separated from *M. discoidalis* by the mandible entirely black (vs. usually basally yellow); spiracle of propodeum elliptic, SWL 2.89 (vs. elongate, SWL 6.75); and propodeal wrinkles very weak and restricted to posterior half of posterior area (vs. anteriorly moderately strong, posteriorly strong).

Biology. Unknown.

Material examined. 1 ♀ from MEXICO, Chiapas, San Cristóbal de las Casas, 2195 m, 21.VI.1969, Malaise trap (CNCI).

Distribution. Northeastern and southern Mexico (Fig. 365).

***Messatoporus teutonicus* Santos, sp. nov.**

(Figs 54, 151, 181, 243, 256, 283, 366)

Female. Fore wing 7.2 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.9; MWW 0.38; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.33. Clypeus almost entirely flattened, centrally concave; CHW 2.54; CWW 2.45; apical area medially concave, laterally slightly projected, its margin very sharp, raised. [Antenna with 21 flagellomeres; flagellum strongly flattened and compressed on apical 0.3; apex of apical flagellomere about as wide as base, not distinctly tapered]. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, shiny, mostly impunctate, scarcely punctate at dorsal corner and collar, with moderately strong wrinkles at ventral half of posterior margin; epomia weak, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, subcircular, 1.24 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, impunctate; notaulus reaching about 0.68 of mesoscutum length, moderately impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, distinctly sinuous; sternaulus moderately strong, wider on posterior apex, weakly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with strong longitudinal wrinkles, wrinkles dorsally weak. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about 0.52 × as long as anterior area of propodeum, very weakly rugulose; metapleuron densely punctate, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: 1.04 × as long as wide, shiny, sparsely pilose; anterior area scarcely punctate; spiracle elongate, SWL 4.00; anterior transverse carina medially straight. Propodeal wrinkles anteriorly faint, posteriorly moderately strong, closely spaced, anteriorly faint at median portion, posteriorly partly complete and partly incomplete, approximately straight; posterior transverse carina complete, uniformly arched forwards, not forming distinct sublateral crests.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.43 of its own length; vein 2Cua 0.38 × as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs of moderate size, APH 0.93,

pentagonal, about as high as wide, AWH 1; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, 3r-m distinctly shorter; vein 3-M about as long as 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, irregular. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.77; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.84 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.42 \times$ as long as T2–8, strongly depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 3.43; T1WW 2.36; spiracle on 0.5 of its length, distinctly prominent; median depression elongate, distinct; median posterior depression absent; lateral depressions elongate, very shallow; ventrolateral carina weak. T2LW 1.22; T2WW 2.02; thyridium about as long as wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 1.41; ovipositor moderately stout, straight, basally cylindrical, apically slightly depressed; dorsal valve with four weak ridges; ventral valve apex with 7 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head and mesosoma black with light yellow marks, metasoma bright orange. Head: black; clypeus except borders, mouthparts, supra-clypeal except somewhat H-shaped mark and orbital band shortly interrupted at dorsal margin of eye, light yellow (223,213,139); mandible centrally and flagellum, dark brown; f6–10 entirely white, f5 and f11–12 partially white. Mesosoma: black; collar connected with anterior 0.4 of dorsal margin of pronotum, lateral margin of propleuron, subcircular spot and lateral horizontal dash at mesoscutum, small spots over notaulus, scutellar carina, scutellum, tegula, central mark reaching ventral margin of mesopleuron, dorsal division of metapleuron, apical 0.25 of metapleuron and lateral marks covering 0.4 of propodeum, light yellow; anterior face of fore and mid coxa, coxa, light yellow; fore and mid femora, all tibiae and tarsi bright yellow lighter towards apex, except dorsal stripes on basal 0.7 of fore and mid femora and all t5, blackish; hind coxa bright orange (216,108,045), basally dark brown, with posterior yellow spot; hind trochanters and femur bright orange. Metasoma: bright orange, with sparse fuscous marks.

Male. Fore wing 4.95–6.02 mm long. Generally similar to female, except for the following: clypeus, mandible except apex and supra-antennal area, light yellow; scape ventrally with yellowish spot; orbital band wide at gena; antenna with 20–23 flagellomeres; pronotal wrinkles weak or almost indistinct; ventral 0.5 of mesopleuron light yellow, except small area over sternaulus at anterior 0.2–1.0; mesosternum light yellow except central posterior mark; fore and mid legs without dark marks except brownish dorsal stripes on femora; hind coxa basally dark brown, apically light yellow; basal 0.3 of hind tibia, apical 0.5 of t1 and t2–4, whitish; apical 0.7 of femur, basal 0.5 of t1 and t5, blackish; median depression on T1 weak; T1–2 almost always anteriorly marked with blackish.

Variation. Fore wing 8.03–9.64 mm long. Supra-clypeal area sometimes almost entirely black; antenna with 21–24 flagellomeres; lateral yellow marks on propodeum sometimes connected apically; median depression on T1 weak to strong. Several specimens with light yellow marks at mesosoma variously reduced; central mark on mesopleuron covering 0.05–0.4 of its surface, sometimes divided into two separate marks; specimens most extensively black have only the following yellow areas: collar, subcircular spot on mesoscutum, tegula, scutellum, small mark at ventral margin of mesopleuron, dorsal division of metapleuron and lateral marks covering 0.25 of propodeum. A few specimens with dorsal margin of pronotum completely yellow, metasoma almost entirely yellow and T1 with posterior yellow stripe. Dark area on legs also often more extensive, with all coxae, trochanters and femora sometimes variously marked with or entirely dark brown or blackish; apex of hind tibia sometimes blackish; T1 sometimes blackish at anterior 0.1–0.8. All black areas often turning to dark brown (087,060,048) or brown (117,074,054); orange areas at hind coxa sometimes brown or dark brown.

Comments. Structurally similar to *M. bicolor* sp. nov., which can be readily distinguished from *M. teutonicus* by the head and mesosoma entirely blackish (vs. with many yellow marks – see Fig. 59); hind tibia whitish on basal 0.2 (vs. deep yellow); areolet distinctly larger, APH 1.45 (vs. 0.93), distinctly higher than wide, AWH 0.79 (vs. 1.00); and ovipositor shorter, OST 1.07, dorsal valve with five moderately strong ridges (vs. OST 1.41, dorsal valve with four weak ridges). Similar in color pattern to *M. lordos* sp. nov., from which it can be differentiated by the hind coxa bright to dark orange (vs. yellow and blackish); orbital band shortly interrupted at dorsal margin of eye (vs. complete); T1 entirely bright to dark orange (vs. blackish, with anterior and posterior yellow marks); cell 1+2Rs distinctly larger, APH 0.93 (vs. 0.42), about as wide as high, AWH 1.00 (vs. distinctly wider than high, AWH 1.69); and posterior transverse carina of propodeum complete, though weak (vs. entirely absent). Also somewhat similar to *M. semiaurantigaster* sp. nov., from which it can be isolated by the hind coxa entirely orange

(vs. yellowish and black); supra-clypeal area mostly blackish (vs. entirely yellowish); T1–3 entirely orange (vs. anteriorly blackish, with posterior yellowish stripe); T1 distinctly more triangular, T1WW 2.36 (vs. 1.51); and posterior transverse carina complete (vs. entirely absent).

Biology. Unknown.

Etymology. Latinized form of *Teutônia*, from the type locality of Nova Teutônia, southern Brazil, where almost all of the specimens were collected.

Material examined. 123 ♀♀, 44 ♂♂. Holotype ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 31.XII.1959, FPlaumann (CNCI). Pinned. Both flaggeli almost entirely missing; otherwise in good shape.

Paratypes: 1 ♀ from BRAZIL, São Paulo, São José do Barreiro, Serra da Bocaina, 1600 m, 4–7.XI.1967, Alvarenga & Seabra. 1 ♂ from BRAZIL, Paraná, Campina Grande, nr. Curitiba, 15.II.1966, Townes & Townes; 1 ♂, same data except 21.II.1966; 1 ♂, same data except 15.I.1966; 1 ♂, same data except 14.II.1966. 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, XI.1970, FPlaumann; 1 ♀, same data except 26.I.1956; 1 ♀, same data except 3.I.1954; 1 ♀, same data except XII.1968; 1 ♀, same data except XI.1968; 1 ♀, same data except 3.II.1956; 1 ♀, same data except XII.1970; 1 ♂, same data except 17.XII.1953; 1 ♀, same data except 29.IV.1954; 1 ♀, same data except 26.I.1948; 1 ♀, same data except 1.II.1956; 1 ♂, same data except 2.XII.1953; 1 ♂, same data except 20.II.1954 (AEIC); 1 ♀, same data except III.1947; 1 ♀, same data except 5.III.1950; 1 ♂, same data except 1.II.1951; 1 ♂, same data except 8.I.1951; 1 ♂, same data except 15.XII.1957; 1 ♀, same data except 18.XII.1957; 1 ♀, same data except 5.XI.1957; 1 ♀, same data except 12.XI.1958; 1 ♀, same data except 18.XII.1958; 1 ♀, same data except 20.XII.1958; 1 ♂, same data except 21.XI.1958; 1 ♂, same data except 21.XII.1958; 1 ♀ 1 ♂, same data except 22.XII.1958; 1 ♀, same data except 6.IV.1958; 2 ♀, same data except 12.III.1952; 1 ♂, same data except 12.XII.1959; 1 ♀, same data except 15.XII; 1 ♀ 1 ♂, same data except 15.II.1959; 1 ♂, same data except 15.XII.1959; 1 ♀, same data except 17.XII.1959; 1 ♀, same data except 18.XII.1959; 1 ♀ 3 ♂♂#, same data except 19.I.1959; 1 ♀, same data except 20.II.1959; 1 ♀, same data except 21.II.1959; 1 ♀, same data except 21.XII.1959; 1 ♂, same data except 22.I.1959; 1 ♀, same data except 22.III.1959; 1 ♀, same data except 23.I.1959; 1 ♀, same data except 23.X.1959; 1 ♀ 1 ♂, same data except 24.XII.1959; 1 ♀, same data except 25.IX.1959; 1 ♀, same data except 25.XII.1959; 1 ♂, same data except 26.I.1959; 1 ♀, same data except 27.XI.1959; 1 ♂, same data except 28.XII.1959; 1 ♀, same data except 29.I.1959; 1 ♂, same data except 29.XII.1959; 2 ♀♀, same data except 30.XI.1959; 1 ♀, same data except 4.XI.1959; 1 ♀, same data except 6.II.1959; 1 mF, same data except 8.I.1959; 1 ♀, same data except 1.I.1960; 1 ♂, same data except 1.II.1960; 1 ♀, same data except 1.III.1960; 1 ♀, same data except 1.V.1960; 1 ♀, same data except 10.I.1960; 1 ♀, same data except 10.II.1960; 1 ♀, same data except 11.I.1960; 1 ♀ 1 2 ♂♂, same data except 11.II.1960; 1 ♀, same data except 11.XI.1960; 2 ♀♀, same data except 13.III.1960; 1 ♀, same data except 13.X.1960; 1 ♀, same data except 14.IV.1960; 1 ♀, same data except 18.II.1960; 1 ♂, same data except 18.XII; 1 ♂, same data except 19.I.1960; 1 ♀, same data except 20.II.1960; 1 ♂, same data except 20.IV.1960; 1 ♀, same data except 21.I.1960; 3 ♀♀, same data except 22.II.1960; 1 ♂, same data except 23.I; 1 ♀, same data except 25.III.1960; 1 ♂, same data except 25.X.1960; 1 ♂, same data except 3.I.1960; 1 ♂, same data except 30.I.1960; 1 ♀, same data except 30.III.1960; 2 ♀, same data except 30.XII.1960; 1 ♀, same data except 7.II.1960; 1 ♀, same data except 8.III.1960; 1 ♀, same data except 1.II.1961; 2 ♀♀, same data except 1.IV.1961; 1 ♀ 1 ♂, same data except 14.III.1961; 2 ♀♀, same data except 2.III,1961; 1 ♂, same data except 2.XII.1961; 1 ♀, same data except 22.I.1961; 1 ♀ 1 ♂, same data except 23.III.1961; 1 ♀, same data except 29.III.1961; 1 ♀, same data except 4.II.1961; 1 ♂, same data except 6.II.1961; 1 ♀, same data except 8.I.1961; 1 ♂, same data except 10.II.1961; 1 ♀, same data except 16.I.1961; 1 ♀, same data except 2.III.1962; 1 ♀, same data except 3.II.1962; 2 ♀♀, same data except 8.I.1962; 1 ♀, same data except 8.III.1961; 1 ♀, same data except 17.XI.1964; 1 ♀, same data except 27.XII.1964; 1 ♂, same data except 31.I.1964; 5 ♀♀, same data except II.1965; 2 ## 1 ♂, same data except III.1965; 1 ♀, same data except XI.1965; 1 ♀, same data except 12.VIII.1966; 2 ♀♀, same data except I.1966; 3 ♀♀, same data except II.1966; 3 ♀♀, same data except XI.1966; 2 ♀♀ 1 ♂, same data except XII.1966; 1 ♀, same data except 10.III.1967; 1 ♀, same data except 13.III.1967; 1 ♀, same data except 20.II.1967; 1 ♀, same data except I.1967; 3 ♀♀, same data except II.1967; 1 ♀, same data except I.1968; 1 ♀, same data except II.1968; 1 ♀, same data except XI.1968; 1 ♀, same data except 12.XI.1969; 1 ♀, same data except I.1969; 1 ♀, same data except III.1981; 1 ♀, same data except Caçapava do Sul, 18.I.1976, DLink (CNCI). 1 ♂ from URUGUAY, Tacuarembó, 40 km NW Tacuarembó, 2–9.II.1963, JK Bouseman (AMNH).

Distribution. Atlantic Forest in southern and southeastern Brazil and Uruguay (Fig. 366).

***Messatoporus tibiator* Kasparyan & Ruíz 2005**

(Figs 114, 193, 262, 367)

**Messatoporus tibiator* Kasparyan & Ruíz 2005: 106, 121. Description, distribution, keyed. Holotype ♂ (UATM, not examined). Type data: México, Tamaulipas, Gómez Farías, Alta Cima, 940 m, Malaise trap, 28.VI–3.VII.1999, S. Hernández A.

Messatoporus tibiator: Kasparyan & Ruíz 2008: 309–310, 337–338. Description, distribution, figure, keyed.

Female. Fore wing 8.57 mm. HEAD: Mandible densely covered with long hairs; MLW 2.34; MWW 0.37; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.47. Clypeus basally evenly convex, apically gradually flattened, centrally straight; CHW 2.38; CWW 1.55; apical area medially straight, laterally slightly projected, its margin regular, not raised. Antenna with 28 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, with moderately dense punctation, distinctly striate near antennal sockets, ventrally and around ocelli slightly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, fading out at distance shorter than basal width of mandible from the hypostomal carina, meeting hypostomal carina very far from mandible base. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum sparsely pilose, shiny, densely punctate, ventrally with strong wrinkles; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.25 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.78 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina complete, reaching subalar ridge, distinctly sinuous; sternaulus moderately strong, wider on posterior apex, weakly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, arched backwards. Transverse sulcus at base of propodeum very wide, about $0.74 \times$ as long as anterior area of propodeum, posteriorly with longitudinal wrinkles; metapleuron punctate-rugulose, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa laterally foveolate-areolate, dorsally rugulose.

PROPODEUM: $1.07 \times$ as long as wide, shiny, sparsely pilose; anterior area moderately punctate; spiracle elliptic, SWL 2.5; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, very closely spaced, anteriorly complete, posteriorly mostly incomplete and overlapped, anteriorly strongly curved, posteriorly somewhat irregular; posterior transverse carina distinct as very weak sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.28 of its own length; vein 2Cua $0.74 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.67, pentagonal, about as high as wide, AWH 1.09; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.39; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.9 of distance to posterior wing margin.

METASOMA: First tergite very long, about $0.53 \times$ as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 4.55; T1WW 1.56; spiracle on 0.52 of its length, slightly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.43; T2WW 2.23; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.71; ovipositor slender, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head, mesosoma and metasoma black with whitish marks. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape ventrally and complete orbital band, whitish (240,226,181); f9–14 entirely white. Mesosoma: black; collar and dorsal margin of pronotum connected, subcircular spot on mesoscutum, scutellar carina, scutellum, tegula, subalar ridge, central mark on mesopleuron, small spot at hypopimeron, mesosternum except median posterior mark, dorsal division of metapleuron, metapleuron except borders and arc-shaped mark on propodeum, whitish; fore and mid coxae whitish with apical dark brown spots; first trochanters whitish with dorsal dark brown stripe; femora ventrally whitish; fore and mid second trochanters and femur dorsally, pale orange, femora with dorsal brown stripe; fore and mid tibiae pale orange, fore one with dorsal brown mark on basal 0.8; fore and mid tarsi brownish, t5 blackish; hind tibia whitish with three longitudinal stripes, anterior, median and posterior ones reaching respectively 0.6, 1.0 and 0.8 of coxa length, anterior and median stripes basally connected; area between end of posterior stripe and apical margin bright orange; first hind trochanter basally blackish, apically pale orange; second trochanter and basal mark at hind femur, pale orange; hind femur bright orange, with apical blackish mark at dorsal face; hind tibia light yellow, gradually turning to orange, then blackish on apical 0.25; basal 0.3 of t1 and t5 blackish; apical 0.7 of t1 and t2–4, whitish. Metasoma: black; T1 with anterior 0.25 dorsally and posterior 0.2 whitish; T2–8 with posterior whitish stripes (very narrow at T8); S1–6 whitish, S2–6 with lateral brownish marks.

Male. Fore wing 4.2–7.00 mm long. Very similar to female, except for the following: antenna with 24–28 flagellomeres; supra-antennal area more distinctly concave around ocelli; whitish areas on pronotum more extensive, covering about 0.4 of its surface; blackish marks at anterior sternaulus weaker; propodeal crests and posterior transverse carina more distinct; fore coxa and first trochanter entirely whitish; brownish marks at mid leg less extensive in all articles.

Variation. Fore wing 5.00–8.57 mm long. Antenna with 25–28 flagellomeres; central mark on mesopleuron sometimes connected to small spot at hypopimeron; vertical wrinkles at sternaulus sometimes very weak; fore femur sometimes without brownish brown mark; hind femur sometimes dark orange, sometimes dorsally mostly blackish; males with epicnemium often whitish at ventral 0.7, except small black spot; whitish tones sometimes pale yellow (220,199,131).

Comments. Very similar to the only known female of *Messatoporus antennator*, which was not examined. According to Kasparyan and Ruíz (2008), *M. tibiator* can be differentiated from the former species by having hind second trochanter orange, sometimes with dorsoposterior blackish mark (vs. black), posterior margin of mesopleuron with distinct yellowish spot dorsally to hypopimeron (vs. black), and by having sublateral crests on propodeum absent or very weak (vs. distinct).

Biology. Unknown.

Material examined. 8 ♀♀, 2 ♂♂. 2 ♀♀ from MEXICO, Durango, 10 mi. W El Salto, 2745 m, 1.VII.1964, WRMMason; 1 ♀, same data except 14.VI.1964; 1 ♀, same data except 17.VI.1964; 2 ♀♀, same data except 25.VI.1964; 1 ♂, same data except 25.VI.1964; 1 ♂, same data except 6 mi. W La Ciudad, 11.VI.1964; 1 ♀, same data except 3 mi. El Salto, 2590 m, 10.VII.1964. 1 ♂ from MEXICO, Chiapas, San Cristobal de las Casas, 2195 m, 24.VI.1969, Malaise trap (CNCI). 1 ♀ from COSTA RICA, Alajuela, Pena Blanca, 700 m, VI.1987, ECruz (AEIC). **Distribution.** Recorded from several localities in northern Mexico and one in Costa Rica (Fig. 367).

Messatoporus titans Santos, sp. nov.

(Figs 66, 186, 288, 368)

Female. Fore wing 14.92 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.6; MWW 0.5; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.34. Clypeus basally evenly convex, apically gradually flattened, centrally concave; CHW 2.44; CWW 2.33; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, with moderately dense punctation, not striate near antennal sockets, ventrally and around ocelli distinctly concave, with slight median line. Occipital carina dorsally distinctly bell-shaped, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, shiny, densely punctate, with weak and short wrinkles at ventral half of posterior margin; epomia strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.31 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.73 of mesoscutum length, deeply impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.8 \times$ as long as anterior area of propodeum, with distinct transverse striation; metapleuron densely punctate, without transverse wrinkles, densely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter, dorsally foveolate.

PROPODEUM: $1.15 \times$ as long as wide, shiny, moderately pilose; anterior area sparsely punctate, with a median cluster of punctures; spiracle elongate, SWL 5.4; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, closely spaced, mostly complete, anteriorly almost straight, posteriorly slightly arched backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly irregular, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.53 of its own length; vein 2Cua $0.77 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.73, subquadratic, about as high as wide, AWH 1.12; crossvein 3r-m partially spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M almost indistinct; 4-Rs distinctly sinuous; 4-M tubular, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 0.67; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.93 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.43 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally sparsely pilose; T1LW 3.8; T1WW 1.74; spiracle on 0.51 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.44; T2WW 1.98; thyridium longer than wide, without small circular depression just behind it; T2–8 scarcely punctate and minutely and weakly coriaceous, dorsally sparsely pilose, laterally moderately pilose. OST 1.37; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with three moderately strong ridges; ventral valve apex with 4 teeth, 1st, 2nd and 3rd widely spaced; surface anterior to first tooth rugulose.

Color. Head, meso- and metasoma black and bright yellow. Head: black; clypeus, basal 0.5 of mandible, mouthparts, malar space, supra-clypeal area and complete orbital band, bright yellow (230,212,095); f7–11 entirely whitish, f6 and f12 partially whitish. Mesosoma: black; pronotal collar, dorsal margin of pronotum, most of propleuron, subcircular spot on mesoscutum, scutellar carina, scutellum except posterior 0.2, axillary carinae, tegula, subalar ridge, central mark on mesopleuron, mesoscutum except around sternaulus, dorsal division of metapleuron, metapleural triangle, dorsal 0.7 of metapleuron, subtriangular spots at anterior area of propodeum and sublateral marks at posterior area, bright yellow; fore and mid legs mostly bright yellow; mesal face of fore coxa, mesal and lateral longitudinal stripes at mid coxa, dorsal stripe at fore and mid first trochanters, lateral face of fore and mid femora and ventral longitudinal stripe at fore tibia, dark brown; apical 0.7 of fore and mid t5 blackish; hind coxa with lateral and mesal large dark brown marks; hind trochanters and femur dark brown; hind tibia and tarsus bright yellow. Metasoma: black; T1 dorsally bright yellow at anterior 0.5 and posterior 0.1; T2–7 with posterior and lateral bright yellow stripes; T8 with lateral bright yellow stripe; S2 with posterior bright yellow stripe; S3–6 entirely bright yellow.

Male. Unknown.

Comments. Very similar to *M. transversostriatus*, both in general morphology and color patterns, particularly on propodeum and mesopleuron. In fact, *M. titans* can be easily mistaken with of the most extensively black specimens of *M. transversostriatus*, except for the following characters: mid and hind coxae black and whitish,

hind trochanters and femur dark brown (vs. mid and hind coxae, hind trochanter and femur mostly bright to dark orange); S1 black (vs. whitish); ovipositor ventral valve with four teeth (vs. eight); dorsal valve with three moderately strong ridges (vs. five); and scuto-scutellar groove smooth (vs. with distinct longitudinal wrinkles). The same combination of characters can be used to distinguish *M. titans* from *M. amplithorax* **sp. nov.** and *M. interceptus* **sp. nov.**

Biology. Unknown.

Etymology. From the Greek *Titan*, mythological deities in Ancient Greek culture; in reference to its large size and also to the stout, rough tip of the ovipositor.

Material examined. Holotype ♀ from PERU, Cajamarca, Jaen, 850 m, 27.IV.1984, MCooper (BMNH). Pinned. Tip of left antenna, right mid leg apicad to coxa and left mid tarsus missing; left hind tibia and tarsus and left hind wing, detached and re-glued to the specimen.

Distribution. Recorded only from the type locality, in northwestern Peru (Fig. 368).

***Messatoporus townesi* Alayo & Tzankov 1974**

(Figs 115–116, 271, 369)

**Messatoporus townesi* Alayo & Tzankov 1974: 8, 15. Description, distribution, figure. Holotype ♀ (IESC, examined). Type data: CUBA, Santiago, 6.IV.1973, GTzankov.

Messatoporus townesi: Yu & Horstmann 1997:274. Listed.

Messatoporus townesi: Yu *et al.* 2005. Listed.

Female. Fore wing 7.68 mm. HEAD: Mandible with moderately sparse and long hairs; MLW 1.79; MWW 0.39; dorsal tooth in front view projected upwards, long, ventral tooth distinct only as a very short lobe. MSM 0.34. Clypeus basally evenly convex, apically gradually flattened, centrally concave; CHW 2.12; CWW 2.47; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Flagellum strongly flattened and compressed on apical 0.3. Supra-antennal area shiny, impunctate, distinctly striate near antennal sockets, ventrally and around ocelli slightly concave, medially with a distinct depression but without a distinct line. Occipital carina dorsally acuminate, fading out at distance shorter than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum centrally glabrate, sparsely pilose at dorsal margin, shiny, mostly impunctate, centrally very weakly coriarius, ventrally with strong wrinkles; epomia moderately strong, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, ovoid, $1.36 \times$ as long as wide, anteriorly sparsely pilose, posteriorly glabrate, shiny, anteriorly scarcely punctate, posteriorly almost impunctate, coriarius at center of each lobe; notaulus reaching about 0.74 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge weakly projected; epicnemial carina reaching about 0.6 of distance to subalar ridge, irregular; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with a longitudinal series of depressions; median portion of posterior transverse carina of the mesothoracic venter moderately long, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.62 \times$ as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron scarcely punctate, without transverse wrinkles, sparsely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.1 \times$ as long as wide, shiny, moderately pilose; anterior area scarcely punctate; spiracle elongate, SWL 3.75; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly faint, posteriorly strong, closely spaced, mostly complete, oblique and approximately straight; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs entirely irregular; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.47 of its own length; vein 2Cua $0.46 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.54, subquadratic, about as high as wide,

AWH 0.91; crossvein 3r-m fully spectral, 2r-m and 3r-m parallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M tubular, apically nebulous, slightly curved backwards. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.31; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.87 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.4 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally sparsely pilose, laterally moderately pilose; T1LW 2.66; T1WW 2.02; spiracle on 0.53 of its length, distinctly prominent; median depression elongate, distinct; median posterior depression elongate; lateral depressions elongate, distinct; ventrolateral carina weak, distinct only at posterior 0.4. T2LW 1.16; T2WW 1.8; thyridium longer than wide, without small circular depression just behind it; T2–8 smooth between punctures, moderately and uniformly pilose except glabrate postero-dorsal area in T2–3. OST 1.24; ovipositor moderately stout, slightly upcurved, basally cylindrical, apically distinctly depressed; dorsal valve with four weak ridges; ventral valve apex with 4 teeth, 1st and 2nd widely spaced; surface anterior to first tooth rugulose.

Color. Head, meso- and metasoma black and light yellow. Head: black; clypeus, basal 0.5 of mandible, mouthparts, malar space, supra-clypeal area and complete orbital band, light yellow (226,208,125); white band at flagellum starting at f5. Mesosoma: black; pronotum except small ventral mark, propleuron, U-shaped mark at mesoscutum, scutellar carina, scutellum, axillary carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron, mesosternum, dorsal division of metapleuron, metapleural triangle, transverse sulcus medially, metapleuron except small posterior spot and arc-shaped mark on propodeum, light yellow; fore coxa light yellow; mid and hind coxae, all trochanters and femora, bright orange (212,105,045); all tibiae, fore t1–4 and mid t1, deep yellow; fore t5, mid t2–5 and hind t1, blackish; hind t2–4 deep yellow. Metasoma: black; T1–7 with posterior light yellow stripes, at T2–7 also extending laterally; T1 dorsally light yellow at anterior 0.5, laterally at anterior 0.25; S1 whitish, S2–6 whitish, S2–4 with anterior dark brown marks; T8 laterally light yellow.

Male. Very similar to female, except for the following: pronotal wrinkles weak; pronotum almost entirely yellow; blackish areas at posterior area of propodeum smaller, about 0.9 of its surface yellow; apical 0.3 of hind tibia blackish.

Comments. Similar to *M. terebrator*, from which it can be differentiated by the mid and hind coxae entirely orange (vs. with large yellow spot, hind coxa also with narrow blackish line); mandible mostly yellow (vs. entirely blackish); yellow spot on mesoscutum U-shaped (vs. subcircular); propodeal wrinkles anteriorly faint, posteriorly strong, and complete (vs. very weak and restricted to posterior half of posterior area, each wrinkle incomplete); and cell 1+2Rs small, APH 0.54 (vs. of moderate size, APH 0.96). Also somewhat similar to the species of the *compressicornis* group, from which it can be isolated by the pronotum mostly yellow (vs. black, yellow only at collar and dorsal margin); mid and hind coxae orange (vs. yellow and black); yellow mark at mesoscutum distinctly U-shaped (vs. subcircular); supra-antennal area distinctly striate near antennal sockets (vs. not striate); and ovipositor usually longer, OST 1.24 (vs. 0.86–1.24), slightly upcurved, ventral valve with four teeth (vs. straight, ventral valve with 6–9 teeth).

Biology. Unknown.

Material examined. 2 ♀♀, 2 ♂♂. Lectotype ♀, from 1 ♀, from CUBA, Santiago, 6.IV.1973, GTzankov. Pinned. Left antenna, apical half of left antenna, right mid tarsus, right hind leg apicad to coxa and left hind tarsus missing; right fore wing broken and re-glued to the specimen; metasoma somewhat darkened, color pattern only weakly distinguishable (see Fig. 115).

In the original description of the species, Alayo and Tzankov (1974) did not explicitly assigned a holotype for *M. townesi*. They only stated “type in collections of the Instituto de Biología, Habana. Paratypes in the authors’ collections.” However, the number of specimens examined is unknown, as is the specimen designated as the holotype. Therefore we designate a lectotype.

Paralectotypes: ♂ from CUBA, Santiago, 22.III.1973, GTzankov;; 1 ♂ from CUBA, Oriente, cerca Santiago, 10.VII.1971, GTzankov (IESC). 1 ♀ from CUBA, Ote., Caney, Playa Juraguá, V.1955, PAlayo.

Distribution. Southeastern and southwestern Cuba (Fig. 369). *Messatoporus townesi* occurs in sympatry with the other Cuban species, *M. zonatus*, at least in one of its recorded localities (Santiago de Cuba).

***Messatoporus transversostriatus* (Spinola 1840)**

(Figs 67, 133–137, 140, 185, 253, 370)

**Mesostenus transversostriatus* Spinola: 39. Description. Holotype ♂ (MRSN, pictures examined). Type data: [Brazil] Pará.

Mesostenus transversostriatus: Dalla Torre 1902. Listed.

Mesostenus transversostriatus: Schmiedeknecht 1908:57. Listed.

**Messatoporus transversostriatus*: Townes & Townes 1966. Generic transfer.

Messatoporus transversostriatus: Yu & Horstmann 1997:274. Listed.

Messatoporus transversostriatus: Yu *et al.* 2005. Listed.

Female. Fore wing 14.69 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.63; MWW 0.32; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth somewhat rhomboid. MSM 0.37. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.62; CWW 3.11; apical area medially concave, laterally slightly projected, its margin very sharp, raised. Antenna with 24 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli distinctly concave, dorsally with very weak median line, ventrally fading. Fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum sparsely pilose, shiny, densely punctate, ventrally weakly rugulose, with moderately strong striation restricted to ventral corner; epomia moderately strong, complete, moderately long, ending near dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately convex, flattened posteriorly, ovoid, $1.24 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.76 of mesoscutum length, deeply impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina apically very weak, reaching about 0.7 of distance to subalar ridge, distinctly sinuous; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe very shallow; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum moderately wide, about $0.49 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, posteriorly also weakly rugulose, without transverse wrinkles, dorsally moderately pilose, ventrally densely pilose; juxtacoxal carina absent. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by about their own diameter, dorsally foveolate.

PROPODEUM: $1.17 \times$ as long as wide, shiny, moderately pilose; anterior area sparsely punctate, with a median cluster of punctures, or moderately punctate; spiracle elongate, SWL 5.87; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly very close and moderately strong, posteriorly stronger and more widely spaced, mostly complete, often ramificated, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed around its midlength; crossvein 1m-cu irregular, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly irregular, posteriorly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.36 of its own length; vein 2Cua $0.72 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.57, pentagonal, distinctly wider than high, AWH 1.39; crossvein 3r-m partially spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 0.72; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.93 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.42 \times$ as long as T2–8, somewhat depressed, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 4.12; T1WW 1.64; spiracle on 0.5 of its length, distinctly prominent; median depression elongate, distinct; lateral and median posterior depressions absent; ventrolateral carina absent. T2LW 1.32; T2WW 1.69; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, moderately and uniformly pilose except glabrate postero-

dorsal area in T2–3. OST 1.31; ovipositor moderately stout, straight, basally cylindrical, apically distinctly depressed; dorsal valve with five moderately strong ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head, mesosoma and metasoma black and pale or light yellow, with orange marks. Head: black; clypeus, mandible except apex, mouthparts, supra-clypeal area and complete orbital band, pale yellow (241,223,163); f6–10 entirely white, f5 and f11 partially white. Mesosoma: black; collar, dorsal margin of pronotum, subcircular spot on mesoscutum, scutellar carina, scutellum except posterior margin, axillar carinae, tegula, subalar ridge, central mark on mesopleuron reaching ventral margin, most of mesosternum, dorsal 0.2 of mesepimeron, dorsal division of metapleuron, posterior 0.3 of metapleuron, lateral triangular mark at anterior area of propodeum and lateral posterior mark on propodeum (somewhat with shape of an inverted “J”), pale yellow; ventral 0.3 of metapleuron dark orange; fore coxa pale yellow, with apical dark brown mark; remainder of fore leg bright yellow (234,208,045), fore trochanter with dorsal blackish stripe, femur with dorsal and ventral blackish stripes, dorsal one apically fading; fore t5 dorsally blackish; mid and hind coxae and first trochanters brownish orange (163,072,038), with weak basal blackish marks; mid second trochanter deep yellow, apically orangish; hind second trochanter and femur deep orange with small apical blackish marks; mid femur, mid and hind tibiae and tarsi, bright yellow; mid femur with dorsal and ventral blackish stripes, dorsal one apically fading; mid t5 dorsally fuscous; hind tibia apically brownish, hind tarsus apically whitish. Metasoma: black; T1 orange on basal 0.25, light yellow on apical 0.15, ventrolaterally orange on basal 0.8; S1 orange; T2–7 with apical light yellow stripes, stripes progressively extending laterally; T2–5 with sparse basal brownish marks; T8 laterally light yellow; S2–6 pale yellow with progressively smaller lateral brownish marks.

Male. Fore wing 7.97–12.18 mm long. Very similar to female, except that slightly more pilose; antenna with 27–31 flagellomeres; all of the other observed variations between males and females are also found, usually in higher degree, between females of different localities (see below).

Variation. Fore wing 14.69–16.66 mm long. Malar space completely black to completely white, most specimens intermediary between the two states; wrinkles on pronotum and mesopleuron sometimes very weak; orange area on T1 dorsally sometimes reaching basal 0.7; ovipositor sometimes very slightly upcurved. Black and pale yellow areas at meso and metasoma variously turning to bright orange (210,093,037) or brownish orange (161,061,022). Specimen from Chapada dos Veadeiros with almost indistinct wrinkles on pronotum and mesopleuron. Specimens from Uruguay with anterior transverse carina medially distinctly arched forwards.

Messatoporus transversostriatus shows a very wide array of variation in its color patterns, varying mostly in the extension of orange areas at the meso and metasoma. Some specimens have an almost entirely black and yellow pattern, with other specimens showing various orange marking. Specimen with most extensively orange mesosoma (from Cochabamba) with the following orange areas: ventral 0.6 of epicnemium and mesopleuron, mesosternum, metapleural triangle, metapleuron, lateral and central portions of anterior area of propodeum, most of posterior area (except yellow marks and anterior black portion), most of fore coxa, trochanters and femur, mid femur, mid and hind coxae and trochanters without blackish marks. Specimens with most extensively orange metasoma (from Nova Teutônia and Belo Horizonte) with all black areas turning to orange. Most specimens present an intermediary pattern between the one in the Description (less extensively orange) and the most extensively orange specimens. The holotype at MRSN has the following orange areas: ventral 0.5 of mesopleuron posteriorly, mesosternum, metapleural triangle, metapleuron, fore trochanters and femur and mid femur. Some males with apical blackish marks at hind femur; one male with central mark on mesopleuron medially divided in two separate marks; one male with posterior marks on propodeum medially connected, forming a single somewhat M-shaped mark. *Messatoporus transversostratus* might be a complex of several very close species, but this investigation demands a detailed study, which is beyond the scope of the present work. There are no distinctive boundaries to divide the apparently continuous variation observed into different species.

Comments. Very similar to *M. titans* sp. nov., both in general morphology and color patterns, particularly on propodeum and mesopleuron. In fact, *M. titans* can be easily mistaken with of the most extensively black specimens of *M. transversostriatus*, except for the following characters: mid and hind coxae, hind trochanters and femur mostly bright to dark orange (vs. coxae black and whitish, hind trochanters and femur dark brown); S1 whitish (vs. black); ovipositor ventral valve with eight teeth (vs. four); dorsal valve with five moderately strong ridges (vs. three); and scuto-scutellar groove with distinct longitudinal wrinkles (vs. smooth).

M. transversostriatus is also similar to *M. amplithorax* **sp. nov.**, from which it can be isolated by having two sublateral yellowish spots at anterior area of propodeum; yellow marks at posterior area wider anteriorly (vs. wider posteriorly; Figs 181, 183); T2 anteriorly without sublateral yellowish marks (vs. with ovoid sublateral marks); mandible except apex pale yellow (vs. entirely black); central mark on mesopleuron connected to yellow spot at subalar ridge or almost so (vs. distinctly separated); anterior transverse carina medially slightly arched forwards (vs. straight); and ovipositor ventral valve with eight teeth (vs. five). It can be differentiated from *M. interceptus* **sp. nov.** by the yellowish marks at anterior area of propodeum, mandible except apex yellow, central mark on mesopleuron connected to subalar ridge, and also by the complete orbital band (vs. interrupted at dorsal margin of eye); propodeum large, in lateral view almost as high as thorax (vs. small and somewhat rounded, distinctly shorter than thorax in lateral view – Fig. 69); T1 laterally at least partially blackish (vs. laterally yellow); and ovipositor dorsal valve with five moderately strong ridges (vs. three).

The most extensively orange specimens of *M. transversostriatus* can also be mistaken with specimens of *M. nigriscutus* **sp. nov.**, particularly because both species have generally large size and occur in sympatry along southern and southeastern Brazil. However, *M. transversostriatus* can be isolated from *M. nigriscutus* by having pronotum, mesoscutum and anterior area of propodeum with whitish or pale yellow marks (vs. entirely black); orbital band complete (vs. widely interrupted); epomia complete (vs. distinct only after diverging from collar); notaulus with distinct transverse wrinkles (vs. smooth); and anterior transverse carina of propodeum medially slightly arched forwards (vs. straight).

Biology. Specimens from Minas Gerais were reared from nests of unidentified Pompilidae (labeled as “Psammocharidae”). One specimen, from Santa Teresa, Espírito Santo, was collected in a suspended Malaise trap installed about 6 meters high, near the top of a tree.

Material examined. 39 ♀♀, 12 ♂♂. Pictures of the holotype. Pinned. Very dirty and badly broken; apical third of right antenna, right fore t2–5, both mid t2–5, both hind tarsi and anterior and apical portions of right fore wing missing; right hind wing with a cleft around its midlength; left antenna and metasoma broken and re-glued to paper card. **Other specimens:** 1 ♀ from PANAMA, Canal Zone, Corozal, 30.V.1937, RBliss, “in jungle.” 2 ♀♀ from PANAMA, Darien, Parque Nacional Darien, Pire, Estación Rancho Frio, 80 m, 21.III–4.IV.2000, Cambra, Santos & Bermudez; 1 ♀, same data except 16.XI.2000–17.I.2001. 1 ♀ from FRENCH GUYANA, Nouragues, Saut Parraré, 10.XI.2009, S.E.A.G. (UFES) 1 ♀ from SURINAME, Paramaribo, Ma Retraite, 18–23.II.1964, DCGeijskes. 1 ♀ from COLOMBIA, Chocó, PNN Utrio, ocalito Dosel, 20 m, 16.VIII–7.IX.2000, JPérez. 1 ♂ from COLOMBIA, Vichada, PN Tuparo, Bosque da Sabana, 140 m, 8–28.VIII.2000, Wvillalba (AEIC). 1 ♂ from GUYANA, Bartica, 6.VI.1901 (ZMHB). 1 ♀ from PERU, Quincemil, nr. Marcapata, 750 m, IX.1962, Lpeña (AEIC). 1 ♀ from BRAZIL, Pará, Óbidos, Colônia Rio Branco, X.1953, FMoliveira, Coleção Campos Seabra (MNRJ). 1 ♀ from BRAZIL (ZMUC). 1 ♀ from BRAZIL, Bahia, Ipiaú, Fazenda Afegan, Pt. 2, 21.XII.2002, Malaise trap, JCardoso & JMaia. 1 ♀ from BRAZIL, Goiás, Parque Nacional da Chapada dos Veadeiros, Pt. 12, 23–25.IX.2005, Malaise trap, APAguiar *et al.* 1 ♀ from BRAZIL, Espírito Santo, Santa Teresa, Estação Biológica Santa Lúcia, Trilha principal, dossel 6 m, 6.XI–12.XI.2005, Malaise trap, MTTavares *et al.*; 1 ♀, same data except Guarapari, Parque Estadual Paulo César Vinha, Restinga, 15–23.V.2006, Malaise trap, RKawada *et al.*; 1 ♀, same data except Pt. M4, 8–15.V.2006; 1 ♂, same data except Pt. M8, 2–9.XI.2006, BC Araújo & MSantos; 1 ♂, same data except Pt. M1, 2–10.XII.2006. 1 ♂ from BRAZIL, Minas Gerais, Belo Horizonte, Estação Ecológica UFMG, 10.IV.1992, HRPimenta, “12B(20-05-93) ex. Psammocharidae”; 2 ♀♀, same data except 26.IV.1994, HRPimenta, “4A.EE 26.04.94 *20.5.94 // ref. 3&4”; 1 ♂, same data except 17.VIII; 1 ♀, same data except 25.V., “A1 de 25/5 último a *5/10 // ref. 10”; 1 ♀, same data but without collecting dates; 1 ♀, same data except “C. Pref –UFMG// 21.A.7 // ex Psammocharidae”, 5.IV.1995; 1 ♀, same data except 1.VIII.1996, “21.A.4 // ex. Psammocharidae”; 1 ♀, same data but without collecting dates, “21.A.3 // ex. Psammocharidae.” 1 ♀ from BRAZIL, Minas Gerais, Parque Estadual do Rio Doce, Trilha do Vinhático, 26.VII–1.VIII.2006, Malaise trap, JCRFontenelle (UFES). 1 ♀ from BRAZIL, Rio de Janeiro, Rio de Janeiro (NRMS). 1 ♀, same data except Parque Nacional da Floresta da Tijuca [“Distrito Federal” on label], Represa do Cigano, 30.X.1943, NSantos, cc. 336 (MNRJ). 1 ♀ from BRAZIL, São Paulo, Descalvado, Fazenda Itaúna, Pt. A1, 20.X.2005, Malaise trap, NWPerioto *et al.* (IBRP). 1 ♀ from BRAZIL, Paraná, Campina Grande, nr. Curitiba, 20.II.1966, Townes & Townes. 1 ♀ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 16.III.1948, FPlaubmann; 1 ♀, same data except 1.IV.1948; 1 ♀, same data except 31.X.1952; 1 ♂, same data except 2.I.1953; 1 ♀, same data except 27.I.1953 (AEIC); 1 ♀, same data except 11.II.1962, FPlaubmann; 2 ♂♂, same data except II.1966; 1 ♂, same data except 2.III.1967; 1 ♂, same data except

3.III.1967 (CNCI); 1 ♀, same data except I.1968; 1 ♂, same data except II.1968 (AEIC); 1 ♀, same data except 20.II.1968; 1 ♀, same data except XII.1968 (CNCI). 1 ♀ from BOLIVIA, Cochabamba, Vila Tunari, 11.IX.2001, Malaise, HHeider, "tropical forest" (CNCI). 1 ♀ from BOLIVIA, Beni, Rio Itenez opposite Costa Marques (Brazil), 1–3.IX.1964, Bouseman & Lussenhop. 1 ♂ from URUGUAY, Tacuarembó, 40 km NW Tacuarembó, 2–9.II.1963, JKBouseman. 1 ♀ from URUGUAY, Cerro Largo, Sierra de Vaz, Rio Tacuari, 20 km SE Melo, 23–26.III.1963, JKBouseman. 1 ♀ from URUGUAY, Rio Negro, 15 km S Paysandu, 27.XII.1962–6.I.1963, RGVanGelder (AMNH).

Distribution. Widely distributed at South America, from northern Panama to Uruguay, including also Colombia, Guyana, Suriname, Peru, Bolivia and several records throughout Brazil (Fig. 370). The records correspond to various environments, climates and vegetation types, but most specimens were collected in sites from 80–500 m. That may indicate that *Messatoporus transversostriatus* is typical of lowlands and midlands.

***Messatoporus unidentatus* Santos, sp. nov.**

(Figs 55, 190, 252, 371)

Female. Fore wing 9.88 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.39; MWW 0.35; dorsal tooth in front view projected upwards, enlarged and wide, ventral tooth indistinct. MSM 0.27. Clypeus almost entirely flattened, centrally concave; CHW 2.85; CWW 1.64; apical area medially straight, laterally slightly projected, its margin regular, not raised. Antenna with 21 flagellomeres; flagellum uniform; apex of apical flagellomere about as wide as base, not distinctly tapered. Supra-antennal area mat, scarcely punctate, distinctly striate near antennal sockets, ventrally and around ocelli slightly concave, dorsally with very weak median line, ventrally fading. Occipital carina dorsally acuminate, fading out at distance distinctly longer than basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena somewhat swollen and projected (as in Fig. 261).

THORAX: Pronotum glabrate, shiny, impunctate, ventrally with strong wrinkles; epomia moderately strong (, apically weak), distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum strongly and uniformly convex, ovoid, $1.2 \times$ as long as wide, sparsely pilose, shiny, impunctate; notaulus reaching about 0.77 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, without wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, distinctly arched forwards. Transverse sulcus at base of propodeum moderately wide, about $0.66 \times$ as long as anterior area of propodeum, medially with very weak transverse striation; metapleuron moderately punctate, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with a distinct cluster of stout bristles. Hind coxa with moderately strong punctures separated by more than their own diameter.

PROPODEUM: $1.04 \times$ as long as wide, mat, moderately pilose; anterior area scarcely punctate; spiracle elongate, SWL 3.53; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles strong, closely spaced, mostly complete, distinctly curved backwards; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M very weakly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; ramellus only slightly suggested; vein 1M+Rs anteriorly straight, posteriorly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.56 of its own length; vein 2Cua $0.69 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.61, pentagonal, distinctly higher than wide, AWH 0.82; crossvein 3r-m fully spectral, 2r-m and 3r-m subparallel, about same length; vein 3-M about as long as 2-M; 4-Rs distinctly sinuous; 4-M tubular, straight. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs entirely tubular, apically weaker, reaching wing margin; HW1C 2.25; vein Cub distinctly convex on posterior half, forming straight angle with Cua; vein 2-1A reaching 0.81 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, dorsally glabrate, laterally moderately pilose; T1LW 2.66; T1WW 1.96; spiracle on 0.54 of its length, distinctly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.1; T2WW 1.63; thyridium longer than wide, without small circular depression just behind it; T2–8 minutely coriarius, moderately and uniformly pilose. OST 1.2; ovipositor moderately stout, straight, basally cylindric, apically distinctly depressed; dorsal valve with four moderately strong ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head, mesosoma and metasoma black with bright yellow marks. Head: black; clypeus, mandible except apex, mouthparts, supra-clypeal area and orbital band shortly interrupted at dorsal temple, light yellow (229,219,125); malar space brownish; pedicel dorsally with yellowish mark; f6–9 entirely white, f5 apically white, f10–11 dorsally white, f12 dorsally white on basal 0.3. Mesosoma: black: collar and propleuron light yellow; dorsal corner of pronotum, subcircular spot on mesoscutum, scutellum, axillar carina, postscutellum, tegula, subalar ridge, central mark on mesopleuron reaching ventral corner, dorsal division of metapleuron, metapleuron except anterior border and arc-shaped, somewhat pointed mark on propodeum, bright yellow; fore and mid legs light yellow at coxa, bright yellow towards apex, except for posterior brown stripes at mid first trochanter, fore and mid second trochanters and basal 0.8 of femora; fore tibial spurs, basal 0.2 of t1 and t5, brown; hind tibia anteriorly brownish (lighter towards median portion), posteriorly bright yellow; hind trochanters and femur bright orange (193,094,043), tibia and tarsus light yellow. Metasoma: black; T1 mostly bright orange, dark brown laterally at anterior 0.8 and posteriorly at median 0.4; T2 anteriorly with small brownish mark; T2–7 with posterior and lateral bright yellow stripes; T8 only with lateral yellow stripe.

Male. Unknown.

Variation. Fore wing 8.30–11.38 mm long. Antenna with 21–23 flagellomeres. One specimen with brown stripes at fore and mid femora expanded and covering most of its surface; hind coxa mostly yellowish, anteriorly blackish; black areas at T2–3 partially turning to brownish orange; one specimen with f7–9 entirely white, f10 mostly white and f6 and f11 partially white; dorsal corner of pronotum not yellow; hind coxa anteriorly blackish, medially brownish orange and posteriorly yellow.

Comments. More similar to *M. atlanticus* **sp. nov.**, from which it can be differentiated by having mesosternum black (vs. yellow); scape ventrally black (vs. with yellow spot); hind coxa with one anterior blackish mark (vs. with three distinct black marks, median and posterior ones apically connected); hind femur orange (vs. dark brown); ventral tooth of mandible indistinct (vs. distinct and triangular); transverse sulcus moderately long, $0.66 \times$ as long as anterior area of propodeum (vs. very long, $1.05 \times$ as long as anterior area); and ovipositor dorsal valve with four ridges (vs. four). Also somewhat similar to *M. teutonicus*, from which it can be promptly isolated by hind coxa and T2–8 marked with yellow and black (vs. orange); supra-clypeal area entirely yellow (vs. mostly blackish); metapleuron mostly yellow (vs. mostly black, only posterior 0.3 yellow); thyridium longer than wide (vs. about as wide as long); and cell 1+2Rs small, APH 0.61, distinctly higher than wide, AWH 0.82 (vs. of moderate size, APH 0.93, and as wide as high, AWH 1.00).

Biology. One specimen from Minas Gerais reared from a nest of unidentified Pompilidae (labeled as “Psammocharidae”).

Etymology. From the latin word *dentis*, meaning “tooth”, added to the prefix *uni-*, indicating one, and the possessive suffix *-atus*; in reference to the indistinct ventral tooth at mandible, leaving just one visible tooth.

Material examined. 7 ♀♀. Holotype ♀ Belo Horizonte, Estação Ecológica UFMG, 4.I.1993, trap nests, reared from pompilid nest, HRPimenta (UFES). Pinned. Right mid t3–5, left mid t5 and right hind t2–5 missing; otherwise in good shape.

Paratypes: 1 ♀ from PANAMA, Canal Zone, Margarita, III.1960, SBreeland. 1 ♀ from PANAMA, Veraguas, PN Coiba, Isla Coiba, Cerro la Torre, 7–13.III.1998, Malaise trap, RCambra. 1 ♀ from BRAZIL, Mato Grosso, Chapada dos Guimarães, 800 m, VII.1983, MAlvarenga. 1 ♀ from BRAZIL, Minas Gerais, Cáceres, XI.1984, Malvarenga (AEIC); 1 ♀, same data except Belo Horizonte, Estação Ecológica UFMG, trap nests, reared from pompilid nest, HRPimenta; 1 ♀, same data except 1.III.1993 (UFES).

Distribution. Recorded from widely spaced and ecologically distinct sites in southeastern Brazil, Brazilian Cerrado and Panama (Fig. 371).

***Messatoporus unimaculatus* Santos, sp. nov.**

(Figs 98, 189, 372)

Female. Fore wing 10.2 mm. HEAD: Mandible densely covered with long hairs; MLW 2.19; MWW 0.35; dorsal tooth in front view projected upwards, long, ventral tooth distinct only as a very short lobe. MSM 0.48. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.36; CWW 2.20; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 27 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, coriarius-punctate, distinctly striate near antennal sockets, ventrally and around ocelli distinctly concave, median line distinguishable only as a weakly smoother area. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena moderately wide, gena regular (as in Fig. 260).

THORAX: Pronotum sparsely pilose, shiny, densely punctate, ventrally with strong wrinkles; epomia moderately strong, complete, moderately long, ending close to dorsal margin of pronotum, after diverging from pronotal collar distinctly curved. Mesoscutum moderately and uniformly convex, ovoid, $1.27 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.79 of mesoscutum length, moderately impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove moderately deep, with distinct longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.85 of distance to subalar ridge, almost straight; sternaulus moderately strong, wider on posterior apex, strongly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture with strong longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.78 \times$ as long as anterior area of propodeum, with strong longitudinal wrinkles; metapleuron punctate-rugulose, covered with the same wrinkling of propodeum, however less regular, sparsely pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa entirely coriarius.

PROPODEUM: $1.07 \times$ as long as wide, shiny, moderately pilose; anterior area scarcely punctate, medially coriarius; spiracle elongate, SWL 3.80; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles anteriorly weak, posteriorly strong, closely spaced, mostly complete, anteriorly curved, posteriorly somewhat irregular; posterior transverse carina distinct as moderately strong crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M clearly traceable; vein 1M+Rs anteriorly straight, posteriorly slightly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.29 of its own length; vein 2Cua $0.54 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.71, pentagonal, about as high as wide, AWH 1.13; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M semi-spectral, weakly sinuous. Hind wing vein 1-M forming distinctly obtuse angle with vein Cua; vein 2-Rs tubular, apically nebulous, reaching wing margin; HW1C 1.91; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.94 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.41 \times$ as long as T2–8, approximately cylindrical, ventrolaterally rounded, dorsally glabrate, laterally moderately pilose; T1LW 4.20; T1WW 1.51; spiracle on 0.49 of its length, slightly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.32; T2WW 2.32; thyridium longer than wide, without small circular depression just behind it; T2–8 coriarius, densely and uniformly pilose. OST 0.60; ovipositor slender, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 11 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth very weakly rugulose.

Color. Head, mesosoma and metasoma black and pale to bright yellow. Head: black; clypeus, basal half of mandible, mouthparts, supra-clypeal area and complete orbital band, light yellow (222,194,116); f8–12 entirely whitish, f7 and f13 partially whitish. Mesosoma: black; collar, posterior 0.8 of dorsal margin of propodeum, U-shaped mark at mesoscutum, scutellar carina, scutellum, subalar ridge, medially narrow central mark on mesopleuron, dorsal division of metapleuron, posterior 0.6 of metapleuron and almost connected ovoid lateral

marks on propodeum, light yellow; fore and mid coxae and trochanters pale yellow, trochanters with basal brown marks; fore and mid femora and tibiae deep yellow, femora with dorsal brown stripe, tibiae with ventral brown stripe on basal 0.4; fore and mid tarsi changing from dark yellow basally to fuscous apically; hind coxa anteriorly black, posteriorly pale yellow; first hind trochanter basally black, apically pale yellow, second one almost entirely blackish; hind femur light orange (215,116,052), basal and apical 0.25 (dorsally basal mark reaching 0.3) blackish; extreme base and apex of hind tibia blackish; remainder of hind tibia deep yellow, hind tarsus changing from deep yellow basally to whitish apically. Metasoma: black; anterior 0.25 of T1 dorsally pale yellow; T1–8 and S1–7 with posterior pale to bright yellow stripes.

Male. Unknown.

Comments. Very similar to *M. bimaculatus* sp. nov., from which it can be differentiated by having supraclypeal area entirely yellow (vs. female with blackish marks); mesopleuron with a single central yellow mark, though medially narrower (vs. with two separate marks); transverse sulcus of propodeum medially with distinct longitudinal wrinkles (vs. medially asperous, without wrinkles); posterior transverse carina of propodeum distinct as moderately strong sublateral crests (vs. entirely absent); black marks at hind femur extending on basal 0.3 and apical 0.2 (vs. restricted to extreme base and apex) hind tibia except extreme base and apex bright yellow; (vs. mostly blackish, whitish at subapical 0.25).

Biology. Unknown.

Etymology. From the Latin *macula*, meaning “spot”, added to the prefix *uni-*, meaning “one”; in reference to the single central mark on mesopleuron, as opposed to the very close species *M. bimaculatus*.

Material examined. Holotype ♀ from COSTA RICA, San Vito de C.B., Las Cruces, 17.VIII–12.IX.1982, 1200 m, BGill (AEIC). Pinned. In good shape.

Distribution. Recorded only from the type locality in Costa Rica (Fig. 372).

***Messatoporus variegatus* (Szépligeti 1916)**

(Figs 108, 202, 231, 373)

**Neomesostenus variegatus* Szépligeti 1916: 301. Description. Holotype ♀ (HMNH, not examined). Type data: [Brazil, Santa Catarina] Blumenau.

Neomesostenus tricolor* Szépligeti 1916:301, **new synonym. Holotype ♂ (HMNH, not examined). Type data: [Brazil, Santa Catarina] Blumenau.

**Messatoporus variegatus*: Townes & Townes 1966: 123. Generic transfer.

Messatoporus tricolor: Townes & Townes 1966: 123. Generic transfer.

Messatoporus variegatus: Yu & Horstmann 1997:274. Listed.

Messatoporus tricolor: Yu & Horstmann 1997:274. Listed.

Messatoporus variegatus: Yu *et al.* 2005. Listed.

**Messatoporus tricolor*: Yu *et al.* 2005. Listed.

Female. Fore wing 7.20 mm. HEAD: Mandible densely covered with long hairs; MLW 2.06; MWW 0.32; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.41. Clypeus slightly and more or less uniformly convex, centrally straight; CHW 2.24; CWW 3.25; apical area medially straight, laterally with distinct triangular lobes, its margin regular, not raised. Antenna with 25 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, scarcely punctate, not striate near antennal sockets, ventrally and around ocelli slightly concave, without median line. Occipital carina uniformly curved, fading out at distance about as long as basal width of mandible from the hypostomal carina. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum glabrous, shiny, minutely punctulate, ventrally moderately striate; epomia weak, complete, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, ovoid, 1.25 × as long as wide, anteriorly densely pilose, posteriorly sparsely pilose, shiny, densely punctulate; notaulus reaching about 0.77 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, irregular; sternaulus moderately strong, wider on posterior apex, weakly sinuous, with weak vertical wrinkles; scrobe moderately deep; mesopleural suture ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial.

Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short, straight. Transverse sulcus at base of propodeum very wide, about $0.83 \times$ as long as anterior area of propodeum, impunctate; metapleuron moderately punctate, posteriorly also weakly rugulose, without transverse wrinkles, densely pilose; juxtacoxal carina represented by very short ridges. Fore tibia weakly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa with moderately strong punctures separated by about their own diameter.

PROPODEUM: $1.15 \times$ as long as wide, shiny, moderately pilose; anterior area scarcely punctate; spiracle elongate, SWL 4.57; anterior transverse carina medially straight. Propodeal wrinkles strong, closely spaced, mostly complete, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.45 of its own length; vein 2Cua $0.32 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs small, APH 0.56, pentagonal, about as high as wide, AWH 1.02; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly longer than 2-M; 4-Rs distinctly sinuous; 4-M semi-spectral, slightly curved backwards. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 0.68; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.95 of distance to posterior wing margin, though tubular, apically spectral, reaching wing margin.

METASOMA: First tergite very long, about $0.51 \times$ as long as T2–8, somewhat depressed, ventrolaterally angled, dorsally glabrate, laterally sparsely pilose; T1LW 4.67; T1WW 1.39; spiracle on 0.5 of its length, distinctly prominent; median depression elongate, very shallow; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.45; T2WW 2.06; thyridium longer than wide, without small circular depression just behind it; T2–8 covered with small, shallow foveae, densely and uniformly pilose. OST 0.98; ovipositor slender, straight, basally cylindrical, apically slightly depressed; dorsal valve without ridges; ventral valve apex with 10 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth not rugulose.

Color. Head and mesosoma black and pale yellow, mesosoma dark brown and pale yellow. Head: black; clypeus, mandible except apex, mouthparts, malar space, supra-clypeal area, scape and pedicel ventrally and complete orbital band, pale yellow (228,215,116); f9–15 entirely white, f8 partially white. Mesosoma: black; collar and dorsal margin of pronotum connected, propleuron, subcircular spot on mesoscutum, scutellum, axillary carinae, postscutellum, tegula, subalar ridge, central mark on mesopleuron reaching ventral margin, hypoepimeron, mesosternum, dorsal 0.4 of mesepimeron, dorsal division of metapleuron, metapleuron except small ventral and posterior spots, and posterior subcircular mark on propodeum, pale yellow; fore and mid legs pale yellow, lighter at coxae and trochanters; mid first trochanter with dorsal and ventral dark brown marks; dorsal face of femora pale orange, with brown stripe apically narrower; fore tibia with weak brownish mark dorsally; mid tarsus and fore t5 dark brown; hind coxa pale yellow, anterior basal portion and lateral longitudinal stripe, black; hind first trochanter mostly dark brown, with orangish marks; second trochanter basally yellowish, apically orange; hind femur bright orange (209,127,061) with small basal yellow mark and apical blackish mark; basal 0.25 of hind tibia, apical 0.75 of t1, t2–4 and basal 0.8 of t5, whitish; apical 0.75 of hind tibia, basal 0.25 of t1 and apical 0.2 of t5, blackish. Metasoma: dark brown, lighter towards posterior tergites; anterior 0.4 dorsally and posterior 0.2 of T1, pale yellow; S1 pale yellow; T2–8 with posterior pale yellow stripes; S2–6 pale yellow, with progressively smaller brown lateral marks.

Male. Fore wing 5.03–7.37 mm long. Generally similar to female, except for the following: antenna with 24–28 flagellomeres; pronotum completely pale yellow, its dorsal margin anteriorly slightly concave; mesoscutum more strongly convex; epicnemium sparsely marked with black and pale yellow; mesopleuron distinctly concave at posterior portion (around scrobe), except hypoepimeron; central portion of mesopleuron somewhat swollen, projected; mesopleuron black only just ventrad to subalar ridge and between scrobe and hypoepimeron; black portion of posterior area of propodeum more extensive; hind second trochanter mostly blackish.

Variation. Fore wing 6.17–7.71 mm long. Antenna sometimes with 24 flagellomeres; axillary carinae sometimes brownish, postscutellum sometimes black; epicnemial carina dorsally with very weak to strong longitudinal wrinkles; yellow mark at hypoepimeron sometimes connected to central mark on mesopleuron;

metapleuron from entirely punctate to almost entirely rugulose; anterior and ventral borders of metapleuron sometimes black; propodeal wrinkles sometimes somewhat irregular, anteriorly rugulose posterior yellow area on propodeum sometimes somewhat “lotus-shaped” (three basally connected triangles); mid femur sometimes entirely light orange; hind tibia with apical 0.6–0.8 blackish; males sometimes with small blackish mark on pronotum, epicnemium completely black to almost entirely yellow, small black areas on mesopleuron connected and apical stripes at T2–8 very narrow. Pale yellow areas sometimes whitish (232,216,166) or bright yellow (230,205,095).

Comments. Very similar to *M. propodeator*, from which it can be differentiated by the pronotum mostly black (vs. almost entirely whitish); surface over sternaulus black (vs. mostly whitish); hind coxa with two blackish marks, basally connected (vs. with a single, somewhat S-shaped longitudinal mark); ovipositor dorsal valve without ridges (vs. with five moderately strong ridges); first tergite long, about $0.51 \times$ as long as T2–8, moderately depressed (vs. short, about $0.33 \times$ as long as T2–8, strongly depressed); and antenna with 24–28 flagellomeres (vs. 21). It can be isolated from *M. amazonensis* **sp. nov.** by the characters above and by having T2–8 black, with posterior yellow marks (vs. bright orange, only T2 with posterior whitish stripe).

In the same work in which *M. variegatus* was described, Szépligeti (1916) proposed also *M. tricolor*, known from the male holotype. From the original description, no consistent differences can be identified between the two species. Both species were collected at the same site (Blumenau), and Szépligeti rarely described species based on the two sexes. Additionally, one male specimen of *M. variegatus* was found at the AEI with a handwritten note by H. Townes, stating “very close to *M. tricolor* Szé.” Although the holotypes of these two species have not yet been seen, it seems most probable that these are synonyms, each sex having been described as a separate species. Therefore, *M. tricolor* is treated here as a synonym of *M. variegatus*. Since both species were published in the same work, the latter name is chosen to remain as the valid one in order to maintain a female specimen as the holotype of the valid name.

Biology. Unknown.

Material examined. 118 ♀♀, 158 ♂♂. 1 ♀ from TRINIDAD, 1.III.1964, WRThompson (CNCI). 1 ♀ from BOLIVIA, Beni, Rio Mamoré, approx. 10 km E San Antonio, 13.VIII.1965, JK Bouseman (AMNH). 1 ♂ from BRAZIL, Bahia, Aiquara, Fazenda Veneza, Pt. 7, 20.XI.2002, Malaise trap, JCardoso & JMaia; 1 ♀, same data except Buerarema, Fazenda Sempre Viva, Pt. 2, 26.VIII.2002; 1 ♂, same data except Coaraci, Fazenda São José, Pt. 1, 26.XI.2002; 1 ♂, same data except Ibicuí, Fazenda Maravilha, Pt. 1, 26.XII.2002; 1 ♀, same data except Pt. 3, 26.XI.2002; 1 ♀, same data except Pt. 5; 1 ♂, same data except Pt. 6; 1 ♂, same data except Itacaré, Fazenda Vencedora, Pt. 2, 8.XII.2003; 1 ♂, same data except Itororó, Fazenda Guanabara, Pt. 8, 25.XI.2002; 1 ♂, same data except Ubaitaba, Fazenda Fortaleza, Pt. 2, 15.VI.2003; 1 ♀, same data except Uruçuca, Fazenda Guarani, 23.XI.2003. 1 ♀ from BRAZIL, Espírito Santo, Anchieta, Pt. 5, 29–30.VII.2008, yellow pans, AP Aguiar *et al.*, “Estágio inicial de regeneração”; 1 ♀, same data except Pt. 3; 1 ♂, same data except Itarana, Bom Destino, 330 m, 22–25.II.2004, Malaise trap, BC Araújo; 1 ♂, same data except Santa Leopoldina, Alto das Farinhas, Pt. 5, 14–24.V.2008, Malaise trap, C Waichert & Furieri; 3 ♂♂, same data except Suíça, 361 m, 5–12.XI.2007, CO Azevedo *et al.* 1 ♂ from BRAZIL, Rio de Janeiro [“Distrito Federal” on label], Rio de Janeiro, Botafogo, VI.1952, MA Alvarenga (MNRJ). 1 ♂ from BRAZIL, São Paulo, Rio Claro, Floresta Estadual Edmundo Navarro de Andrade, 10.IX–1.X.2004, Malaise trap, JTDias *et al.*; 1 ♀, same data except Américo Brasiliense, Clube Náutico, Pt. B4, 10.V–2.VI.2000, Malaise trap, MTTavares, “Cerrado” (UFES). 1 ♀, from BRAZIL, São Paulo, Luiz Antônio, Estação Ecológica do Jataí, Cerradão, Pt. 2, 30.I.2008, Malaise trap, NW Periotto *et al.*; 1 ♀, same data except Mata Ciliar, 13.IV.2009 (IBRP). 1 ♀ from BRAZIL, São Paulo, Montevideo, 15.I.1942, Parker “So Amer. Paras Lab // No. 688.19. Host” (USNM). 1 ♀ from BRAZIL, Paraná, Campina Grande, nr. Curitiba, 21.II.1966, Townes & Townes (AEIC). 1 ♂ from BRAZIL, Santa Catarina, Nova Teutônia, 300–500 m, 14.II.1948, FPlaumann; 1 ♀, same data except 17.II.1948; 1 ♀, same data except 2.III.1948; 1 ♂, same data except 3.III.1948; 1 ♀, same data except 7.III.1951; 1 ♂, same data except 20.II.1952; 1 ♂, same data except 30.XI.1952; 1 ♀, same data except 5.V.1954; 1 ♀, same data except 3.I.1956; 1 ♀, same data except 3.I.1956; 4 ♀♀, same data except II.1968; 2 ♀♀, same data except III.1968; 1 ♀, same data except I.1970 (AEIC). 2 ♀♀ 2 ♂♂, same data except 1.II.1951; 3 ♀♀ 1 ♂, same data except 8.I.1951; 1 ♀ 1 ♂, same data except 27.XI.1957; 2 ♂♂, same data except 28.X.1957; 1 ♂, same data except 31.XII.1957; 2 ♂♂, same data except 15.IV.1958; 2 ♂♂, same data except 16.XII.1958; 1 ♀, same data except 25.I.1958; 1 ♀, same data except 22.XI.1958; 1 ♀, same data except 29.X.1958; 1 ♀, same data except 8.IV.1958; 2 ♂♂, same data except 1.II.1959; 2 ♂♂, same data except 11.III.1959; 3 ♀♀, same data except 12.III.1959; 1 ♀, same data except 12.XII.1959; 1 ♀, same data except 13.II.1959; 2 ♂♂, same data except

13.IV.1959; 2 ♂♂, same data except 15.IV.1959; 2 ♂♂, same data except 16.II.1959; 1 ♀, same data except 17.I.1959; 1 ♂, same data except 19.I.1959; 2 ♂♂ same data except 2.I.1959; 4 ♂♂, same data except 2.III.1959; 3 ♂♂, same data except 20.I.1959; 1 ♀, same data except 20.II.1959; 2 ♂♂, same data except 21.I.1959; 4 ♂♂, same data except 21.II.1959; 1 ♂, same data except 21.XII.1959; 1 ♀, same data except 22.XI.1959; 1 ♀, same data except 23.X.1959; 2 ♀♀, same data except 24.II.1959; 2 ♀♀, same data except 25.XII.1959; 1 ♂, same data except 26.I.1959; 1 ♂, same data except 26.II.1959; 1 ♀ 4 ♂♂, same data except 27.II.1959; 1 ♀, same data except 27.XII.1959; 2 ♂♂, same data except 28.I.1959; 1 ♀, same data except 30.XII.1959; 1 ♀, same data except 4.II.1959; 2 ♂♂, same data except 5.XII.1959; 1 ♀, same data except 7.II.1959; 1 ♂, same data except 7.V.1959; 2 ♂♂, same data except 7.XII.1959; 2 ♂♂, same data except 8.I.1959; 1 ♀, same data except 9.II.1959; 1 ♂, same data except 9.V.1959; 2 ♂♂, same data except 9.XII.1959; 1 ♂, same data except XII.1959; 1 ♀ 4 ♂♂, same data except 1.II.1960; 1 ♀, same data except 1.III.1960; 1 ♀, same data except 1.IV.1960; 1 ♂, same data except 1.XII.1960; 1 ♀, same data except 10.I.1960; 2 ♀♀, same data except 10.III.1960; 2 ♀, same data except 11.II.1960; 1 ♀ 2 ♂♂, same data except 12.I.1960; 2 ♂♂, same data except 12.IV.1960; 2 ♂♂, same data except 13.I.1960; 1 ♂, same data except 13.IV.1960; 1 ♂, same data except 13.X.1960; 1 ♀ 2 ♂♂, same data except 14.I.1960; 1 ♀, same data except 14.II.1960; 12 ♂♂, same data except 18.I.1960; 2 ♂♂, same data except 18.II.1960; 1 ♀ 1 ♂, same data except 18.X.1960; 1 ♂, same data except 19.I.1960; 1 ♂, same data except 20.I.1960; 2 ♀♀, same data except 20.II.1960; 1 ♀, same data except 21.II.1960; 1 ♀, same data except 22.II.1960; 2 ♀♀, same data except 23.III.1960; 3 ♂♂, same data except 26.I.1960; 1 ♀, same data except 26.XII.1960; 1 ♀, same data except 27.I.1960; 1 ♀, same data except 27.III.1960; 1 ♂, same data except 27.XI.1960; 2 ♂, same data except 28.I.1960; 1 ♀, same data except 28.IV.1960; 1 ♀, same data except 28.XII.1960; 1 ♀, same data except 29.II.1960; 1 ♀, same data except 3.I.1960; 1 ♀, same data except 3.III.1960; 1 ♀, same data except 3.XII.1960; 1 ♀, same data except 30.III.1960; 1 ♂, same data except 31.I.1960; 2 ♀♀, same data except 4.II.1960; 2 ♀♀, same data except 4.III.1960; 1 ♀, same data except 5.I.1960; 1 ♀, same data except 5.XII.1960; 1 ♀, same data except 8.III.1960; 1 ♀ 1 ♂, same data except 1.IV.1961; 1 ♂, same data except 14.X.1961; 1 ♂, same data except 15.II.1961; 1 ♂, same data except 15.III.1961; 2 ♀♀, same data except 17.III.1961; 1 ♂, same data except 18.II.1961; 1 ♂, same data except 18.II.1961; 1 ♂, same data except 2.XII.1961; 1 ♀, same data except 20.II.1961; 1 ♂, same data except 20.XI.1961; 1 ♂, same data except 22.III.1961; 1 ♂, same data except 30.I.1961; 1 ♀, same data except 31.XII.1961; 1 ♀ 2 ♂♂, same data except 8.I.1961; 1 ♀, same data except 8.II.1961; 1 ♀, same data except 8.III.1961; 1 ♀, same data except 11.I.1962; 1 ♀, same data except 13.II.1962; 1 ♀, same data except 14.II.1962; 1 ♀, same data except 2.III.1962; 2 ♂♂, same data except 24.I.1962; 1 ♀, same data except 24.VIII.1962; 1 ♀, same data except 7.III.1962; 6 ♂♂, same data except II.1965; 3 ♀♀, same data except III.1965; 1 ♀, same data except XI.1965; 1 ♀, same data except 13.IX.1966; 1 ♂, same data except 26.I.1966; 1 ♂, same data except 30.I.1966; 3 ♀♀ 1 ♂, same data except III.1966; 1 ♀ 1 ♂, same data except IV.1966; 1 ♂, same data except VIII.1966; 2 ♀♀ 3 ♂♂, same data except XII.1966; 1 ♂, same data except 14.II.1967; 1 ♂, same data except 17.III.1967; 1 ♂, same data except 2.III.1967; 1 ♀ 3 ♂, same data except 3.III.1967; 2 ♂, same data except I.1967; 1 ♂, same data except II.1967; 1 ♀ 1 ♂, same data except X.1967; 1 ♀, same data except XI.1967; 1 ♀, same data except 15.I.1968; 1 ♀ 1 ♂, same data except II.1968; 1 ♂, same data except XII.1968; 1 ♀, same data except 6.II.1969 (CNCD). 2 ♂♂ from URUGUAY, Tacuarembó, 40 km NW Tacuarembó, 2–9.II.1963, JK Bouseman (AMNH). 1 ♀ from ARGENTINA, Buenos Aires, Punta Lara, 27.I.1966, Townes & Townes (AEIC). 4 ♂♂ from ARGENTINA, La Rioja, Santa Cruz, humid ravine, 1700 m, 15–31.I.2000, Malaise trap, PFidalgo; 1 ♂, same data except 1–14.XII.2002; 2 ♂♂, same data except 1–15.I.2003; 1 ♂, same data except 15–30.III.2003; 2 ♂♂, same data except ca. Anillaco, 6.IV.2002 (FSCA).

Distribution. Trinidad to northern Argentina (Fig. 373). Records comprehend from humid rainforests to semi-arid areas (La Rioja).

***Messatoporus versicolor* Santos, sp. nov.**

(Figs 112, 144, 177, 241, 374)

Female. Fore wing 8.08 mm. HEAD: Mandible densely covered with moderately long hairs; MLW 1.92; MWW 0.37; dorsal tooth in front view not distinctly projected upwards, much longer than ventral tooth; ventral tooth somewhat rhomboid. MSM 0.26. Clypeus basally evenly convex, apically gradually flattened, centrally straight; CHW 1.85; CWW 2.12; apical area medially straight, laterally slightly projected, its margin regular, not raised.

Antenna with 29 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area mat, coriarius, not striate near antennal sockets, ventrally and around ocelli distinctly concave, medially with a distinct depression but without a distinct line. Occipital carina uniformly curved, apically weak. Temple and gena narrow, gena regular (as in Fig. 260).

THORAX: Pronotum moderately pilose, mat, minutely punctulate, ventrally moderately striate; epomia weak, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum, after diverging from pronotal collar approximately straight. Mesoscutum moderately and uniformly convex, ovoid, $1.24 \times$ as long as wide, densely covered with short hairs, shiny, densely punctate; notaulus reaching about 0.72 of mesoscutum length, weakly impressed, surface over notaulus with weak and short transverse wrinkles; scuto-scutellar groove shallow, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina complete, reaching subalar ridge, distinctly sinuous; sternaulus complete and strong, wider on posterior apex, strongly sinuous, with vestigial vertical wrinkles; scrobe very shallow; mesopleural suture with vestigial longitudinal wrinkles. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter short and almost indistinct, slightly arched forwards. Transverse sulcus at base of propodeum very wide, about $0.9 \times$ as long as anterior area of propodeum, with weak longitudinal wrinkles; metapleuron minutely rugulose, without transverse wrinkles, densely covered with very short hairs; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa punctate-coriarius.

PROPODEUM: $1.01 \times$ as long as wide, shiny, moderately pilose; anterior area moderately punctate; spiracle elliptic, SWL 2.24; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles moderately strong, closely spaced, mostly complete, anteriorly distinctly arched forwards, posteriorly distinctly arched backwards; posterior transverse carina complete, uniformly arched forwards, forming moderately strong sublateral crests.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.25; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a basad of 1M+Rs by 0.36 of its own length; vein 2Cua $0.68 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed on midlength; cell 1+2Rs small, APH 0.68, pentagonal, about as high as wide, AWH 1.11; crossvein 3r-m partially spectral, 2r-m and 3r-m distinctly convergent, about same length; vein 3-M distinctly shorter than 2-M; 4-Rs very weakly sinuous; 4-M spectral, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.16; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (not curved); vein 2-1A reaching 0.9 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.4 \times$ as long as T2–8, strongly depressed, ventrolaterally angled, uniformly, densely pilose; T1LW 4.24; T1WW 1.66; spiracle on 0.49 of its length, distinctly prominent; median depression elongate, very shallow; median posterior depression subcircular; lateral depressions absent; ventrolateral carina absent. T2LW 1.58; T2WW 2.3; thyridium longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriarius, densely and uniformly pilose. Ovipositor slender, slightly upcurved, basally cylindrical, apically distinctly depressed; dorsal valve without ridges; ventral valve apex with 6 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color: Head black, mesosoma and metasoma marked with black, orange and bright and pale yellow. Head: black; clypeus, mandible except apex, mouthparts, supra-clypeal area and complete orbital band, bright yellow (228,202,111); scape and pedicel ferruginous; f8–10 entirely white, f7 and f11 partially white. Mesosoma: mostly pale yellow; small posterior mark on pronotum, sparse marks at propleuron, mesoscutum except subcircular yellow spot, dorsal 0.8 of epicnemium, dorsal borders of mesopleuron, sparse marks along sternaulus, mesepimeron, posterior border of metapleuron and narrow transverse line at posterior area of propodeum, orange (190,088,041); scuto-scutellar groove, ventral 0.2 of epicnemium, mesopleuron around sternaulus, mesosternum, scrobe and part of hypoepimeron, transverse sulcus, anterior border of metapleuron, anterior area of propodeum and anterior mark at posterior area, black; fore and mid trochanters and femora dorsally orange; fore tibia ventrally with longitudinal brown stripe; fore and mid t5 blackish; mid t1–4 fulvous; hind coxa and trochanters orange, extreme apex of second trochanter and extreme base of femur blackish; subapical 0.25 of hind femur dark orange, apical 0.2 (ventrally 0.4) blackish; hind tibia gradually turning from pale yellow to black on apical 0.25; basal 0.4; basal 0.4

of t1, ventral marks at t2–3 and t4–5 blackish; remainder of hind tarsus white. Metasoma: T1 pale yellow, dorsally orange at median 0.3; S1 orange; anterior margin of T2 dark brown, anterior 0.75 orange, posterior 0.25 pale yellow; S2 pale yellow; T3–6 basally blackish, medially dark orange, posterior 0.4 yellow; S3–5 dark brown, with narrow posterior pale yellow stripe; T7–8 and S6 pale yellow.

Male. Unknown.

Variation. Antenna sometimes with 28 flagellomeres; posterior part of pronotum sometimes marked with orange and blackish; subalar ridge bright to pale yellow; mesosternum sometimes dark orange; hind coxa sometimes with blackish spot; median mark on T1 sometimes pale orange; T2 sometimes anteriorly blackish; propodeum with an orange area between black and yellow areas; anterior area of propodeum sometimes partially orange; mesosternum just ventral to sternaulus either black or with small yellow areas.

Comments. *Messatoporus versicolor* is one of the most distinctive species of *Messatoporus*, both in general morphology and color patterns. It shows structural similarities to *M. advenus* **sp. nov.**, from which it can be readily isolated by the body extensively marked with orange, pale yellow and black (vs. almost entirely orange). *Messatoporus versicolor* have the pronotum and mesopleuron mostly pale yellow, mesosternum and anterior area of propodeum black and T3–7 black with posterior pale yellow stripes; all of those areas are mostly or entirely orange in *M. advenus*. The two species can be additionally isolated by the posterior transverse carina complete and forming distinct sublateral crests in *M. versicolor* (vs. medially interrupted and forming very weak crests in *M. advenus*).

Biology. Unknown.

Etymology. From the Latin *versicolor*, meaning “of various colors”; in reference to its intricate color pattern.

Material examined. 4 ♀♀. Holotype ♀ from Colombia, Boyacá, SFF Iguaque, 2820 m, 17.III–1.IV.2000, Malaise trap, PReina. Pinned. Extreme tip of both fore wings ripped; otherwise in good shape. Paratypes: 1 ♀ from Colombia, Boyacá, SFF Iguaque, 2855 m, 1–18.IV.2000, Malaise trap, PReina; 1 ♀, same data except Pt. 8, 28.II–17.III, 2820 m; 1 ♀, same data except 2–19.IV.2000, 3010 m (AEIC).

Distribution. Recorded only from the type locality, in the Colombian Andes (Fig. 374).

***Messatoporus xanthogaster* Santos, sp. nov.**

(Figs 86, 375)

Female. Fore wing 8.00 mm. HEAD: Mandible densely covered with long hairs; MLW 2.00; MWW 0.44; dorsal tooth in front view projected upwards, much longer than ventral tooth; ventral tooth triangular. MSM 0.26. Clypeus basally convex, apically abruptly flattened, centrally concave; CHW 2.38; CWW 2.3; apical area medially concave, laterally with distinct triangular lobes, its margin very sharp, raised. Antenna with 23 flagellomeres; flagellum uniform; apex of apical flagellomere much narrower than base, distinctly tapered. Supra-antennal area shiny, coriarioid, not striate near antennal sockets, ventrally and around ocelli slightly concave, without median line. Occipital carina uniformly curved, apically weak, meeting hypostomal carina far from mandible base. Temple and gena moderately wide.

THORAX: Pronotum centrally glabrate, moderately pilose at dorsal margin, mat, minutely rugulose, ventrally with strong wrinkles; epomia almost indistinct, distinct only after diverging from pronotal collar, short, ending far from dorsal margin of pronotum. Mesoscutum strongly and uniformly convex, ovoid, 1.25 × as long as wide, densely covered with short hairs, mat, densely punctulate; notaulus reaching about 0.69 of mesoscutum length, weakly impressed, surface over notaulus not wrinkled; scuto-scutellar groove moderately deep, with vestigial longitudinal wrinkles. Subalar ridge moderately projected; epicnemial carina reaching about 0.7 of distance to subalar ridge, more or less uniformly curved; sternaulus complete but weak, strongly sinuous, smooth; scrobe very shallow; mesopleural suture with weak longitudinal wrinkles along entire length. Mesosternum medially with short transverse wrinkles; median portion of posterior transverse carina of the mesothoracic venter indistinct. Transverse sulcus at base of propodeum moderately wide, about 0.67 × as long as anterior area of propodeum, colliculate; metapleuron minutely rugulose, without transverse wrinkles, dorsally sparsely pilose, ventrally moderately pilose; juxtacoxal carina represented by very short ridges. Fore tibia distinctly swollen. Mesal lobe of t4 with 3–4 bristles. Hind coxa punctate-coriarioid.

PROPODEUM: 1.07 × as long as wide, shiny, densely pilose; anterior area asperous and densely punctulate; spiracle elliptic, SWL 2.67; anterior transverse carina medially slightly arched forwards. Propodeal wrinkles weak,

very closely spaced, mostly incomplete and overlapped, with some disperse complete wrinkles, mostly slightly curved or somewhat sinuous; posterior transverse carina entirely absent.

WINGS: Fore wing vein 1-Rs+M distinctly sinuous, with bulla placed on basal 0.4; crossvein 1m-cu more or less uniformly curved, limit between 1m-cu and 1-Rs+M more or less traceable; vein 1M+Rs anteriorly straight, posteriorly weakly curved; fore wing crossvein 1 cu-a based of 1M+Rs by 0.52 of its own length; vein 2Cua $0.71 \times$ as long as crossvein 2cu-a; bulla of crossvein 2m-cu placed mostly on posterior half; cell 1+2Rs of moderate size, APH 0.88, pentagonal, about as high as wide, AWH 0.97; crossvein 3r-m fully spectral, 2r-m and 3r-m distinctly convergent, 3r-m distinctly shorter; vein 3-M distinctly longer than 2-M; 4-Rs very weakly sinuous; 4-M spectral, straight. Hind wing vein 1-M forming straight angle with vein Cua; vein 2-Rs tubular, apically spectral, reaching wing margin; HW1C 1.14; vein Cub distinctly convex on posterior half, forming distinctly obtuse angle with vein Cua (basally curved); vein 2-1A reaching 0.86 of distance to posterior wing margin.

METASOMA: First tergite moderately long, about $0.38 \times$ as long as T2–8, approximately cylindrical, ventrolaterally angled, uniformly, densely pilose; T1LW 3.23; T1WW 2.11; spiracle on 0.51 of its length, slightly prominent; median depression absent; lateral and median posterior depressions absent; ventrolateral carina absent, but traceable as limit between lateral and ventral portions. T2LW 1.46; T2WW 1.57; thyridium longer than wide, without small circular depression just behind it; T2–8 densely punctate and minutely and weakly coriaceous, densely and uniformly pilose. OST 1.27; ovipositor slender, slightly sinuous, basally cylindrical, apically distinctly depressed; dorsal valve with four weak ridges; ventral valve apex with 8 teeth, apical teeth progressively more closely spaced; surface anterior to first tooth rugulose.

Color. Head dark brown and bright yellow, mesosoma orange, metasoma bright yellow and brown. Head: dark brown (054,047,042); clypeus except apical and lateral marks, mouth parts, malar space, supra-clypeal area and complete orbital band, bright yellow (233,215,088); f10–13 entirely white, f9 mostly white, f8 and f14 partially white. Mesosoma: bright orange (209,086,045); pronotal collar and dorsal margin of pronotum connected, propleuron, scutellar carina, scutellum except posterior margin, tegula, subalar ridge and dorsal division of metapleuron, bright yellow; ventral 0.6 of pronotum, scutellum posteriorly, mesopleural suture ventrally, longitudinal median line at anterior area of propodeum and most of surface over anterior transverse carina, black; fore coxa mesal face pale orange, external face bright yellow; fore trochanters, femur and tibia pale yellow; trochanters and femur with dorsal longitudinal stripe, dark brown at first trochanter, dark orange at femur; tibia with ventral brown stripe; t1–4 light orange, t5 blackish; mid coxa with sparse apical brownish marks; mid first trochanter dorsally dark brown, ventrally light brown; second trochanter and femur orange, dorsally darker; mid tibia light fuscous, mid t1–4 brown, t5 blackish; hind coxa with lateral longitudinal brown stripe on apical 0.6; hind trochanters almost entirely dark brown; femur dark brown; sub-basal 0.2 of hind tibia, apical 0.75 of t1, t2–4 and basal 0.4 of t5, whitish; extreme base and apical 0.7 of tibia, basal 0.25 of t1 and apical 0.6 of t5, blackish. Metasoma: bright yellow; T1 bright orange at median 0.3; S1 orange with anterior dark brown marks; T2 anteriorly light orange; T3 light brown at anterior 0.4; T4–7 dark brown at anterior 0.5; S3–6 with small lateral brown marks.

Male. Similar to female, except for the following: mandible bright yellow except apex; supra-clypeal area without brown marks; antenna with 24 flagellomeres; orange area on pronotum almost indistinct; lateral borders of mesoscutum and surface over notaulus marked with blackish; mesopleuron dorsally with small yellowish area; anterior area of propodeum blackish, posterior area with small blackish mark close to insertion of T1; 1+2Rs about as wide as high, vein 2-M distinctly longer than 3-M.

Variation. Blackish mark at hind coxa sometimes very small; T1 sometimes posteriorly orange; posterior area of propodeum sometimes with weak, arched yellow mark.

Comments. Similar to *M. argentinus* sp. nov., from which it can be differentiated by having T2 anteriorly light orange, posteriorly bright yellow (vs. anteriorly dark brown, posteriorly pale yellow); pronotum ventrally blackish (vs. orange); metapleuron and propodeum without yellow marks (vs. metapleuron with posterior yellow mark, propodeum with sublateral yellow marks); T7–8 in lateral view longer than T5–6 (vs. about the same length or shorter); ovipositor dorsal valve with four weak ridges (vs. without ridges).

Biology. Unknown.

Etymology. From the Greek words *xanthos*, meaning “yellow”, and *gaster*, meaning “stomach”; in reference to the mostly yellow metasoma.

Material examined. 2 ♀♀, 1 ♂. Holotype ♀ from PERU, Machu Picchu, 1.XII.1965, HTownes & MTownes (AEIC). Pinned. In good shape.

Paratypes: 1 ♀ from PERU, Machu Picchu, 1.XII.1965, HTownes & MTownes; 1 ♂, same data except 28.XI.1965 (AEIC).

Distribution. Recorded only from the type locality, in Peru (Fig. 375).

***Messatoporus zonatus* (Cresson 1865)**

(Fig. 376)

**Mesostenus zonatus* Cresson 1865: 28. Description. Holotype ♀ (ANSP, not examined).

Mesostenus zonatus Gundlach. 1886. Listed.

Mesostenus zonatus: Dalla Torre 1902. Listed.

Mesostenus zonatus: Schmiedeknecht 1908:57. Listed.

**Messatoporus zonatus*: Townes 1946: 46. Generic transfer.

Messatoporus zonatus: Alayo & Tzankov. Description, distribution, figure.

Messatoporus zonatus: Yu & Horstmann 1997:274. Listed.

Messatoporus zonatus: Yu *et al.* 2005. Listed.

Female. Not examined. From data provided by Cresson (1865) and Alayo and Tzankov (1974), the following diagnosis can be formulated: Fore wing 5–6 mm long. Ventral tooth of mandible distinct; clypeus somewhat convex, anterior area medially almost straight; antenna sparsely pilose; supra-antennal area with slight median line. Epicnemial carina complete; sternaulus strong; mesoscutum shiny, impunctate; notaulus deeply impressed and almost parallel. Anterior area of propodeum not punctate, slightly rugulose; spiracle elliptic; anterior transverse carina medially straight posterior area with transverse wrinkles; posterior transverse carina represented by very weak sublateral crests. Fore wing vein 1cu-a meeting M+Cu basad to 1M+Rs; cell 1+2Rs small, crossvein 3r-m absent. Hind wing vein Cua longer than 1cu-a. Spiracle of T1 slightly prominent; ovipositor slightly more than 0.5 × as long as metasoma.

Color. Head, meso- and metasoma black with whitish marks. Scape ventrally whitish; flagellum black, f6–16 white. Mesoscutum with U-shaped whitish mark; postscutellum black; anterior area of propodeum black, posterior area with arc-shaped whitish mark. Legs yellowish orange, except for the following: mid and hind coxae with blackish stripe; hind t1 apically, t2–4 and t5 basally, whitish; t1 basally and t5 apically, blackish. T1 whitish, with median blackish mark. T2–8 black with posterior whitish stripes.

Male. Generally similar to female, except for the following: spiracle of T1 more strongly projected; mid coxa whitish, without blackish marks; hind coxa very long, densely pilose, with black stripes.

Comments. Differs from the other Cuban species, *M. townesi* mainly by the following: scape ventrally whitish (vs. black); antennae less densely pilose; flagellum uniform (vs. flattened and widened subapically); postscutellum black (vs. whitish); anterior area of propodeum moderately pilose, slightly rugose (vs. glabrate and almost impunctate); mid and hind coxae with blackish marks (vs. entirely orange); hind tarsus more extensively whitish and ovipositor shorter.

Biology. Unknown.

Distribution. Southeastern and northwestern Cuba (Fig. 376). *Messatoporus zonatus* appears to occur in sympatry with the other Cuban species, *M. townesi*, at least at one of its recorded localities (Santiago de Cuba).

***Prothoporus nigrispina* (Cameron) 1885, comb. nov.**

(Fig. 138)

Mesostenus nigrispina Cameron 1885: 223. Description. Holotype ♀ (BMNH, examined). Type data: Mexico, Valladolid in Yucatan (Gauger).

Mesostenus nigrispina: Dalla Torre 1902. Listed.

Mesostenus nigrispina: Schmiedeknecht 1908:56. Listed.

Messatoporus nigrispina: Townes & Townes 1966: 123. Generic transfer.

Messatoporus nigrispinus: Yu & Horstmann 1997:274. Unjustified emendation; listed.

Messatoporus nigrispinus: Yu 1998. Listed.

Messatoporus nigrispina: Yu *et al.* 2005. Listed.

Messatoporus nigrispina: Kasparian & Ruíz 2008: 331–332. Diagnosis.

Comments. This species was originally described under *Mesostenus*, and then placed by Townes and Townes (1966) in *Messatoporus*. Type examination, however, showed that it is clearly a species of *Prosthoporus*, a genus which had not been described at the time of the generic transfer. The type of *M. nigrispina* shows the following combination of characters, all of them typical of *Prosthoporus* and absent or very rare in species of *Messatoporus*: mandible short, with dorsal tooth only slightly longer than ventral one; occipital carina complete, apically distinct; sternaulus weak and incomplete, reaching only about 0.4 of distance to mid coxa; lobes of fourth tarsomeres subequal; fore wing cell 1+2Rs distinctly transversely elongate, about 1.87 as wide as high; hind wing vein 2-1A absent; and ovipositor cylindrical, with ventral valve only partially overlapping dorsal valve as a lobe.

Prosthoporus and *Messatoporus* are, indeed, generally similar, though probably not closely related. They can be (and have been, including occasionally by the authors) easily mistaken with specimens of *Messatoporus* at naked eye, particularly because of the subcylindrical, slender body, first tergite slender, T7–8 longer than T5–6 and ovipositor thin, straight and basally cylindrical.

With the new status, *P. nigrispinus* represents the seventh species of *Prosthoporus*, and the second record of the genus from North America.

The specific epithet *nigrispina* is assumed to have been originally proposed as a noun in apposition to the original generic name *Mesostenus*. Therefore, the spelling *Messatoporus nigrispinus* provided by Yu and Horstmann is an unjustified emendation, and the species name should be maintained as *P. nigrispina*, the spelling used by Yu *et al.* (2005) and Kasparyan and Ruíz (2008).

Material examined. Holotype ♀ from MEXICO, B.M Type N. 36663. Most of palpi, both antennae, mid left leg after coxa, mid right t2–5, hind left leg after femur and hind right t5 missing. Fore left wing detached from specimen and kept in plastic capsule pinned with the specimen; other wings folded and dirty.

Distribution. Recorded only from the type locality, in eastern Mexico.

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Appendix. Character-state set used in the descriptions, as stored in the DELTA system.

- #1. Fore wing/
 - mm/
- #2. HEAD: Mandible <pilosity>/
 - 1. densely covered with moderately long hairs/
 - 2. densely covered with long hairs/
 - 3. with moderately sparse and long hairs/
- #3. MLW/
- #4. MWW/
- #5. Dorsal tooth/
 - 1. in front view projected upwards/
 - 2. in front view not distinctly projected upwards/
- #6. <Dorsal tooth>/
 - 1. much longer than ventral tooth/
 - 2. moderately longer than ventral tooth/
 - 3. enlarged and wide, ventral tooth indistinct/
 - 4. long, ventral tooth distinct only as a very short lobe/
 - 5. long, ventral tooth indistinct/
 - 6. shorter than ventral tooth/
- #7. <Ventral tooth>/
 - 1. ventral tooth triangular/
 - 2. ventral tooth somewhat rhomboid/
 - 3. both teeth with subquadrate apex/
- #8. MSM/
- #9. Clypeus/
 - 1. almost entirely flattened/
 - 2. basally convex, apically abruptly flattened/
 - 3. basally evenly convex, apically gradually flattened/
 - 4. basally strongly convex, emarginated in its mid-length, more or less triangular/
 - 5. slightly and more or less uniformly convex/
- #10. Centrally <clypeus shape>/
 - 1. straight/
 - 2. concave/
- #11. CHW/
- #12. CWW/
- #13. Apical area medially/
 - 1. straight/
 - 2. concave/
 - 3. convex/
- #14. Laterally <consider difference between lateral and sublateral length of apical area>/
 - 1. slightly projected/
 - 2. with distinct triangular lobes/
- #15. Its margin <of apical area of clypeus>/
 - 1. regular, not raised/
 - 2. very sharp, raised/
- #16. Antenna with/
 - flagellomeres/
- #17. Flagellum/
 - 1. uniform <subapical flagellomeres not distinctly flattened>/
 - 2. strongly flattened and compressed on apical 0.3/
- #18. Apex of apical flagellomere/
 - 1. much narrower than base, distinctly tapered/
 - 2. about as wide as base, not distinctly tapered/
- #19. Supra-antennal area/
 - 1. mat/
 - 2. shiny/
- #20. <Supra-antennal area>/
 - 1. impunctate/

2. centrally with coarse punctures and rugulosites/
 3. coriarius/
 4. with moderately dense punctation/
 5. scarcely punctate/
 6. dorsally finely punctate, ventrally weakly striate/
 7. laterally coriarius, centrally colliculate/
- #21. <Supra-antennal area>/
1. not striate near antennal sockets/
 2. very weakly striate near antennal sockets/
 3. distinctly striate near antennal sockets/
 4. weakly rugulose near antennal sockets/
 5. strongly rugulose near antennal sockets/
- #22. <Supra-antennal area>/
1. ventrally and around ocelli slightly concave/
 2. ventrally and around ocelli distinctly concave/
 3. ventrally distinctly concave/
 4. ventrally very weakly concave/
 5. not distinctly concave or convex/
- #23. <Supra-antennal area>/
1. without median line/
 2. median line distinguishable only as a weakly smoother area/
 3. medially with a distinct depression but without a distinct line/
 4. median line distinguishable only as a rugulose area/
 5. with very weak, low median line <punctations>/
 6. dorsally with very weak median line, ventrally fading/
 7. with slight median line/
- #24. Occipital carina/
1. uniformly curved/
 2. dorsally distinctly bell-shaped/
 3. dorsally acuminate/
- #25. <Occipital carina>/
1. fading out at distance distinctly longer than basal width of mandible from the hypostomal carina/
 2. fading out at distance shorter than basal width of mandible from the hypostomal carina/
 3. fading out at distance about as long as basal width of mandible from the hypostomal carina/
 4. apically weak/
 5. apically very faint/
 6. apically strong/
- #26. <Occipital carina>/
1. meeting hypostomal carina close to mandible base/
 2. meeting hypostomal carina very far from mandible base/
 3. meeting hypostomal carina far from mandible base/
- #27. Temple and gena <in lateral view>/
1. moderately wide/
 2. narrow/
- #28. <Relative width of temple and gena>/
1. gena regular/
 2. gena somewhat swollen and projected/
- #29. THORAX: Pronotum <pilosity>/
1. glabrous/
 2. glabrate/
 3. sparsely pilose/
 4. centrally glabrate, sparsely pilose at dorsal margin/
 5. centrally glabrate, moderately pilose at dorsal margin/
 6. moderately pilose/
- #30. <Pronotum shine>/
1. mat/
 2. shiny/
- #31. <Pronotum sculpturing>/
1. impunctate/
 2. mostly impunctate, scarcely punctate at dorsal corner and collar/

3. minutely punctulate/
 4. scarcely punctate/
 5. densely punctate/
 6. densely punctate, ventrally weakly rugulose/
 7. finely punctate/
 8. finely punctate at dorsal margin and collar, centrally weakly rugulose/
 9. minutely rugulose/
 10. punctate-rugulose/
 11. almost entirely striate/
 12. punctate-recticulate/
 13. rugulose-colliculate/
 14. mostly impunctate, centrally very weakly coriarius/
- #32. <Pronotum sculpturing>/
1. not distinctly wrinkled/
 2. wrinkles at posterior margin vestigial/
 3. with weak and short wrinkles at ventral half of posterior margin/
 4. with moderately strong wrinkles at ventral half of posterior margin/
 5. with strong wrinkles at ventral half of posterior margin/
 6. with weak and short wrinkles along posterior margin of collar/
 7. ventrally weakly striate/
 8. ventrally moderately striate/
 9. ventrally with strong wrinkles/
 10. weakly striate restricted to ventral corner/
 11. weakly striate along posterior margin and collar/
 12. with moderately strong striation restricted to ventral corner/
 13. with moderate striation along posterior margin and collar/
 14. with strong wrinkles along collar/
- #33. Epomia/
1. absent/
 2. almost indistinct/
 3. very weak/
 4. weak/
 5. moderately strong/
 6. strong/
- #34. <Epomia>/
1. complete/
 2. distinct only after diverging from pronotal collar/
- #35. <Epomia>/
1. short, ending far from dorsal margin of pronotum/
 2. moderately long, ending near dorsal margin of pronotum/
- #36. <Epomia> after diverging from pronotal collar/
1. approximately straight/
 2. distinctly curved/
- #37. Mesoscutum/
1. moderately and uniformly convex/
 2. moderately convex, flattened posteriorly/
 3. strongly and uniformly convex/
- #38. <Mesoscutum>/
1. subcircular/
 2. ovoid/
- #39. <Mesoscutum MsctLW>/
- × as long as wide/
- #40. <Mesoscutum>/
1. glabrate/
 2. sparsely pilose/
 3. densely covered with short hairs/
 4. densely covered with long hairs/
 5. anteriorly densely pilose, posteriorly sparsely pilose/
 6. anteriorly sparsely pilose, posteriorly glabrate/

- #41. <Mesoscutum and scutellum>/
1. shiny/
 2. mat/
- #42. <Mesoscutum and scutellum>/
1. impunctate/
 2. asperous/
 3. minutely punctulate/
 4. densely punctulate/
 5. scarcely punctate/
 6. densely punctate/
 7. anteriorly densely punctate, posteriorly almost impunctate/
 8. anteriorly densely foveolate, posteriorly scarcely punctate/
 9. anteriorly asperous, posteriorly almost impunctate/
 10. minutely colliculate/
 11. moderately punctate at center of each lobe, laterally almost impunctate/
 12. anteriorly scarcely punctate, posteriorly almost impunctate/
 13. punctate-coriarius/
 14. anteriorly scarcely punctate, posteriorly almost impunctate, coriarius at center of each lobe/
- #43. Notaulus reaching about <NML>/
- of mesoscutum length/
- #44. <Notaulus>/
1. weakly impressed/
 2. moderately impressed/
 3. deeply impressed/
- #45. Surface over notaulus/
1. not wrinkled/
 2. with weak and short transverse wrinkles/
- #46. Scuto-scutellar groove/
1. deep/
 2. moderately deep/
 3. shallow/
- #47. <Scuto-scutellar groove>/
1. with vestigial longitudinal wrinkles/
 2. with distinct longitudinal wrinkles/
 3. without wrinkles/
- #48. Subalar ridge/
1. moderately projected/
 2. weakly projected/
 3. strongly projected/
- #49. Epicnemial carina/
1. complete, reaching subalar ridge/
 2. reaching about 0.85 of distance to subalar ridge/
 3. reaching about 0.7 of distance to subalar ridge/
 4. reaching about 0.6 of distance to subalar ridge/
 5. reaching only 0.2 of distance to subalar ridge, after that represented by a wrinkled sulcus/
- #50. <Epicnemial carina shape>/
1. almost straight/
 2. more or less uniformly curved/
 3. ventrally straight, dorsally slightly curved/
 4. irregular/
 5. ventrally abruptly curved, dorsally straight/
 6. distinctly sinuous/
- #51. Sternaulus/
1. complete and strong, wider on posterior apex/
 2. moderately strong, wider on posterior apex/
 3. complete but weak/
 4. complete but weak, medially indistinct/
 5. moderately strong, wide and shallow at posterior 0.25/

- #52. <Sternaulus>/
1. strongly sinuous/
 2. weakly sinuous/
- #53. <Sternaulus>/
1. smooth/
 2. with weak vertical wrinkles/
 3. with vestigial vertical wrinkles/
- #54. Scrobe/
1. moderately deep/
 2. very shallow/
- #55. Mesopleural suture/
1. without wrinkles/
 2. with vestigial longitudinal wrinkles/
 3. with weak longitudinal wrinkles restricted to ventral portion/
 4. with strong longitudinal wrinkles restricted to ventral portion/
 5. ventrally with weak longitudinal wrinkles, wrinkles dorsally vestigial/
 6. ventrally with strong longitudinal wrinkles, wrinkles dorsally weak/
 7. with weak longitudinal wrinkles along entire length/
 8. with strong longitudinal wrinkles along entire length/
- #56. Mesosternum medially/
1. without transverse wrinkles or depressions/
 2. with short transverse wrinkles/
 3. with a longitudinal series of depressions/
- #57. Median portion of posterior transverse carina of the mesothoracic venter/
1. short/
 2. short and almost indistinct/
 3. moderately long/
 4. indistinct/
- #58. <Median portion of posterior transverse carina of the mesothoracic venter>/
1. straight/
 2. distinctly arched forwards/
 3. slightly arched forwards/
 4. arched backwards/
- #59. Transverse sulcus at base of propodeum/
1. moderately wide/
 2. very wide/
- #60. <Transverse sulcus at base of propodeum> about <TransFL>/
- × as long as anterior area of propodeum/
- #61. <Transverse furrow>/
1. with weak longitudinal wrinkles/
 2. laterally with weak longitudinal wrinkles, medially not wrinkled/
 3. posteriorly with longitudinal wrinkles/
 4. anteriorly weakly colliculate, posteriorly with very weak longitudinal wrinkles/
 5. laterally with strong longitudinal wrinkles, medially weakly rugulose/
 6. anteriorly colliculate, posteriorly with longitudinal wrinkles/
 7. impunctate/
 8. asperous/
 9. very weakly rugulose/
 10. colliculate/
 11. colliculate, posteriorly with transverse striation/
 12. strongly rugulose/
 13. medially with very weak transverse striation/
 14. with strong longitudinal wrinkles/
 15. with distinct transverse striation/
- #62. Metapleuron/
1. impunctate/
 2. scarcely punctate/
 3. moderately punctate/
 4. moderately punctate, posteriorly also weakly rugulose/
 5. densely punctate, ventrally also rugulose/

6. densely punctate/
 7. punctate-rugulose/
 8. coriarius-rugulose/
 9. minutely rugulose/
 10. entirely coriarius/
 11. minutely rugulose-colliculate/
 12. dorsally punctate, ventrally foveolate/
 13. with very fine and moderately dense punctures/
 14. dorsally punctate-rugulose, ventrally foveolate-rugulose/
 15. sparsely and finely punctate/
 16. densely and finely punctulate/
- #63. <Metapleuron wrinkling>/
1. without transverse wrinkles/
 2. with vestigial wrinkles/
 3. dorsally with same wrinkling of propodeum, however less regular/
 4. covered with the same wrinkling of propodeum, however less regular/
- #64. <Metapleuron pilosity>/
1. glabrate/
 2. sparsely pilose/
 3. moderately pilose/
 4. densely pilose/
 5. covered with moderately dense, very short hairs/
 6. densely covered with very short hairs/
 7. dorsally glabrate, ventrally sparsely pilose/
 8. dorsally sparsely pilose, ventrally moderately pilose/
 9. dorsally moderately pilose, ventrally densely pilose/
- #65. Juxtacoxal carina/
1. absent/
 2. represented by very short ridges/
 3. represented by a moderately long and stout ridge/
- #66. Fore tibia/
1. not distinctly swollen/
 2. weakly swollen/
 3. distinctly swollen/
- #67. Mesal lobe of t4/
1. with a distinct cluster of stout bristles/
 2. with 3–4 bristles/
- #68. Hind coxa <sculpturing>/
1. with weak punctures separated by more than their own diameter/
 2. with moderately strong punctures separated by more than their own diameter/
 3. with moderately strong punctures separated by more than their own diameter, dorsally rugulose/
 4. with weak punctures separated by about their own diameter/
 5. with moderately strong punctures separated by about their own diameter, changing to coriarius-colliculate at inner face/
 6. with moderately strong punctures separated by about their own diameter/
 7. with moderately strong punctures separated by about their own diameter, dorsally foveolate/
 8. foveolate-areolate, interior face rugulose/
 9. basally foveolate-areolate, apically punctate, interior face minutely rugulose/
 10. laterally foveolate-areolate, dorsally punctate/
 11. basally foveolate-areolate, apically coriarius/
 12. laterally foveolate, dorsally punctate/
 13. laterally foveolate-areolate, dorsally rugulose/
 14. with external face changing from basally foveolate-areolate to apically coriarius, internal face with sparse and fine punctures/
 15. punctate-coriarius/
 16. weakly and densely punctate/
 17. entirely coriarius/
 18. rugulose-coriarius/
- #69. PROPODEUM: <PLW>/
- × as long as wide/

- #70. <Propodeum shine>/
1. shiny/
 2. mat/
- #71. <Propodeum>/
1. densely pilose/
 2. moderately pilose/
 3. sparsely pilose/
 4. glabrate/
- #72. Anterior area/
1. sparsely punctate, with a median cluster of punctures/
 2. scarcely punctate, medially strigulate/
 3. punctate-coriarius, medially strigulate/
 4. densely punctate, medially rugulose/
 5. punctate-foveolate/
 6. coriarius-foveate/
 7. medially almost impunctate, laterally moderately punctate/
 8. punctate-coriarius/
 9. almost impunctate/
 10. scarcely punctate/
 11. moderately punctate/
 12. densely punctate/
 13. asperous and densely punctulate/
 14. shallowly foveolate/
- #73. Spiracle/
1. elliptic/
 2. elongate/
- #74. SWL/
- #75. Anterior transverse carina medially/
1. straight/
 2. slightly arched forwards/
 3. slightly arched backwards/
- #76. Propodeal wrinkles/
1. anteriorly weak, posteriorly strong/
 2. anteriorly very close and moderately strong, posteriorly stronger and more widely spaced/
 3. very weak before posterior transverse carina, posteriorly strong/
 4. anteriorly and laterally faint, posteriorly moderately strong/
 5. anteriorly faint, posteriorly moderately strong/
 6. anteriorly faint, posteriorly strong/
 7. weak/
 8. moderately strong/
 9. strong/
 10. very weak and restricted to posterior half of posterior area/
 11. vestigial, most of posterior area areolate-rugulose/
 12. vestigial, most of posterior area rugulose/
- #77. <Wrinkles>/
1. closely spaced/
 2. very closely spaced/
 3. moderately widely spaced/
- #78. <Complete or incomplete>/
1. anteriorly complete and ramificate, posteriorly partly complete and partly incomplete and overlapped/
 2. anteriorly irregular and ramificate, medially faint, posteriorly complete/
 3. anteriorly complete, posteriorly mostly incomplete and overlapped/
 4. anteriorly faint at median portion, posteriorly complete/
 5. anteriorly faint at median portion, posteriorly partly complete and partly incomplete/
 6. ramificated and irregular, anteriorly incomplete and posteriorly mostly complete/
 7. mostly complete/
 8. mostly complete, often ramificated/
 9. mostly incomplete and overlapped, with some disperse complete wrinkles/
 10. mostly complete but sometimes medially irregular/
 11. anterior and posterior wrinkles complete, central ones incomplete and overlapped/

12. central wrinkles complete, anterior and posterior ones incomplete and overlapped/
 13. anterior and posterior wrinkles complete, central ones medially faint/
 14. central wrinkles complete, anterior and posterior ones medially faint/
 15. each wrinkle incomplete/
 16. ramificated and irregular, rugulose anteriorly at lateral portions and posteriorly at median portion/
- #79. <Wrinkles shape>/
1. distinctly curved backwards/
 2. anteriorly almost straight, posteriorly slightly arched backwards/
 3. anteriorly distinctly arched forwards, posteriorly distinctly arched backwards/
 4. anteriorly strongly curved, posteriorly somewhat irregular/
 5. anteriorly slightly arched forwards, at posterior 0.8 distinctly arched forwards/
 6. anteriorly slightly arched backwards, posteriorly almost straight/
 7. anteriorly and posteriorly slightly sinuous, median wrinkles medially strongly arched forwards, bell-shaped/
 8. mostly slightly curved or somewhat sinuous/
 9. mostly slightly arched forwards, except some anterior wrinkles medially arched backwards/
 10. anterior wrinkles rather irregular, medially curved backwards, median ones more or less sinuous and posterior ones arched forwards/
 11. oblique and approximately straight/
 12. anteriorly more or less straight, posteriorly slightly arched forwards/
 13. oblique and central ones slightly curved/
 14. approximately straight/
- #80. Posterior transverse carina/
1. complete, uniformly arched forwards, not forming distinct sublateral crests/
 2. complete, uniformly arched forwards, forming moderately strong sublateral crests/
 3. distinct, medially interrupted, forming weak sublateral crests/
 4. distinct as very weak sublateral crests/
 5. distinct as moderately strong crests/
 6. sublaterally faintly suggested, not forming distinct crests/
 7. faintly suggested as a stronger wrinkle/
 8. entirely absent/
- #81. WINGS: Fore wing vein 1-Rs+M/
1. distinctly sinuous/
 2. very weakly sinuous/
- #82. With bulla <fore wing vein 1-Rs+M>/
1. placed on basal 0.25/
 2. placed on basal 0.4/
 3. placed around its midlength/
- #83. Crossvein 1m-cu/
1. more or less uniformly curved/
 2. irregular/
- #84. <1m-cu>/
1. limit between 1m-cu and 1-Rs+M clearly traceable/
 2. limit between 1m-cu and 1-Rs+M more or less traceable/
 3. totally continuous with 1-Rs+M/
- #85. Ramellus/
1. slightly suggested/
- #86. Vein 1M+Rs/
1. uniformly curved/
 2. entirely irregular/
 3. evenly curved in two portions/
 4. anteriorly straight, posteriorly sinuous/
 5. anteriorly irregular, posteriorly curved/
 6. anteriorly straight, posteriorly curved/
 7. anteriorly straight, posteriorly weakly curved/
- #87. Fore wing crossvein 1 cu-a basad of 1M+Rs by/ of its own length/
- #88. Vein 2Cua/
- × as long as crossvein 2cu-a/

- #89. Bulla of crossvein 2m-cu placed/
 1. on midlength/
 2. mostly on posterior half/
- #90. Cell 1+2Rs <areolet>/
 1. of moderate size/
 2. small/
- #91. APH/
- #92. <Arolet shape>/
 1. pentagonal/
 2. subquadratic/
 3. rectangular/
- #93. <Arolet width>/
 1. distinctly higher than wide/
 2. distinctly wider than high/
 3. about as high as wide/
- #94. AWH/
- #95. Crossvein 3r-m/
 1. partially spectral/
 2. fully spectral/
 3. absent/
- #96. 2r-m and 3r-m/
 1. subparallel/
 2. parallel/
 3. distinctly convergent/
- #97. <2r-m and 3r-m relative length>/
 1. about same length/
 2. 3r-m distinctly shorter/
 3. 3r-m distinctly longer/
- #98. Vein 3-M <length>/
 1. about same length of 2-M/
 2. distinctly shorter than 2-M/
 3. almost indistinct/
 4. distinctly longer than 2-M/
 5. long, vein 2-M almost indistinct/
- #99. 4-Rs/
 1. very weakly sinuous/
 2. distinctly sinuous/
 3. irregular, apically not upcurved/
 4. somewhat irregular, apically slightly upcurved/
 5. straight, apically slightly upcurved/
 6. almost straight/
- #100. 4-M/
 1. tubular/
 2. semi-spectral/
 3. spectral/
 4. spectral, apically indistinct/
 5. tubular, apically nebulous/
- #101. <4-M shape>/
 1. irregular/
 2. weakly sinuous/
 3. slightly curved backwards/
 4. straight/
- #102. Hind wing vein 1-M forming/
 1. straight angle with vein Cua/
 2. distinctly obtuse angle with vein Cua/
- #103. Vein 2-Rs/
 1. entirely tubular, apically weaker, reaching wing margin/
 2. tubular, apically spectral, reaching wing margin/
 3. tubular, apically spectral, not reaching wing margin/
- #104. HW1C/

- #105. Vein Cub/
 1. distinctly convex on posterior half, otherwise straight/
 2. almost straight, very slightly convex/
 3. straight/
 4. slightly concave/
- #106. <Cub> forming/
 1. straight angle with Cua/
 2. distinctly obtuse angle with vein Cua (basally curved)/
 3. distinctly obtuse angle with vein Cua (not curved)/
- #107. Vein 2–1A reaching/
 of distance to posterior wing margin/
- #108. METASOMA: First tergite/
 1. short/
 2. moderately long/
 3. very long/
- #109. <First tergite> about/
 × as long as T2–8/
- #110. <First tergite>/
 1. approximately cylindrical/
 2. somewhat depressed/
 3. strongly depressed/
- #111. Ventrolaterally <first tergite>/
 1. rounded/
 2. angled/
- #112. <First tergite>/
 1. dorsally glabrate, laterally densely pilose/
 2. dorsally glabrate, laterally moderately pilose/
 3. dorsally glabrate, laterally sparsely pilose/
 4. dorsally sparsely pilose, laterally moderately pilose/
 5. uniformly, sparsely pilose/
 6. uniformly, moderately pilose/
 7. uniformly, densely pilose/
 8. glabrous/
- #113. T1LW/
 #114. T1WW/
 #115. Spiracle at/
 of its length/
 #116. <Spiracle>/
 1. slightly prominent/
 2. distinctly prominent/
- #117. Median depression/
 1. subcircular, distinct/
 2. elongate, distinct/
 3. absent/
 4. represented only by shallow foveae/
 5. elongate, very shallow/
- #118. Median posterior depression/
 1. absent/
 2. subcircular/
 3. elongate/
- #119. Lateral depressions/
 1. absent/
 2. elongate, very shallow/
 3. elongate, distinct/
- #120. Ventrolateral carina/
 1. absent, but traceable as limit between lateral and ventral portions/
 2. absent/
 3. weak/
 4. weak, medially interrupted/
 5. weak, distinct only at posterior 0.4/

- #121. T2LW/
 #122. T2WW/
 #123. Thyridium/
 1. longer than wide/
 2. much longer than wide/
 3. about as wide as high/
 #124. <Small depression>/
 1. without small circular depression just behind it/
 2. with small circular depression just behind it/
 #125. T2–8 <punctuation>/
 1. covered with small, shallow foveae/
 2. smooth between punctures/
 3. minutely coriarius/
 4. minutely and very weakly coriarius/
 5. densely and finely punctate/
 6. changing from covered with small, shallow foveae in T2–3 to minutely coriarius in T4–8/
 7. minutely coriarius, with small, shallow foveae/
 8. scarcely punctate and minutely and weakly coriarius/
 9. densely punctate and minutely and weakly coriarius/
 10. minutely coriarius, with small, shallow foveae/
 #126. <T2–8 pilosity>/
 1. densely and uniformly pilose/
 2. moderately and uniformly pilose/
 3. moderately and uniformly pilose except glabrate postero-dorsal area in T2–3./
 4. laterally moderately pilose, dorsally T2 glabrate, T3–8 sparsely to moderately pilose/
 5. laterally moderately pilose, dorsally T2–3 and 8 glabrate, T4–7 sparsely to moderately pilose/
 6. dorsally glabrous, laterally sparsely pilose/
 7. dorsally sparsely pilose, laterally moderately pilose/
 #127. OST/
 #128. Ovipositor/
 1. moderately stout/
 2. slender/
 #129. <Ovipositor>/
 1. straight/
 2. slightly sinuous/
 3. slightly upcurved/
 4. strongly upcurved/
 5. slightly downcurved/
 #130. <Ovipositor>/
 1. basally cylindric, apically slightly depressed/
 2. basally cylindric, apically distinctly depressed/
 #131. Dorsal valve/
 1. without ridges/
 2. with four weak ridges/
 3. with five moderately strong ridges/
 4. with four moderately strong ridges/
 5. with three moderately strong ridges/
 6. with three very weak ridges/
 #132. Ventral valve apex with/
 teeth/
 #133. <Teeth spacing>/
 1. widely spaced/
 2. apical teeth progressively more closely spaced/
 3. 1st, 2nd and 3th widely spaced/
 4. 1st and 2nd widely spaced/
 #134. Surface anterior to first tooth/
 1. rugulose/
 2. very weakly rugulose/
 3. smooth/

TABLE 1. Reference works for characters previously used in cladistic analyses of Cryptinae. The remaining characters can be considered “original” in the context of evaluating cryptine phylogenetic relationships, although many of them were re-interpreted from traditional characters used in ichneumonid systematic.

Reference	Characters
Aguiar 2005	5, 10, 36, 49*, 62, 63, 65*, 66, 67, 68, 69, 71, 72, 74, 75, 76, 79, 80, 81, 84, 85, 86, 89, 90, 91, 93, 94, 95, 96, 98, 99*, 100, 106, 113, 119*, 120*, 129, 134, 135, 137, 142, 145, 146, 150, 151, 154, 155, 156*, 160
Santos & Aguiar 2008	2, 3*, 16*, 23, 25, 38*, 47*, 58*, 59*, 101, 105, 144
Tedesco & Aguiar 2009	7, 8, 14, 18, 34*, 35, 45, 51, 52, 53, 60, 82, 108, 110, 111, 116*, 117*, 121*, 125, 126, 130, 136, 138, 141
Santos <i>et al.</i> 2009	27, 30, 103*, 104*

TABLE 2. Character state matrix, for *Messatoporus* species and outgroup taxa, used in the Analyses 1. Characters 1–85. *Subt*, subtribes of Criptini. *Agrt*, *Agrothereutina*. *Barc*, *Baryceratina*. *Cryp*, *Ceratocryptina*. *Cryp*, *Cryptina*. *Gabn*, *Gabumina*. *Glod*, *Glodianina*. *Gory*, *Goryphina*. *Lynn*, *Lymeonina*. *Meln*, *Melanocryptina*. *Mest*, *Mesostenina*. *Ospr*, *Osprynchotina*. Polymorphisms were expressed as follows: a, 01; b, 02. Species of *Messatoporus* in boldface.

Subt	Species	000000001	111111112	222222223	333333334	444444445	555555556	666666667	777777778	88888
		123456789	123456789	123456789	123456789	123456789	123456789	123456789	123456789	123456789
Agrt	<i>Agrothereutes</i> sp.	000101000	00?0?010??	?00000000	100001001	0010110021	1100010000	1110a00010	1000101321	01100
Agrt	<i>Trychosis</i> sp.	010100012	1010000??	?01100000	010001121?	0010111021	1101110000	1000111010	1001011321	01000
Barc	<i>Baryceros</i> sp.	010000012	20110300??	?00000001	1100111111	0000010021	10?0100001	0110000000	0112010000	??121
Barc	<i>Chlorocryptus</i> sp.	100100010?	2010?300??	?00000001	0000000000	0000000000	1110110000	0101010010	021101011	00120
Barc	<i>Whymeria</i> sp.	010000012	20110300??	?01100010	010102120?	??10111020	00?0000000	0020010010	1001001011	01110
Cert	<i>Lorio</i> sp.	001000000	00000310??	??10100000	0000020111	1000111020	11000101?1	0111010010	1002110000	?????
Cert	<i>Nematocryptus</i> sp.	011101012	1???310??	?01001001	0100111121	0001011001	1100111101	00?0000110	0002110100	??121
Cryp	<i>Anacis apoeca</i>	0011210011	10?01100??	??10000000	0000001111	0100000021	10?000101a	0111111000	1111111311	20120
Cryp	<i>Anacis festiva</i>	011100012	00?0?310??	?00000000	0001001010	0110100000	1110100000	0101?11000	1111001011	10010
Cryp	<i>Buarthra laborator</i>	0001010001	11?00200??	??10000000	0000011111	1000001001	1110100000	100111011	0000011011	10100
Cryp	<i>Camera</i> sp.	011100012	20000100??	?00100000	1100000011	0a10100001	0100000000	0120000000	1011000000	10120
Cryp	<i>Compsocryptus callipterus</i>	010000002	00110010??	?000000000	0100000200	1000001021	00?0100000	1121010000	0212111301	20100
Cryp	<i>Diphomas</i> sp.	010000012	10110010??	?00101000	000102000?	??0?11020	1110110111	00?0000110	1001101021	10010
Cryp	<i>Dotocryptus</i> sp.	0001001000	10?0?200??	??10000001	1101010111	0100010011	1?0?110000	1111?00011	0100011011	11120
Cryp	<i>Enclisis</i> sp.	0101010012	101?0000??	??10000000	0100010111	00?0?00000	1110000000	00?0100111	1110011311	10010
Cryp	<i>Ischnus</i> sp.	0101000011	10110010??	?000000000	0101011111	00?0?10010	10?0001000	0110111010	1201001021	20000
Cryp	<i>Joppidium moerens</i>	010100012	200100010??	?001000001	0000000111	0000002020	00?0101000	21?0110100	??10101001	0?100
Cryp	<i>Meringopus</i> sp.	0001010002	01?00000??	??10000000	0100010101	0000001001	1120100001	1111111010	0310211011	11100
Cryp	<i>Monothea</i> sp.	0001100102	20110300??	??101010?0	0000021200	??0?000021	1100000001	0021000000	0011111011	20110
Cryp	<i>Neodontocryptus</i> sp.	1001000102	01?00000??	??10000000	000011020?	??0?0010020	0100110000	1121000010	0110211001	12120
Cryp	<i>Trachysphyrus</i> sp.	0100001111	00010310??	??10000000	1100011111	0010111001	1100100000	1020111000	0110011011	10110
Cryp	<i>Tricentrum</i> sp.	0001100100	00102000??	?000100010	0000210000	0000010000	1110000001	0001000010	0210111001	20110
Cryp	<i>Trihopsis</i> sp.	0010011001	00110000??	?000001000	100002020?	??00000000	00?0000000	00?0000110	1000111011	1?000
Gabn	<i>Agonocryptus varus</i>	0002100100	20001010??	??1001?010	1000001010	0010110000	0100010000	0110010010	0001a11101	0?000
Gabn	<i>Cestrus calidus</i>	0102100110	10001010??	??10000000	0000010110	1010000011	10?0011000	01?1000101	0010011311	20100
Gabn	<i>Digonocryptus crassipes</i>	010210010	10001210??	??01000000	0000000010	1110110021	10?0110000	00?0000110	1011100011	00100
Gabn	<i>Distictus tibialis</i>	01001a0111	00001210??	?000000100	0100001011	0000010001	10?1110000	00?0000110	0111011111	10100
Gabn	<i>Eurycryptus</i> sp.	0100000100	00001010??	?000001020	0111000121	1010001001	10?0011010	0101010010	0000110100	10000
Gabn	<i>Lagarosoma assitum</i>	0002000112	101011010??	?001000010	1001021110	0110111011	00?0011011	0010000001	1002111301	12020
Gabn	<i>Prosthoporius nigrifemur</i>	0002000012	1010?110??	?00011?0000	0001001111	000001020	00?0010110	0000000011	1002111011	02000
Gabn	<i>Xantocryptus</i> sp.	0100100100	20?0?300??	??10000001	1001020010	000111020	0100010000	01?0000110	0101010000	??021
Gabn	<i>Xoridesopus</i> sp.	0000100100	0000?310??	?000000000	0001001011	1000010011	11100100?1	0101000010	0002110000	10010
Glod	<i>Glodianus</i> sp.	0000000002	1011001101	?001100010	0101010101	0?0?11010	1101000000	0100010000	1001110101	00020
Glod	<i>Lamprocryptus</i> sp.	0002000002	00110310??	?001000010	0000011100	0000011011	1100000000	0100010010	1001111101	31020
Gory	<i>Baltazaria</i> sp.	0000010012	00101300??	?011000000	0100011111	0010110010	1101100000	0110010010	1111210000	??101
Gory	<i>Bozakites</i> sp.	0110000012	1010?300??	??101000010	1100111111	1000010001	1100100000	0111000010	0011110000	01120
Gory	<i>Buodias</i> sp.	0010110112	10???310??	??111000001	1100011111	0010111001	1100000000	01?0000110	0101010301	01000
Gory	<i>Debilos</i> sp.	0000000002	10110100??	?001000000	0001001010	0000011011	1110101000	0100000000	1111110000	??001
Gory	<i>Diapetimorpha</i> sp.	0100000102	10100300??	??10100001	0100010101	0001010011	1110100000	0000000000	1001010000	??111
Gory	<i>Friona</i> sp.	0101000012	10000300??	??111000011	1100111120	10000011001	1110101100	0101010010	1011111001	00120
Gory	<i>Goryphus</i> sp. 1	0001010012	10?01010??	?010000000	0100010011	0010110000	0100101000	0000000010	0212010000	01100
Gory	<i>Goryphus</i> sp. 2	0101010012	10101210??	?010000110	1100001011	0010110011	1100100000	0010000010	0111010000	1?000
Gory	<i>Larpeletes</i> sp.	0100000001	1010130100	0210000010	1100010111	1000002020	1101100001	0111010010	0111210301	22020

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TABLE 2. Continued.

Subt	Species	000000001	111111112	222222223	333333334	444444445	555555556	666666667	777777778	88888
Gory	<i>Loxopus australis</i>	001101012	101101100??	??000000000	0001001010	1010111001	1100100001	00?00a0100	11a1200000	??011
Gory	<i>Necolio</i> sp.	0111000012	101?3300??	??111000000	1101011111	1000011001	1100000000	0001110010	1010110111	11100
Lynn	<i>Acerastes pertinax</i>	0100010012	0000?310??	??011000000	0110111121	1001010000	1110010001	0111000010	0013?10001	??111
Lynn	<i>Acerastes</i> sp. 1	0000010112	10?0?210??	??01100011	1100110121	0111110001	0100111011	0100000010	00a2100010	??021
Lynn	<i>Acerastes</i> sp. 2	0102000112	10100110??	??01100010	1110101111	0111100001	0100011101	01?0000110	0002110000	??001
Lynn	<i>Acerastes</i> sp. 3	0000010012	10100010??	??01100000	1100111120	1111110001	0100011001	00?0000010	0202110000	??111
Lynn	<i>Acerastes</i> sp. 4	0010000012	10100110??	??00100010	0100110010	0a10110010	1110011101	0110000011	0112110010	??001
Lynn	<i>Acerastes</i> sp. 5	0000010112	00100210??	??01100000	0100101111	0111110001	1100011101	01?0000111	0003?01011	??121
Lynn	<i>Basileucus</i> sp.	0010000102	1010?300??	??01100010	0101001000	1110110001	0100011001	0020010001	0111011001	1?110
Lynn	<i>Bathyzonus</i> sp.	0001010111	10000010??	??01100020	1110010121	0a00010010	1100011111	0100000011	12b2?00011	0?021
Lynn	<i>Bicryptella</i> sp.	0101000002	20110300??	??00100001	1101011011	1010110011	1110110001	0120000010	0111111000	1?000
Lynn	<i>Dismodix</i> sp. 1	0110000012	10100110??	??01100000	0111010012	0111100011	0101100011	0110000011	0012110000	??101
Lynn	<i>Dismodix</i> sp. 2	0000010012	10100010??	??01000010	0110111121	0111100011	0100011001	0110000011	10a2110000	??001
Lynn	<i>Dismodix</i> sp. 3	0000000012	10100010??	??01100000	0110100121	0111100001	0100111101	00?0010101	0002100010	??001
Lynn	<i>Golbachiiella</i> sp. 1	0111000102	01?0?100??	??000012?0	0001020001	0000010021	00?0111011	0000000010	20a1101010	1?001
Lynn	<i>Golbachiiella</i> sp. 2	0001000112	01?00000??	??00000201	1010000011	1010110021	0110111000	0010000000	1011001001	1?000
Lynn	<i>Latosculum</i> sp. 1	0000000002	00000000??	??00000000	0001020011	0000011020	10?0010000	0100000000	00a1010301	00100
Lynn	<i>Latosculum</i> sp. 2	0100000112	1???210??	??00000010	0100011000	1000011000	1100011110	0101010010	1102110100	??100
Lynn	<i>Lyneon adultus</i>	01101210012	00001310??	??10000010	01000?1111	1100010000	1100110001	00?1000110	0212110001	??101
Lynn	<i>Lyneon ariolator</i>	0111010101	11?01110??	??00000011	1100011011	?1?0011011	1110010000	1101000000	0112111001	??101
Lynn	<i>Lyneon orbis</i>	0011010112	00001110??	??10000010	00000?1101	1100000001	1110110001	0111000010	0012110000	??011
Lynn	<i>Lyneon</i> sp. 1	00010a0012	10100210??	??01000000	1010100010	1010110111	1100010000	0100000010	0012a10001	??001
Lynn	<i>Lyneon</i> sp. 2	0000000012	20100210??	??01100001	0101111010	1101111001	1100010000	0010000000	0112111001	??111
Lynn	<i>Mallochia agenicioides</i>	0010100101	20100200??	??01100101	0101021010	1000000001	00?0011000	0110000010	1002111000	??101
Lynn	<i>Mallochia</i> sp. 1	0101000112	1010?310??	??00100010	0101111011	1000011001	1100010011	0111010010	1110111300	??021
Lynn	<i>Pachysomoides fulvus</i>	0110010111	0010?210??	??00000100	0000010100	0000110111	1100010001	0100000010	0111201010	??001
Lynn	<i>Pachysomoides</i> sp.	0010000002	20100010??	??00000000	0110001011	1101001001	1100011011	00?0000100	1213?10011	??001
Lynn	<i>Petila capixaba</i>	0101000112	0010011100	1101101101	0110101121	0011111101	1100111101	01?0010111	0002101010	??021
Lynn	<i>Polycyrtidea</i> sp. 1	0101000112	1010001100	1101100000	1100110120	1011010011	0111111101	01?0000011	0003?11000	??021
Lynn	<i>Polycyrtidea</i> sp. 2	0110000001	10000210??	??0001?000	0010020000	??00001020	1100111110	0100000011	0002110011	02020
Lynn	<i>Polyphrix stellata</i>	0001000000	10000210??	??0001?001	1010021000	0000011020	10?0011110	0110010011	0002110010	02020
Lynn	<i>Polyphrix varians</i>	0100000002	1010?210??	??000002?0	010102120?0	??000001021	10?0010000	0000000010	0002110010	??111
Lynn	<i>Priotomis vinhai</i>	0001000012	10000210??	??01100000	1101110001	0010110001	1101100000	0010000000	0012110011	??101
Lynn	<i>Rhinium</i> sp. 1	0100010012	10000210??	??01100000	0100101010	1010110011	1101100000	0010000000	0012110011	??101
Lynn	<i>Rhinium</i> sp. 2	0100010111	00100110??	??01100000	0100101010	0101010001	1110110001	0100000010	0211110011	1?121
Lynn	<i>Rhinium</i> sp. 3	0100010111	00100110??	??01100000	0100101010	0101010001	1110110001	0100000100	0211110011	1?121
Lynn	<i>Strabotes abdominalis</i>	0102110102	10101300??	??00000001	10000?1121	1100010011	1120110001	00?1000110	0110110301	2?101
Lynn	<i>Toechorychus albimaculatus</i>	0101000112	00100310??	??01101101	1100121121	1010012001	1100111111	0111000010	0112110000	??121
Lynn	<i>Toechorychus cassunungae</i>	0101000102	00100110??	??01100111	1100101121	1010112001	1100111011	0111000010	0012110000	??101
Lynn	<i>Toechorychus stramineus</i>	0101000112	10100310??	??01101011	1100101111	1010012001	1100111011	0111000010	0102110000	??101
Meln	<i>Melanocryptus</i> sp. nov.	0002000001	21110300??	??00100111	0001010000	0010111020	1100011111	0120110001	0212110000	10100
Mest	<i>Acorystus circumflexus</i>	0111000012	0000000100	0000000000	0000021121	0000001020	10?00001010	01?00001010	1212110310	00120

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TABLE 2. Continued.

Subt	Species	0000000001	1111111112	2222222223	3333333334	4444444445	5555555556	6666666667	7777777778	8888888889
Mest	<i>Cryptanura quadrimaculata</i>	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890
Mest	<i>Diloa</i> sp.	0000000111	1000030110	0001100001	0100011111	0000010021	1110101001	0110010010	0101110300	02020
Mest	<i>Gotra marginata</i>	0011000012	10100100??	??00000000	1000011111	1000000020	1120001010	0101000000	1101100000	??101
Mest	<i>Irabatha</i> sp.	0101000001	001013000??	??10100010	1001111111	1000010010	1110100000	0010110000	0010110100	02120
Mest	<i>Mesostenus</i> sp. 1	0002210012	1000?300??	??11100000	0100000111	1101010001	1011000001	0111010001	1112110000	00120
Mest	<i>Mesostenus</i> sp. 2	0111000102	00000310??	??00000000	000001121	1010100000	1010000000	0111000000	1012110000	??111
Mest	<i>Polycyrtus</i> sp. 1	0010100002	1000000100	0000100010	0010111121	0000012100	00?0001000	01?0000110	000111010a	02120
Mest	<i>Polycyrtus</i> sp. 2	0111000002	1000000100	0200100010	0110110121	0000000000	00?0001000	01?0000110	0001110101	02020
Ospr	<i>Acroricnus stylator</i>	0111000112	2000?110??	??01100000	0100010001	1010001001	1110110001	01?11?0111	2200011311	20110
Ospr	<i>Acroricnus</i> sp.	0112001102	21?01310??	??11100010	1100000001	0000012020	1110110101	10?1100111	1210011101	11120
Ospr	<i>Iaria</i> sp.	0002000112	00001300??	??10101000	1001001101	1110011011	1100111101	0111000011	1112110100	??011
Ospr	<i>Messatoporus amarelius</i>	0002011102	00001110??	??1001?000	0100001100	0110001010	00?0011110	0101000011	0002100100	??001
Ospr	<i>Messatoporus amazonensis</i>	0002011102	00001110??	??1001?000	0000001110	0110101000	00?0011110	0111000011	0002100100	??001
Ospr	<i>Messatoporus bennetti</i>	0002011102	000?1110??	??1001?000	0000001111	0110111011	1120011110	0121010011	0102010100	00120
Ospr	<i>Messatoporus bicolor</i>	0000011102	100?1100??	??00000000	0000001111	1110110011	1110001110	01?0000111	0002100101	00000
Ospr	<i>Messatoporus bimaculatus</i>	0000011102	20001100??	??1001?000	0000001111	1110110011	1110001110	01?0000111	0002100100	00020
Ospr	<i>Messatoporus complexifemur</i>	0002011102	20001100??	??1001?000	0000001110	0110111000	0100011110	01?0000111	00021a0100	??0a1
Ospr	<i>Messatoporus compressicornis</i>	0002011102	20011310??	??0001?000	0000010110	0110001000	1120011110	0101010011	0012110100	00120
Ospr	<i>Messatoporus convexus</i>	0000011102	20011010??	??1001?000	0000001110	1110111010	00?001110	0121000011	0202110100	??101
Ospr	<i>Messatoporus copiosus</i>	0002011102	20001110??	??1001?000	0000001110	0110101010	1000011110	01?0000111	0002110100	??001
Ospr	<i>Messatoporus discoidalis</i>	0100011102	20001010??	??1001?000	0000011111	1110110011	1110001111	0101000011	0102100100	10020
Ospr	<i>Messatoporus elektor</i>	0000011102	20001310??	??1001?000	0000001111	1110101000	1000011110	0101000011	0002110100	1?001
Ospr	<i>Messatoporus euryoikos</i>	0002011102	00011300??	??0001?000	0000001110	1110111010	0120011110	0101000011	0002110100	00000
Ospr	<i>Messatoporus fulvator</i>	0002011102	00001110??	??1000?000	0000001111	0110000000	1000011111	0101000011	0002110100	00000
Ospr	<i>Messatoporus jalapa</i>	0002011102	20011300??	??0001?000	000000121	0110100010	1120011110	01?0000111	0002110100	00120
Ospr	<i>Messatoporus lissonotus</i>	0000011102	20011310??	??1001?000	0000001111	1110101010	10?0011110	0101000011	0002110100	00120
Ospr	<i>Messatoporus longicaudis</i>	0000011102	20011310??	??1001?000	0000001110	0110101010	0120011110	0101000011	0002110100	00010
Ospr	<i>Messatoporus nigricutus</i>	0000011102	20001110??	??1001?000	0000001111	0110001001	1100011110	0101000011	0002110100	00120
Ospr	<i>Messatoporus paeneater</i>	0002011102	00001300??	??1001?000	0000001110	1110111010	1120011110	0101000011	0002110100	00100
Ospr	<i>Messatoporus pallidus</i>	0002011102	00001310??	??00000000	0000001111	0110110000	00?0011110	01?0000111	0002100100	10000
Ospr	<i>Messatoporus paraguayensis</i>	0002011102	00011110??	??0001?000	0000001100	0110111010	0110011110	01?0000111	0002100100	00000
Ospr	<i>Messatoporus pleuriflavus</i>	0002011102	20011010??	??1001?000	0001001111	0110111001	0100011111	0101000011	0002100100	00000
Ospr	<i>Messatoporus tenuissimus</i>	0002011102	200?1110??	??0001?000	0000001110	1110101010	0100011110	01?0000111	0012100100	10000
Ospr	<i>Messatoporus tibiator</i>	0000011102	00011110??	??1001?000	0000001111	0110010011	1120011111	0101000011	0102110100	10100
Ospr	<i>Messatoporus transversostriatus</i>	0002011102	20001110??	??0001?000	0010001111	0110011011	10?0011101	0101000011	0002110100	00120
Ospr	<i>Messatoporus variegatus</i>	0100001102	200?1300??	??11100000	0000010001	0100112000	1000110001	2111110011	1210220301	12120
Ospr	<i>Osprynchotus</i> sp.	0001000112	21?01310??	??01100000	0110011110	0110110011	00?0110000	01?0000111	0201111111	11100
Ospr	<i>Photocryptus nigrosignatus</i>	10000	1210210010	?10010020	?01000?0?3	?0?1110011	1011001111	1002200101	1000002110	01
Ospr	<i>Stenarellia</i> sp. 1	10001	1000010110	?100100002	?00000000?3	?0?1110011	1101000121	1002200101	1000002110	01
Ospr	<i>Stenarellia</i> sp. 2	000120000?	21?00000??	??00001000	000001020?	??00000010	1100100000	0021000010	0110111001	11100
-	<i>Phygadeuon</i> sp.	0a00011002	10100010??	??00000000	1100010001	1000001010	1100100000	1021100010	1110110311	00010
-	<i>Platymystax</i> sp.	0000000001	1111111112	2222222223	3333333334	4444444445	5555555556	6666666667	7777777778	8888888889

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TABLE 2. Continued. Characters 86–162.

Subt	Species	0000	00000000001	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	11
8889	Agrothereutes sp.	9999999990	000000001	111111112	222222223	333333334	444444445	555555556	66						
67890	Trychosis sp.	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	1234567890	12
01101	Baryceros sp.	1111210010	000?010210	001000?011	0?10111000	0001000000	0001000000	0001000000	0001000000	0001000000	0001000000	0001000000	0001000000	0001000000	00
01101	Chlorocryptus sp.	1010010010	000?010200	101000?011	0?121110011	0001011210	2001100000	0001000000	0001000000	0001000000	0001000000	0001000000	0001000000	0001000000	00
10010	Whymperia sp.	1000000010	001?0001002	0?0000?0?3	0?00110010	0100010000	0100010000	0100010000	0100010000	0100010000	0100010000	0100010000	0100010000	0100010000	00
00000	Lorio sp.	0010000010	000?221100	001000?010	0?121110021	1101002220	20011010001	0000100100	0000100100	0000100100	0000100100	0000100100	0000100100	0000100100	00
00100	Nematocryptus sp.	0010210111	1100210002	20111000?2	0?11111010	1011100000	1011100000	1000000110	11						
11101	Anacis apoeca	0010200010	000?200012	0000110?3	0?01110021	1001111221	1001100000	0000000100	?0						
00101	Anacis festiva	1100200010	000?200010	000010?0?2	1011110010	000011210	2000020000	0000000101	00						
00111	Buarthra laborator	1010000010	000?101010	101000?011	0?12010010	0000000211	2001100000	0000000000	00						
00100	Camera sp.	1110200?10	0000000002	101110?010	0?12111010	0100000001	2000000001	0000000000	00						
00100	Compsocryptus callipterus	1000010010	001?210110	000010?011	0?11110011	0001011110	0001000000	0001000000	00						
00100	Diplohimas sp.	1010200110	0000200012	000000?011	0?121110000	0011000020	2000200010	1001000000	00						
00101	Dotocryptus sp.	1010200110	001?010012	001010?010	0?10110020	0110012211	1002221101	1000000120	00						
00101	Enclisis sp.	1010000001	1011011212	101010?010	0?02110011	1111100100	1000000001	0000000100	10						
00101	Ischnus sp.	1010010010	000?210112	001000?011	0?11110001	1001000111	2001000000	0001000000	00						
00100	Joppidium moerens	1200210010	?10?201012	101000?0?2	0?11110021	1100102210	1011210000	0001000000	00						
00100	Meringopus sp.	1110200110	0000000002	100000?010	0?10110000	0001000000	2000210000	0001000000	00						
00001	Monothela sp.	1010010110	?100211001	200110?011	0?121110010	0010001210	2002000000	0001000000	00						
00000	Neodotocryptus sp.	1010100010	0000000002	00?000?010	0?10120000	0101000001	2001000011	0000000101	00						
00100	Trachysphyrus sp.	1100210010	000?020002	001?0?0?2	0?10111100	0000010200	2011100000	0000000000	00						
01111	Tricentrum sp.	1011110010	?100211101	001000?010	0?12100010	0000011201	0002000000	0001000100	00						
00101	Trihopsis sp.	1011000000	000?121110	001000?000	0?11101110	0000010120	0001000000	0000000000	00						
01100	Agonocryptus varus	1000010011	0000200002	?00000?0?3	0?01110001	1100100200	2100000011	1000000010	21						
00100	Cestrus calidus	0000010011	0000210112	001010?010	0?01110010	0110100001	1101000011	0000000010	00						
00001	Digonocryptus crassipes	1100000011	0000210102	a0100100?2	0?11111001	0101101110	2110010011	1000000010	10						
00101	Distictus tibialis	1101200212	20000100?2	0000100?2	0?11110001	0001101100	0100000011	0000000110	11						
10001	Eurycryptus sp.	1010210011	0100020010	1000100000	0?01110000	0001100200	2100001001	1000000110	01						
10101	Lagarosoma assitum	1201010011	1101100002	?00000?0?3	0?01110010	1000112220	0112010011	1000000010	00						
10001	Prosthoporius nigrifemur	2101200000	?101100000	?0001100?3	0?01110011	1010101221	0002010001	1000000001	00						
00010	Xantocryptus sp.	2100210011	0100200010	201010?0?2	0?02110000	0001101201	0101011001	1000000010	00						
00101	Xoridesopus sp.	1000101011	011?210000	000000?001	0?11110011	0001100100	1101010001	1000000110	11						
10010	Lamprocryptus sp.	1001010010	?10?200100	101?100?1	0?12110021	1100002221	0001000000	1001010000	00						
01101	Baltazaria sp.	1100010000	000?011112	101000?010	0?12111100	0001000001	0001000000	0001000000	00						
00101	Bozakites sp.	1100200010	0000011000	101010?010	0?10110000	0001000000	2100010001	0000000000	00						
01101	Buodias sp.	1000010010	000?021202	101010?0?2	0?10110000	0001000000	2000000001	0001000100	10						
00101	Debilos sp.	1100000010	000?021102	200000?0?2	1001110020	0010000201	1001000001	1001000001	00						
00101	Diapetimorpha sp.	1001010010	000?020210	10100a?010	0?11110021	0011000021	0111000000	0001000000	00						
10001	Friona sp.	1010210010	?100011202	1000000000	1001111010	1001010121	2101010000	0000000100	00						

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TABLE 2. Continued.

Subt	Species	0000	0000000000	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	11
Gory	<i>Goryphus</i> sp. 1	01101	1000010010	?0?221202	001000?0?2	0?10110010	0001000000	2000110011	0000000000	10						
Gory	<i>Goryphus</i> sp. 2	00101	1000000010	?00?10202	101000?0?0	0?10110000	0001000000	0000110011	0000000000	00						
Gory	<i>Larpelites</i> sp.	10001	0210000110	?000201202	101000?010	0?10111010	0101001000	2000210001	0000000000	00						
Gory	<i>Loxopus australis</i>	01101	1100110010	?00?100000	000010?000	0?11110001	0001000210	0010000000	0000000000	00						
Gory	<i>Necolio</i> sp.	00101	1010210011	1000210212	111000?0?2	0?11110011	1101001111	1000010000	0001000001	00						
Lynn	<i>Acerastes pertinax</i>	01101	1020001010	?000220010	100010?0?2	1112111010	0000001211	0001000000	0001000101	00						
Lynn	<i>Acerastes</i> sp. 1	00101	1000200010	?00?200010	100110?0?2	1?01110011	1000002221	1001100000	0001000000	00						
Lynn	<i>Acerastes</i> sp. 2	10101	1000000010	?11?100212	100000?0?3	0?01110011	0000002221	0001100001	0001000101	00						
Lynn	<i>Acerastes</i> sp. 3	00101	0010000000	?00?200210	001010?003	0?01110011	0000111221	0001100000	0001000001	?0						
Lynn	<i>Acerastes</i> sp. 4	01101	0000000010	?00?010210	100010?000	0?11110011	0000012211	?001110000	0001000100	00						
Lynn	<i>Acerastes</i> sp. 5	01101	0010210000	?00?200200	001010?000	1112110010	0000001221	1001110010	0001000001	?0						
Lynn	<i>Basileucus</i> sp.	01101	1001000010	?00?210012	100000?0?2	1100110010	1000001210	0001000000	0000000000	00						
Lynn	<i>Bathyzonus</i> sp.	00101	1000000000	?11?220210	200010?000	0?01110001	1000111201	0001010000	0001000101	??						
Lynn	<i>Bicyrptella</i> sp.	01101	1000010010	?00?010102	001000?010	0?00111011	0100001210	1001010001	1000000100	00						
Lynn	<i>Dismodix</i> sp. 1	00001	1000010010	?00?200212	?01010?0?3	0?01110021	1000112221	1001000001	1001000101	??						
Lynn	<i>Dismodix</i> sp. 2	00101	1010010010	?00?200212	100000?0?3	0?01110010	0000002211	1001000001	1001000101	?0						
Lynn	<i>Dismodix</i> sp. 3	01101	1000110010	?01?200212	100000?0?3	1102110010	1100012220	1001000001	1001000101	?0						
Lynn	<i>Golbachia</i> sp. 1	00101	1000100000	?11?210210	000000?0?3	0?01110000	1010001010	0001110001	1000000101	??						
Lynn	<i>Golbachia</i> sp. 2	00101	1020110000	?01?20212	101000?0?2	1101110011	0010002220	0001010000	0001000000	00						
Lynn	<i>Latosculum</i> sp. 1	00100	1200010010	?10?210100	100000?013	0?11110010	0000012211	0001000000	0000000100	00						
Lynn	<i>Latosculum</i> sp. 2	00101	1010010110	?100100001	10000000?3	10?1110010	0010012220	2001010000	0001000101	00						
Lynn	<i>Lymecn adultus</i>	00101	1020001111	1000110011	1010000002	10?2110000	0000001200	2101000000	0001000001	00						
Lynn	<i>Lymecn ariolator</i>	01101	1010000?11	1001020201	101000?0?2	10?1110000	0000003210	2101020001	0001000001	00						
Lynn	<i>Lymecn orbis</i>	01101	1020010011	0000210011	00101000?3	11?2120001	0010011211	2001000000	0001000000	00						
Lynn	<i>Lymecn</i> sp. 1	01101	1100010000	?00?120102	100000?0?2	1001110011	1000001220	0001000000	0001000000	00						
Lynn	<i>Lymecn</i> sp. 2	01101	1100200010	?00?211100	100010?0?2	1002110011	0100011121	0001010000	0000000101	00						
Lynn	<i>Mallochhia agenoides</i>	01101	1020000111	1100120200	?0000000?3	0??1111011	0100001201	0001000000	0001000000	20						
Lynn	<i>Mallochhia</i> sp. 1	01101	0000200001	1101120212	201110?0?3	0?11110000	1100101210	0000000010	0000000000	21						
Lynn	<i>Pachysomoides fulvus</i>	00101	1010010110	?0?010000	201000?010	1110001100	0000001001	0100000000	0001000101	00						
Lynn	<i>Pachysomoides</i> sp.	01101	1100000010	?01?2?0102	001010?010	0?10221000	0000001210	?001110000	0001000001	00						
Lynn	<i>Petila capixaba</i>	011?1	1?1?001100	?01?100212	?00000?0?3	0?01110001	1100112220	?001000000	0001000001	00						
Lynn	<i>Polycyrtidea</i> sp. 1	01101	1010011110	?00?210010	100010?010	1112110021	1100102221	1001?00000	0001000000	00						
Lynn	<i>Polycyrtidea</i> sp. 2	00100	1020011?10	?0002000110	001010?0?0	0?12000020	1100001220	?000100000	0001000000	00						
Lynn	<i>Polyphrix stellata</i>	10001	0000010010	?10?200010	?0000110?3	0?01110011	1100102220	1001010010	0001000101	00						
Lynn	<i>Polyphrix varians</i>	10010	0000100010	?10?200010	?0000110?3	0?01110021	1000102220	1001010010	0000000100	00						
Lynn	<i>Priotomis vinhai</i>	00101	0001010000	?10?200010	?0000100?3	0?01110000	00100001221	2001000000	0001100100	20						
Lynn	<i>Rhinium</i> sp. 1	01101	1010000010	?00?200012	100000?0?2	1101110011	0000011200	0001000000	1000000001	00						
Lynn	<i>Rhinium</i> sp. 2	00101	1101010010	?00?210112	001000?0?2	1101111021	0100002221	0001110000	0000000001	00						
Lynn	<i>Rhinium</i> sp. 3	00101	1101010010	?00?220202	001010?0?2	1002110011	0100001121	0001000010	0000000001	00						
Lynn	<i>Strabotes abdominalis</i>	01101	2011200011	0100210001	101110?0?2	0??0101010	0100000100	2110000011	0000000110	01						

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TABLE 2. Continued.

Subt	Species	00000	00000000001	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	1111111111	11
Lynn	<i>Toechorychus albimaculatus</i>	10011	1010010110	?100110?11	?0000000?3	?000110011	1000011211	2002110001	0111000010	00				00
Lynn	<i>Toechorychus cassununguae</i>	10101	1010010010	?100120211	00001000?2	1011110011	0000011210	0002110001	0111000010	00				00
Lynn	<i>Toechorychus stramineus</i>	10111	1100210110	?100210211	100000?0?2	1010111011	0000001010	0002110001	0111000010	00				00
Meln	<i>Melanocryptus niger</i>	00101	1001000010	?00?120211	000000?01a	??12220010	00001a1200	1000000000	0000000010	00				00
Mest	<i>Acorystus circumflexus</i>	11111	1101200010	?11?201012	?00000?0?3	?011110021	1000002210	0101000000	0001000000	00				00
Mest	<i>Cryptanura quadrimaculata</i>	10000	1100000010	?00?200210	001000?000	1012110010	00010a2200	2111100000	1001000000	00				00
Mest	<i>Diloa</i> sp.	00101	1010010000	?101221001	100000?000	??12110111	1001011210	200101001?	?001?0010?	00				00
Mest	<i>Gotra marginata</i>	10101	1010200110	?000020202	101000?0?2	1000121000	0001001100	0000010000	0001000000	00				00
Mest	<i>Irabatha</i> sp.	00101	1100010110	?a00011011	001000?0?2	1002121011	0001002200	2000100001	0000000001	00				00
Mest	<i>Mesostenus</i> sp.	10101	1100100010	?100220011	100110?011	??11110021	10000011220	0002100001	1001000001	00				00
Mest	<i>Polycyrtus</i> sp. 1	10110	1001010010	?10?101012	001000?0?1	1001110021	0011002221	0101000001	0000000000	00				00
Mest	<i>Polycyrtus</i> sp. 2	10000	1001000010	?11?101112	201000?0?2	1101110021	0111002220	0011100000	0001000010	00				00
Ospr	<i>Acroricnus stylator</i>	00100	0021200011	101?220012	101010?000	?000110020	1000012221	1101211111	1001000020	00				00
Ospr	<i>Acroricnus</i> sp. 1	00101	2010200111	001?100212	101010?010	?002110021	1000011121	1001200111	1000000120	00				00
Ospr	<i>Iaria</i> sp.	00001	1010010011	1000010102	100000?0?2	1002111011	0001011110	2000201111	1000000110	00				00
Ospr	<i>Messatoporus amarelius</i>	00101	0010210111	0101100211	?0000000?3	?001110021	1100112221	21?2001101	1000001120	00				00
Ospr	<i>Messatoporus amazonensis</i>	00101	0011210111	0101100212	?0000000?3	?011110021	1100112221	0112001101	1000001120	00				00
Ospr	<i>Messatoporus bennetti</i>	00001	1010200111	0101200212	?0000000?3	?001110021	1100112220	1112001101	1000001120	00				00
Ospr	<i>Messatoporus bicolor</i>	00101	2010010111	0101200212	0000000000	?001110021	1100112222	11?2001101	1000001120	00				00
Ospr	<i>Messatoporus bimaculatus</i>	00001	1010010011	0101200212	?0000000?3	?001110021	1100112221	1112001101	1000000120	00				00
Ospr	<i>Messatoporus complexifemur</i>	00101	0010010111	0101100212	?0000000?3	?001110021	1100112221	1112001101	1000001120	00				00
Ospr	<i>Messatoporus compressicornis</i>	00101	0010210111	0101100212	?0000000?3	?001110021	1100112221	0112001101	1000001120	00				00
Ospr	<i>Messatoporus convexus</i>	00101	0010000111	1101200202	?0000000?2	??11110021	1100112221	10?2001101	1000000120	00				00
Ospr	<i>Messatoporus copicosus</i>	00101	2010010011	0101100212	?0001000?3	?001110021	1100112221	1112001101	1000001120	00				00
Ospr	<i>Messatoporus discoidalis</i>	00001	1010000111	1101200212	0000100000	?001110021	1100112221	0012001101	1000000120	00				00
Ospr	<i>Messatoporus elektor</i>	00001	0010010111	1101200211	?0000000?3	?001110021	1100112220	2002001101	1000000120	00				00
Ospr	<i>Messatoporus euryoikos</i>	00001	2010210011	0101200202	?0000000?3	?001110021	110112221	2112001101	1000001120	00				00
Ospr	<i>Messatoporus fulvator</i>	00101	0011010011	0101200202	?0000000?3	?001110021	1100112221	1112001101	1000001120	00				00
Ospr	<i>Messatoporus jalapa</i>	00101	0010000111	1101200202	?0000000?2	??11110021	1100112221	10?2001101	1000000120	00				00
Ospr	<i>Messatoporus lissonotus</i>	00001	2010010111	0101200212	?0000000?3	?001110021	1100112221	0112001101	1000001120	00				00
Ospr	<i>Messatoporus longicaudis</i>	00001	2010210?10	?101100212	0000000000	?001110021	1100112221	2112201101	1000001120	00				00
Ospr	<i>Messatoporus nigriscutus</i>	00001	0010210111	0101200212	?0000000?2	?001110021	1100112221	2112201101	1000001120	00				00
Ospr	<i>Messatoporus opacus</i>	00001	0010010011	1101100212	?0000000?3	?001110021	1100112221	10?2001101	1000000120	00				00
Ospr	<i>Messatoporus paeneater</i>	00001	2010010110	?101100212	?0000000?3	?001110021	1000112221	2002201101	1000000120	00				00
Ospr	<i>Messatoporus pallidus</i>	00101	0010210111	0101200201	?0000000?3	?001110021	1110112220	2112001101	1000001120	00				00
Ospr	<i>Messatoporus paraguayensis</i>	00001	2010210111	0101200212	0000000000	?001110021	1100112220	0112001101	1000001120	00				00
Ospr	<i>Messatoporus pleuriflavus</i>	00101	1010010111	0101100212	?0000000?3	?001110021	1100112220	1112001101	1000001120	00				00
Ospr	<i>Messatoporus tenuissimus</i>	00101	1010010111	0101100212	?0000000?3	?001110021	1100112220	1112001101	1000001120	00				00
Ospr	<i>Messatoporus tibiator</i>	00001	1010210111	1101200202	0000000000	??11110021	1000112220	11?2001101	1000000120	00				00
Ospr	<i>Messatoporus transversostriatus</i>	00001	0110210111	0101100212	?0000000?3	?001111021	1100112220	2112001101	1000001120	00				00
Ospr	<i>Messatoporus variegatus</i>	00101	2010010011	0101200212	?0000000?3	?001110021	1100112220	1112001101	1000000120	00				00
Ospr	<i>Ospynchotus</i> sp.	00100	2011200011	101?000012	?00000?0?3	??00111020	1100002110	1002001111	0000000120	01				00
Ospr	<i>Photocryptus nigrosignatus</i>	00100	1001200010	?01?000012	10001100?0	?001110021	0100112220	1001221101	1001000100	10				00
Ospr	<i>Stenarella</i> sp. 1	10000	1210210010	?100100202	?01000?0?3	??11110011	1011001111	1002200101	1000002110	01				00
Ospr	<i>Stenarella</i> sp. 2	10001	1000010110	?100100002	?0000000?3	??11110011	1101000121	1002200101	1000002110	01				00
-	<i>Phygadeuon</i> sp.	001?1	1010000010	?01?011000	002000?010	??10001100	0000010000	0002000000	0000000100	00				00

TABLE 3. Numerical data for the Analysis 1 with each value of the concavity constant, K . R , Rearrangements tried in billions (B); Fit , fit for characters, calculated as $K/(e+K)$, where e = extra steps, and K = constant of concavity; CI , consistency index. RI , retention index.

-	$K=1$	$K=2$	$K=3$	$K=4$	$K=5$	$K=6$
R	16,57 B	17,37 B	18,62 B	18,28 B	18,97 B	18,01 B
Fit	134.83379	126.83972	120.29469	114.65814	109.69745	105.21768
CI	0.05	0.05	0.05	0.05	0.05	0.05
RI	0.45	0.45	0.45	0.45	0.45	0.47

TABLE 4. Synapomorphies recovered for *Messatoporus*. C:S Character number and state that correspond to the recovered synapomorphy. *Trees*, values of the concavity constant (K) for which the character was recovered as a synapomorphy for *Messatoporus*.

C:S	Character	Trees
6:1	Apicolateral corners of the apical area of clypeus projecting downwards	$K1-6$
25:0	Occipital carina more or less straight, not distinctly concave and not forming a sulcus	$K1-4, K6$
26:1	Occipital carina incomplete, not meeting hypostomal carina.	$K1-6$
59:1	Transverse furrow at base of propodeum very shallow, sometimes almost indistinct.	$K1-6$
63:0	Fore wing crossvein 1m-cu about as long as vein 1-Rs+M	$K4, K6$
84:0	Fore wing vein 2-M approximately as long as 3-M	$K2-3, K6$
98:1	Shape of hind wing vein Cub apical 0.5 distinctly convex, even if sinuous	$K1-6$
102:1	Hind coxa distinctly elongate, much longer than wide	$K1-3, K6$
108:2	Anterior margin of propodeum medially concave	$K1-6$
135:1	Spiracle of first metasomal at middle or nearly so	$K1-6$
139:2	Ventrolateral carina of first metasomal tergite completely absent	$K1-6$

TABLE 6. Numerical data for Analysis 2 with each value of the concavity constant, *K*. *R*, Rearrangements tried in billions (B); *Fit*, fit for characters, calculated as $K/(e+K)$, where *e* = extra steps, and *K* = constant of concavity; *CI*, consistency index. *RI*, retention index.

-	<i>K</i> =1	<i>K</i> =2	<i>K</i> =3	<i>K</i> =4	<i>K</i> =5	<i>K</i> =6
R	6,74 B	6,85 B	7,04 B	7,02 B	7,04 B	6,89 B
Fit	89.9613	83.3960	78.0734	73.5017	69.5201	66.0087
CI	0.07	0.07	0.07	0.07	0.07	0.08
RI	0.39	0.40	0.40	0.42	0.42	0.43

TABLE 7. Geographical coordinates to the distribution record of *Messatoporus*, when available. Countries and states listed from north to south; cities/sites listed alphabetically.

State/Province	City, site	Latitude	Longitude
Colombia			
Magdalena	Cañaveral, P.N.N. Tayrona	11°20'01" N	72°02'01" W
Magdalena	Pueblito, S.F.F. Tayrona	11°20' N	74°02' W
Chocó	P.N.N. Utrio	6°01'09" N	77°20'55" W
Boyacá	S.F.F. Iguaque	5°25'12" N	73°27'24" W
Vichada	Cerro Tomás, P.N. Tuparo	5°21'00" N	67°51'36" W
Bolívar	Diana, S.F.F. Colorados	5°25' N	73°27' W
Caquetá	Puerto Abeja, P.N.N. Chiribiquete	0°04'16" N	72°26'48" W
Amazonas	Mocagua, P.N.N. Amacayacu	3°23' S	70°06' W
Ecuador			
Sucumbios	Napo River, Sacha Lodge	0°30' S	78°30' W
Pastaza	Kapawi	2°33'00" S	76°49'12" W
Brazil			
Amazonas	Manaus, Reserva Florestal Adolpho Ducke	2°57'39" S	59°55'47" W
Amazonas	Novo Aripuanã	5°15'53" S	60°07'08" W
Amazonas	Parque Nacional do Jaú, Rio Carabiani, Igarapé Preguição	2°06'25" S	61°36'20" W
R. Grande do Norte	Patu, Serra do Lima	6°06'09" S	37°37'43" W
Mato Grosso	Sinop	12°31' S	55°37' W
Bahia	Aiquara, Fazenda Veneza	14°07' S	39°53' W
Bahia	Buerarema, Fazenda Sempre Viva	14°55' S	39°18' W
Bahia	Coaraci, Fazenda São José	14°38'53" S	39°32'12" W
Bahia	Dario Meira, Fazenda Maria Bonita	14°25'54" S	39°55'01" W
Bahia	Firmino Alves, Fazenda Santo Antônio	14°59'51" S	39°55'55" W
Bahia	Ibicuí, Fazenda Maravilha	14°52'56" S	40°00'35" W
Bahia	Ipiaú, Fazenda Afegan	14°08'06" S	39°44'06" W
Bahia	Ipiaú, Fazenda Petrolina	14°08'06" S	39°44'06" W
Bahia	Itacaré, Fazenda Miramar	14°16' S	38°59' W
Bahia	Itacaré, Fazenda Vencedora	14°20' S	39°18' W
Bahia	Itajuípe, Fazenda Trindade	14°41' S	39°21' W
Bahia	Itororó, Fazenda Bela Vista	15°07' S	40°04' W

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TABLE 7. Continued.

State/Province	City, site	Latitude	Longitude
Bahia	Itororó, Fazenda Santa Cruz	15°01'58" S	40°04'44" W
Bahia	Ituberá, Fazenda Vale da Juliana	13°43'56" S	39°09'02" W
Bahia	Ubaitaba, Fazenda Casa de Pedra	14°18'49" S	39°19'47" W
Bahia	Ubaitaba, Fazenda Fortaleza	14°18'49" S	39°19'47" W
Bahia	Uruçuca, Fazenda Guarani	14°34'30" S	39°19'37" W
Goiás	Niquelândia, Mica Verde	14°12'24" S	48°21'58" W
Minas Gerais	Pingo d'água, Fazenda Sacramento	19°51'30" S	47°27'09" W
Minas Gerais	Parque Estadual do Rio Doce	19°42' S	42°33' W
Espírito Santo	Alfredo Chaves, Picadão	20°27'53" S	40°42'35" W
Espírito Santo	Anchieta, terreno Samarco	21°45'32" S	40°36'40" W
Espírito Santo	Atílio Vivacqua, Serra das Torres	20°59'53" S	41°12'48" W
Espírito Santo	Domingos Martins, Pico do Eldorado	20°22'17" S	40°39'29" W
Espírito Santo	Guarapari, Parque Estadual Paulo César Vinha	20°36' S	40°25' W
Espírito Santo	Itarana, Bom Destino	19°51'28" S	40°54'51" W
Espírito Santo	Linhares, CEPLAC	19°24'06" S	40°04'29" W
Espírito Santo	Pancas, Fazenda Juliberto Stur	19°13'10" S	40°46'24" W
Espírito Santo	Santa Leopoldina, Alto das Farinhas	20°08'19" S	40°35'51" W
Espírito Santo	Santa Leopoldina, Suíça	20°04'55" S	40°35'39" W
Espírito Santo	Santa Maria de Jetibá, Fazenda Paulo Seick	20°02'31" S	40°41'51" W
Espírito Santo	Santa Maria de Jetibá, Fazenda Clarindo Kruger	20°04'27" S	40°44'51" W
Rio de Janeiro	Teresópolis, Parque Nacional da Serra dos Órgãos	22°26' S	42°56' W
São Paulo	Águas Vermelhas	15°45' S	11°28' W
São Paulo	Botucatu, Fazenda Jaciobá	22°53'25" S	48°27'19" W
São Paulo	Descalvado, Fazenda Itaúna	21°54'05" S	17°37'26" W
São Paulo	Luiz Antônio, Estação Ecológica do Jataí, Cerrado	21°37'26" S	47°48'24" W
São Paulo	Luiz Antônio, Estação Ecológica do Jataí, Cerradão	21°36'10" S	47°46'48" W
São Paulo	Luiz Antônio, Estação Ecológica do Jataí, Mata Ciliar	21°37'26" S	47°48'24" W
São Paulo	Nova Granada, Fazenda São João	20°32'37" S	49°14'47" W
São Paulo	Palestina, Fazenda Boa Vista	20°17'18" S	49°30'01" W
São Paulo	Rio Claro, Floresta Estadual Edmundo Navarro de Andrade	22°24'32" S	47°32'20" W
São Paulo	São João de Iracema, Fazenda São Francisco	20°28'25" S	50°17'36" W
São Paulo	Vila Vera	12°30' S	50°30' W
Santa Catarina	Nova Teutônia	27°11' S	52°23' W
R. Grande do Sul	Arroio Grande	32°13'22" S	53°11'57" W
R. Grande do Sul	Capão do Leão	31°48'16" S	52°24'13" W
R. Grande do Sul	Morro Redondo	31°40'22" S	52°35'30" W
R. Grande do Sul	Pelotas	31°44'39" S	52°13'22" W
Peru			
La Libertad	Same, ca. 40 km NE Trujillo	7°49' S	78°41' W
Bolivia			
Cochabamba	Vila Tunari	16°59'39" S	65°26'06" W



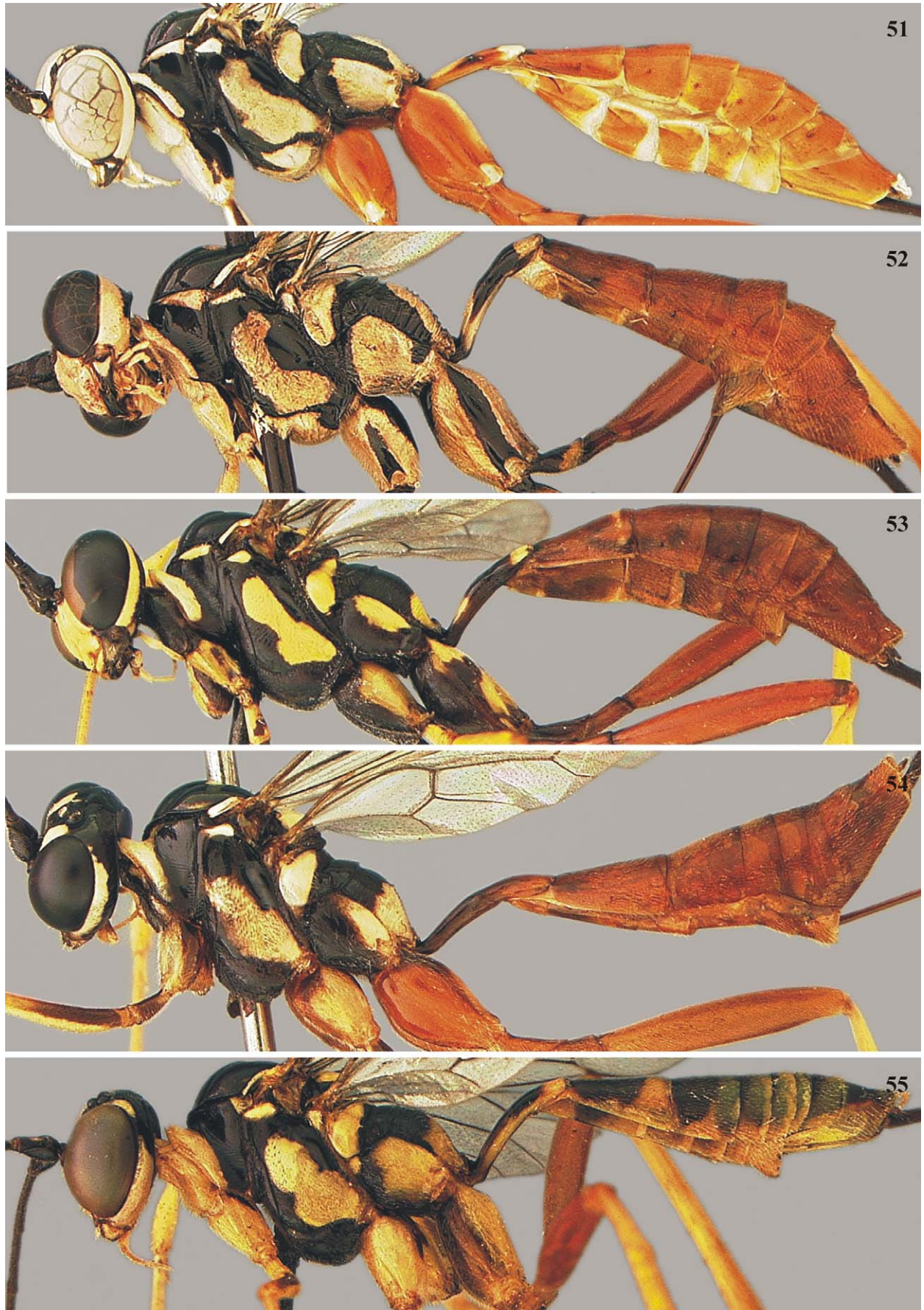
FIGURES 36–40. Lateral view. 36, *M. apertus*. 37, *M. aurantius**. 38, *M. longicaudis**. 39, *M. amarelus*. 40, *M. longitergus**.



FIGURES 41–45. Lateral view. 41, *M. citreocephalus**. 42, *M. pallidus**. 43, *M. laevilatus*. 44, *M. paraguayensis*. 45, *M. lissonotus*.



FIGURES 46–50. Lateral view. 46, *M. paralissonotus*. 47, *M. latissulcus**. 48, *M. convexus**. 49, *M. albiaterartus**. 50, *M. nigriscutus*.



FIGURES 51–55. Lateral view. 51, *M. euryoikos*. 52, *M. apiopharkis**. 53, *M. lordos*. 54, *M. teutonicus**. 55, *M. unidentatus**.



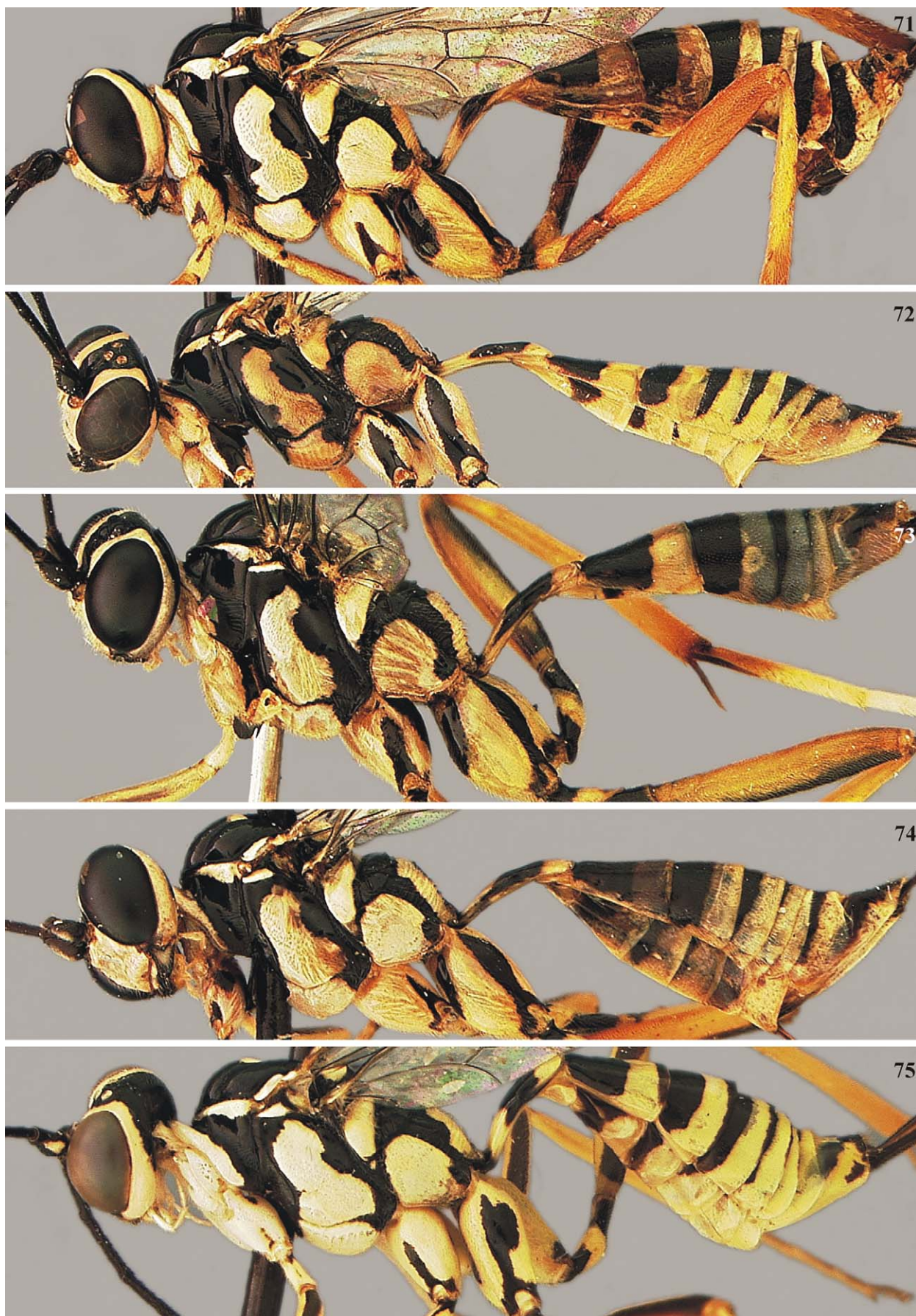
FIGURES 56–60. Lateral view. **56**, *M. tenuiorbis**. **57**, *M. maculiscus**. **58**, *M. pleuriflavus**. **59**, *M. nigriangularis**. **60**, *M. elektor**.



FIGURES 61–65. Lateral view. 61, *M. opacus**. 62, *M. discoidalis*. 63, *M. terebrator**. 64, *M. lunatus*. 65, *M. dominicanus**.



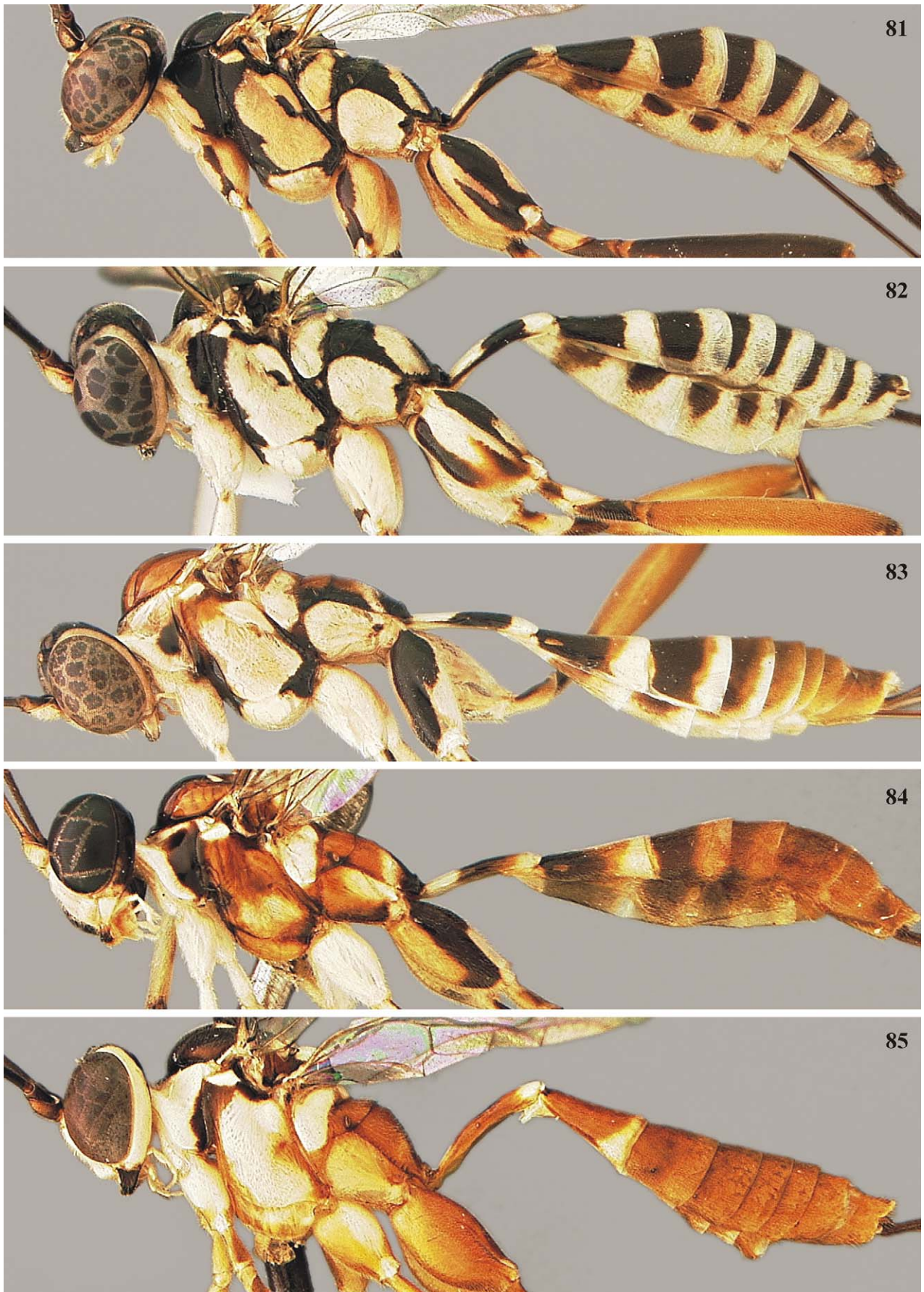
FIGURES 66–70. Lateral view. 66, *M. titans**. 67, *M. transversostriatus*. 68, *M. amplithorax*. 69, *M. interceptus*. 70, *M. allomeros**.



FIGURES 71–75. Lateral view. 71, *M. compressicornis**. 72, *M. nigriscapus**. 73, *M. depressifrons**. 74, *M. keraiopetalus*. 75, *M. arcuatus*.



FIGURES 76–80. Lateral view. 76, *M. covarrubiasi*. 77, *M. grandis*. 78, *M. mesonotator*. 79, *M. jalapa*. 80, *M. maculipes*.



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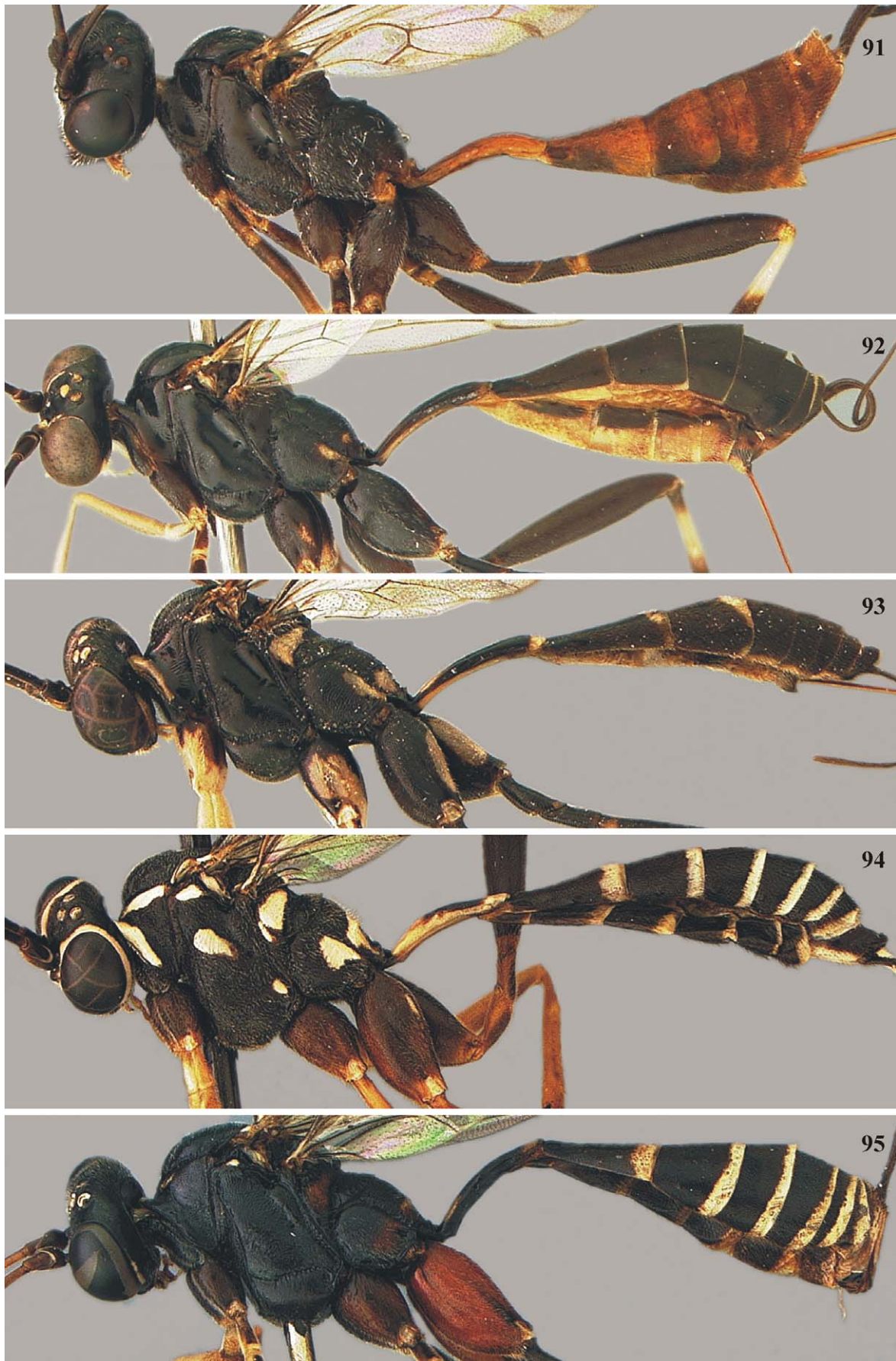
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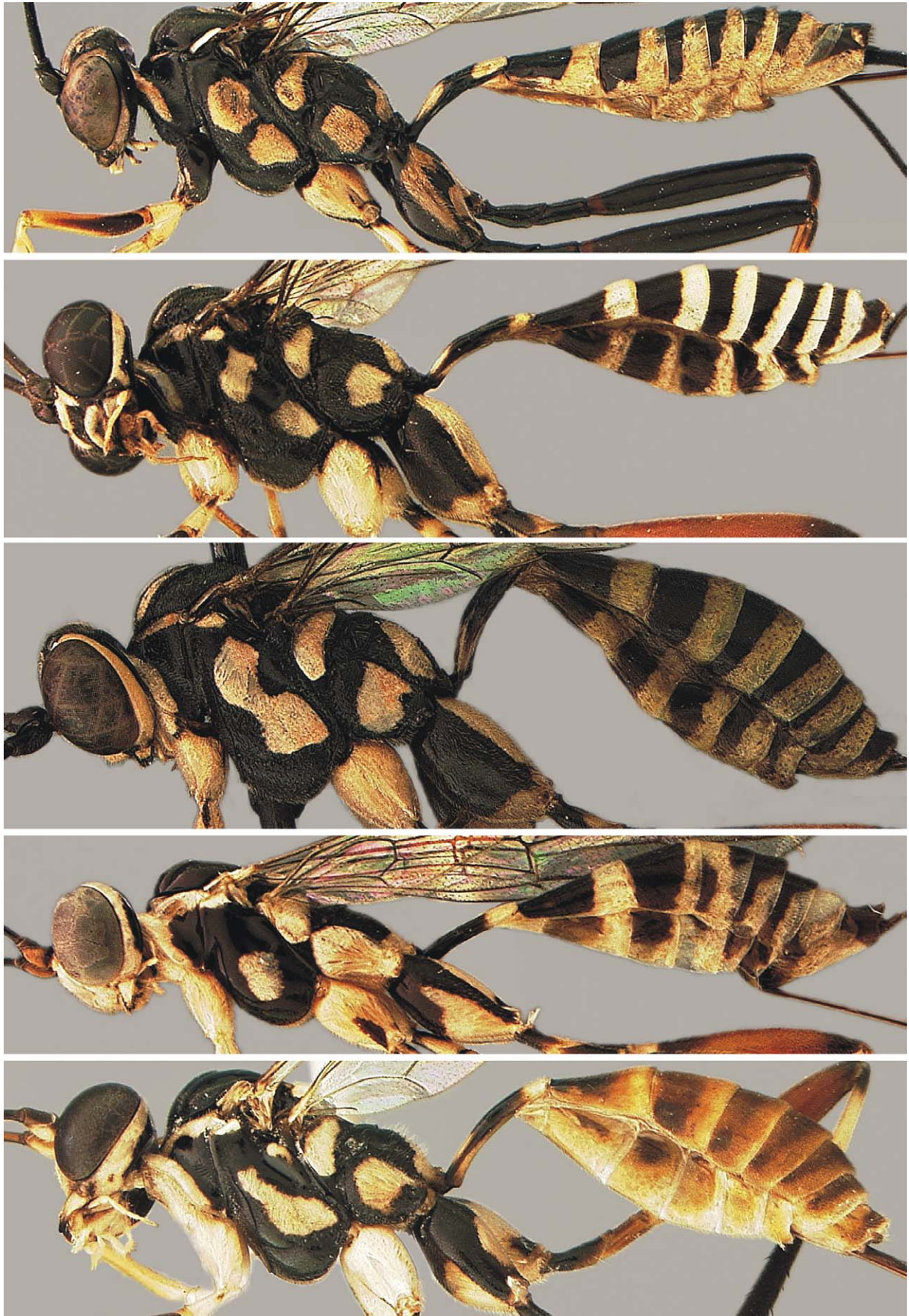
FIGURES 81–85. Lateral view. 81, *M. atlanticus**. 82, *M. caxiuanensis**. 83, *M. copiosus**. 84, *M. ellipsicavus*. 85, *M. fulvator*.



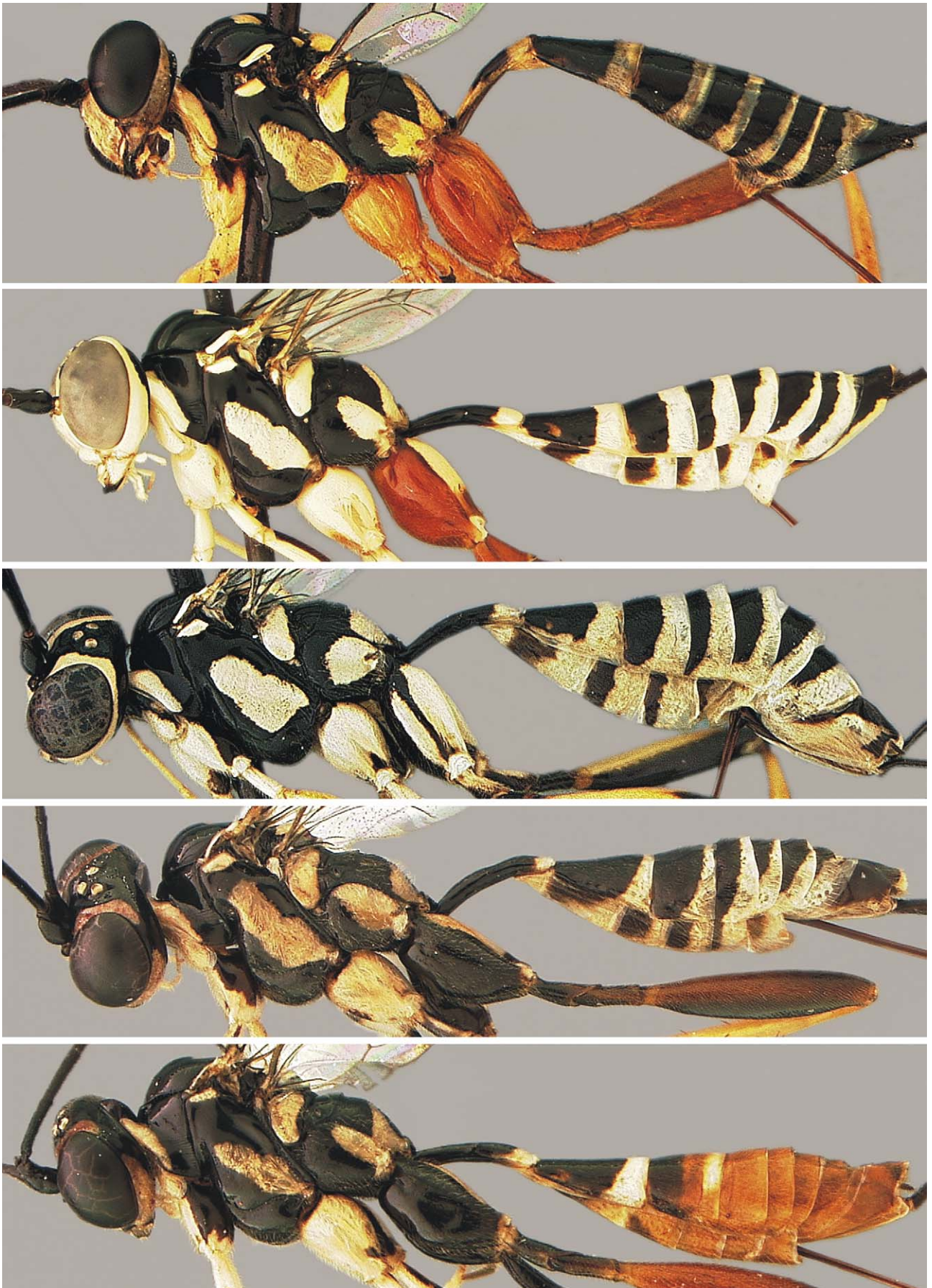
FIGURES 86–90. Lateral view. 86, *M. xanthogaster**. 87, *M. argentines**. 88, *M. anepomius**. 89, *M. paradoxus**. 90, *M. badius**.



FIGURES 91–95. Lateral view. 91, *M. bicolor**. 92, *M. paeneater**. 93, *M. semialbiventris**. 94, *M. andinus**. 95, *M. matucanus**.



FIGURES 96–100. Lateral view. 96, *M. bennetti**. 97, *M. bimaculatus**. 98, *M. unimaculatus**. 99, *M. tenuissimus**. 100, *M. disidens**.



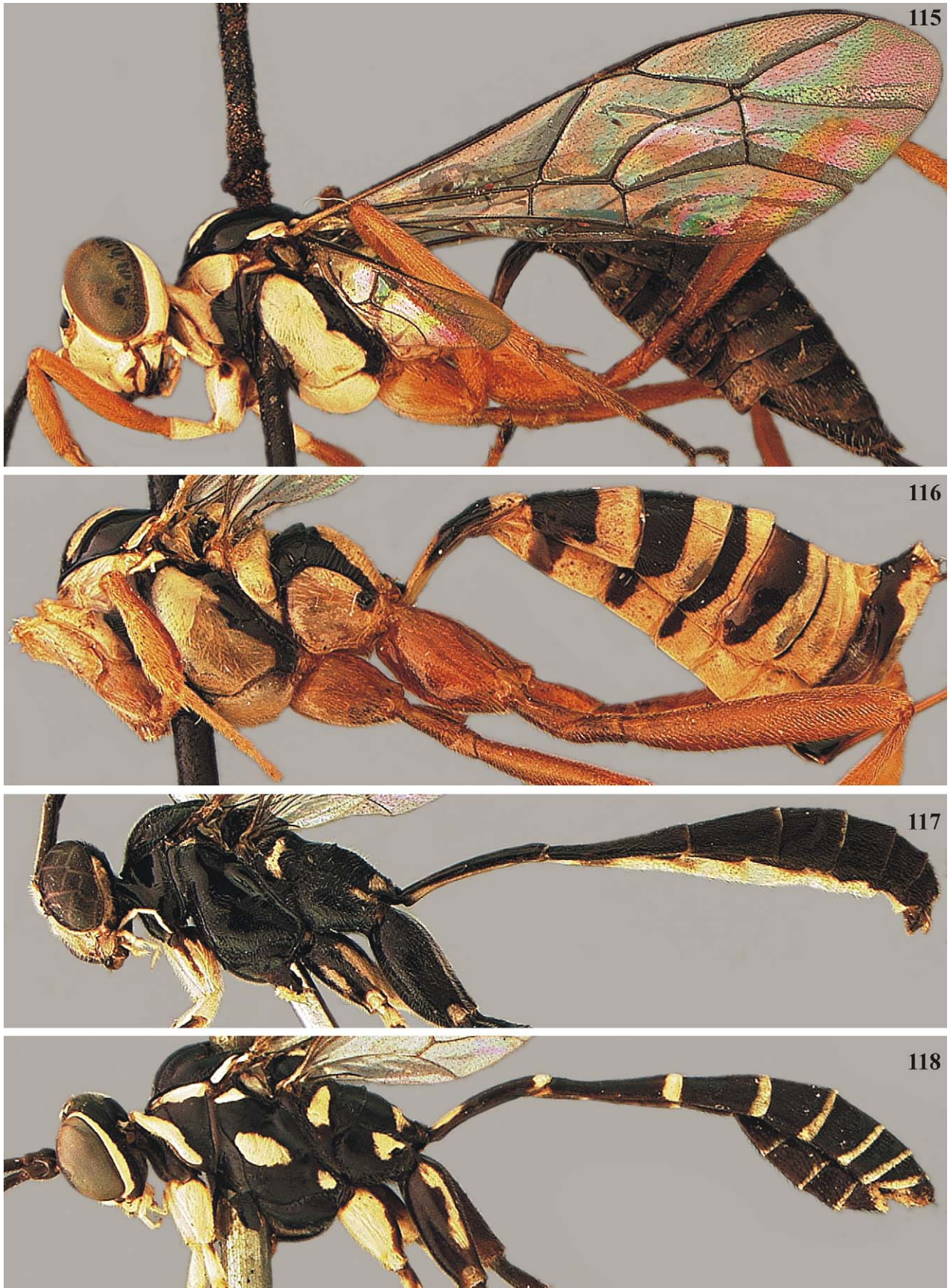
FIGURES 101–105. Lateral view. **101,** *M. basiflavus**. **102,** *M. occidentalis**. **103,** *M. mesosternalis*. **104,** *M. orientalis*. **105,** *M. semiaurantigaster*.



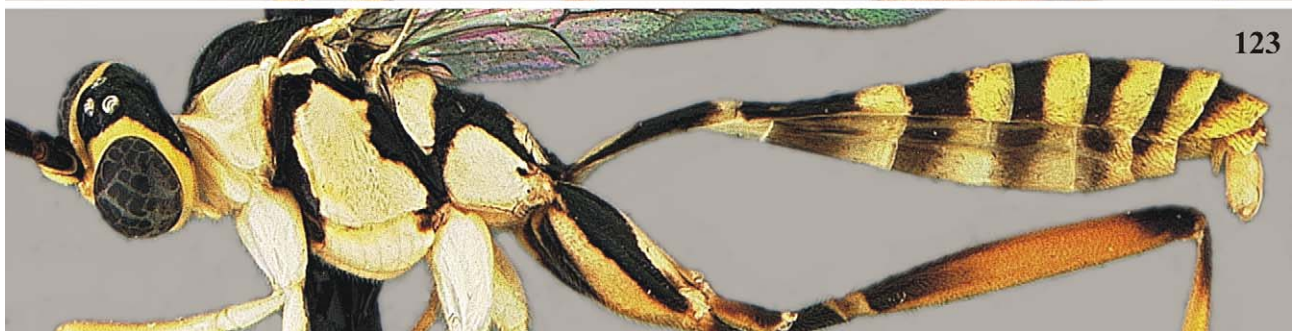
FIGURES 106–110. Lateral view. **106**, *M. amazonensis*. **107**, *M. propodeator*. **108**, *M. variegatus*. **109**, *M. complexifemur**. **110**, *M. campanulatus**.



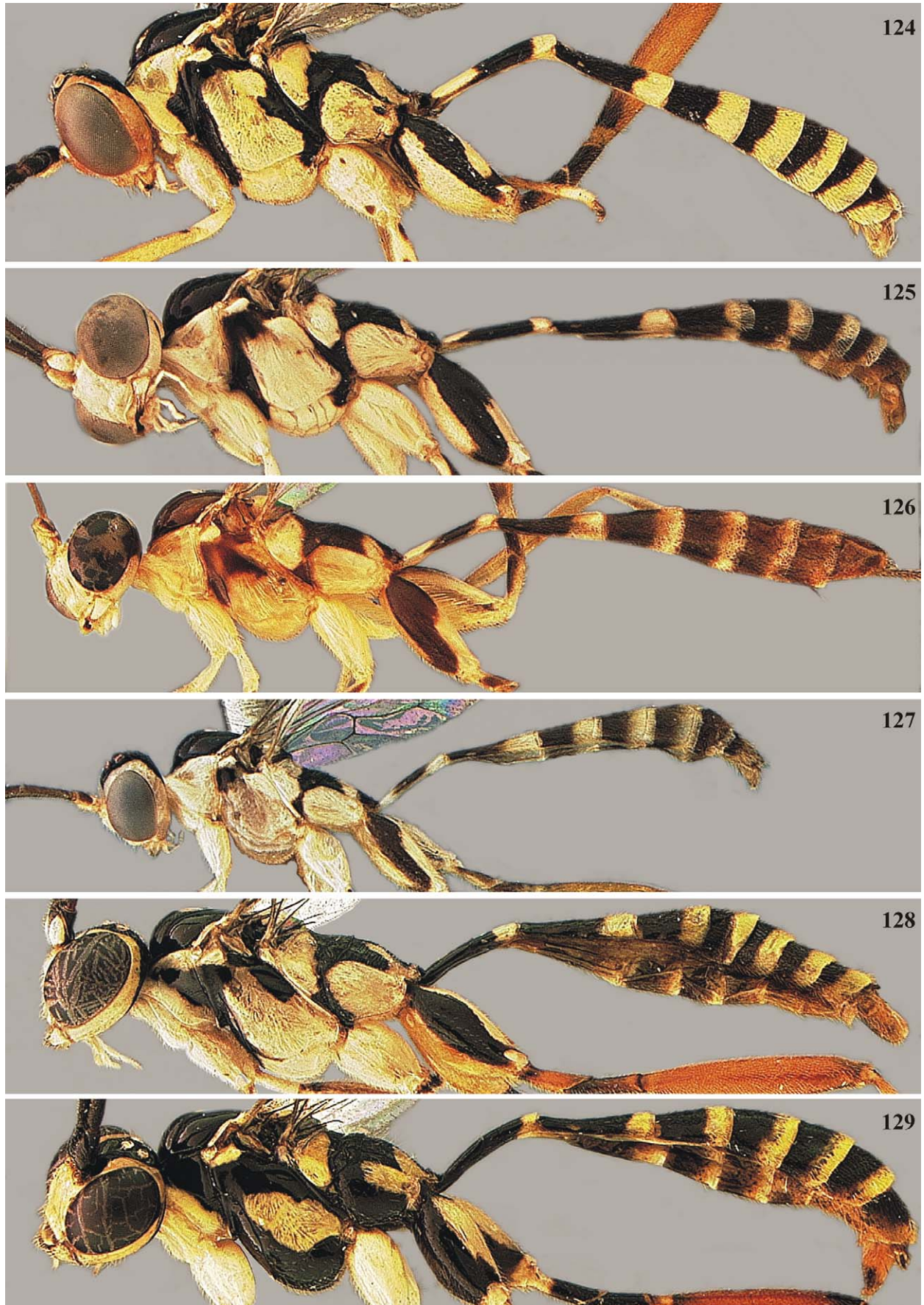
FIGURES 111–114. Lateral view. 111, *M. atrifoveus**. 112, *M. versicolor**. 113, *M. advenus**. 114, *M. tibiator*.



FIGURES 115–118. 115–116: *M. townesi*, lateral view. 115, Lectotype, head, mesosoma, metasoma and wings. 116, Paralectotype female, mesosoma and metasoma. 117–118: Male specimens, lateral view. 117, *M. semialbiventris*. 118, *M. andinus*.



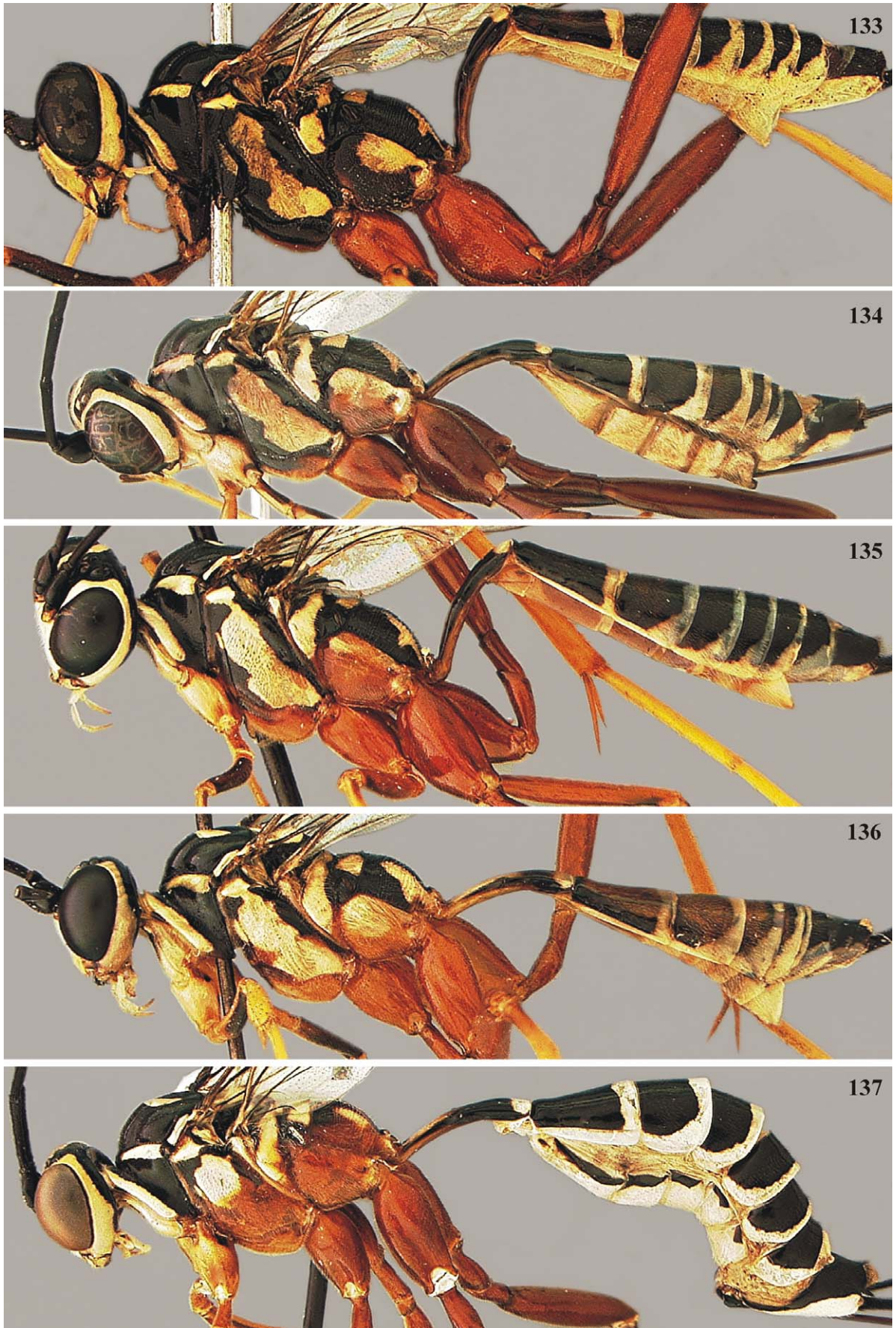
FIGURES 119–123. Male specimens, lateral view. 119, *M. igneus*. 120, *M. dialeipsis*. 121, *M. concavivenus**. 122, *M. subalaris**. 123, *M. antennator*.



FIGURES 124–129. Male specimens, lateral view. 124, *M. jalapa*. 125, *M. copiosus*. 126, *M. ellipsicavus*. 127, *M. propodeator*. 128, *M. euryoikos*. 129, *M. semiaurantigaster*.



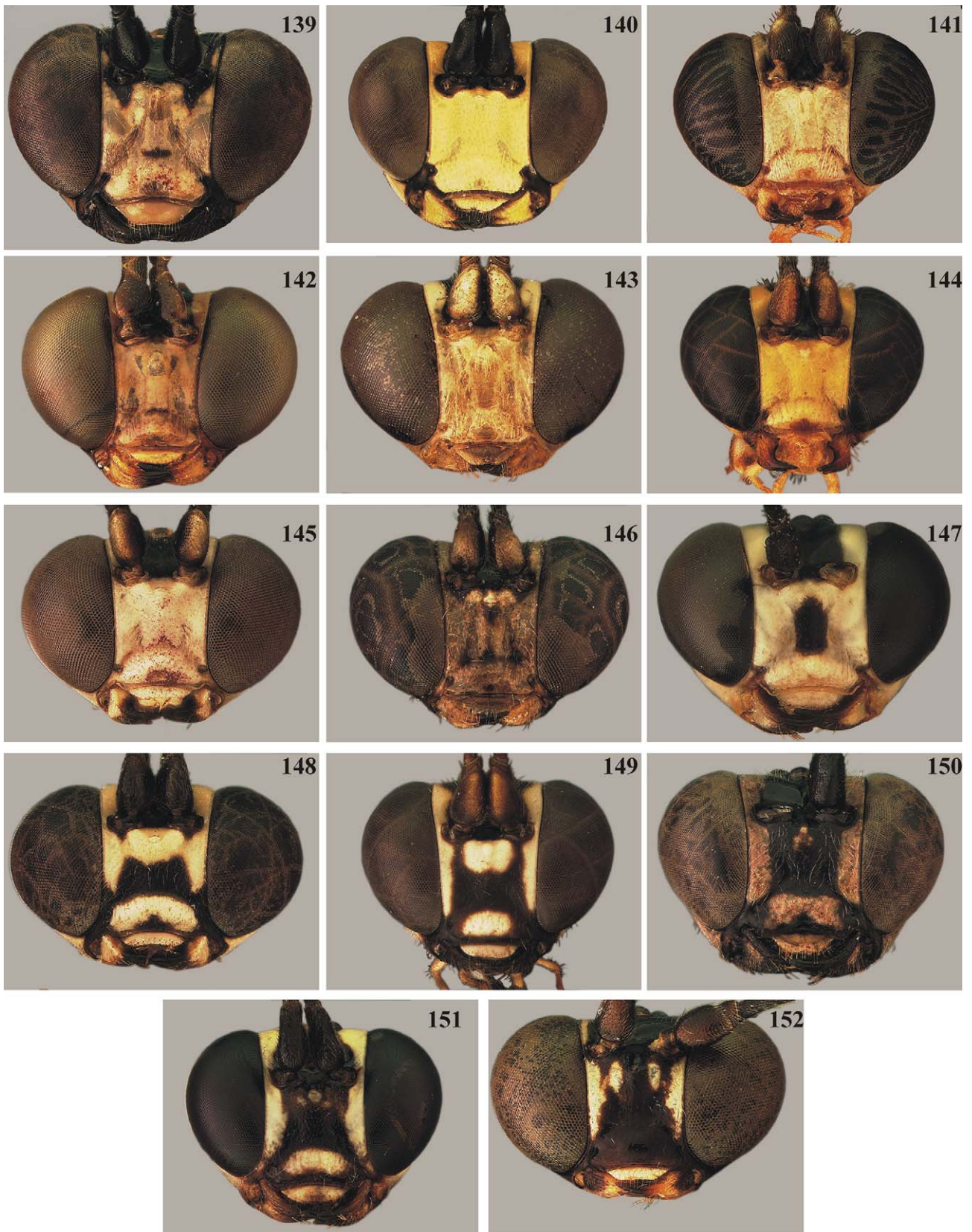
FIGURES 130–132. Holotypes of species currently under *M. discoidalis*, lateral view. **130**, *M. jocosus* Provancher **131**, *M. rufiventris* Cushman. **132**, *M. discoidalis* Cresson.



FIGURES 133–137. Lateral view of specimens of *M. transversostriatus* showing intra-specific color variation.



FIGURE 138. *Prosthoporoides nigrispinus*, **new combination**, holotype female, lateral view.



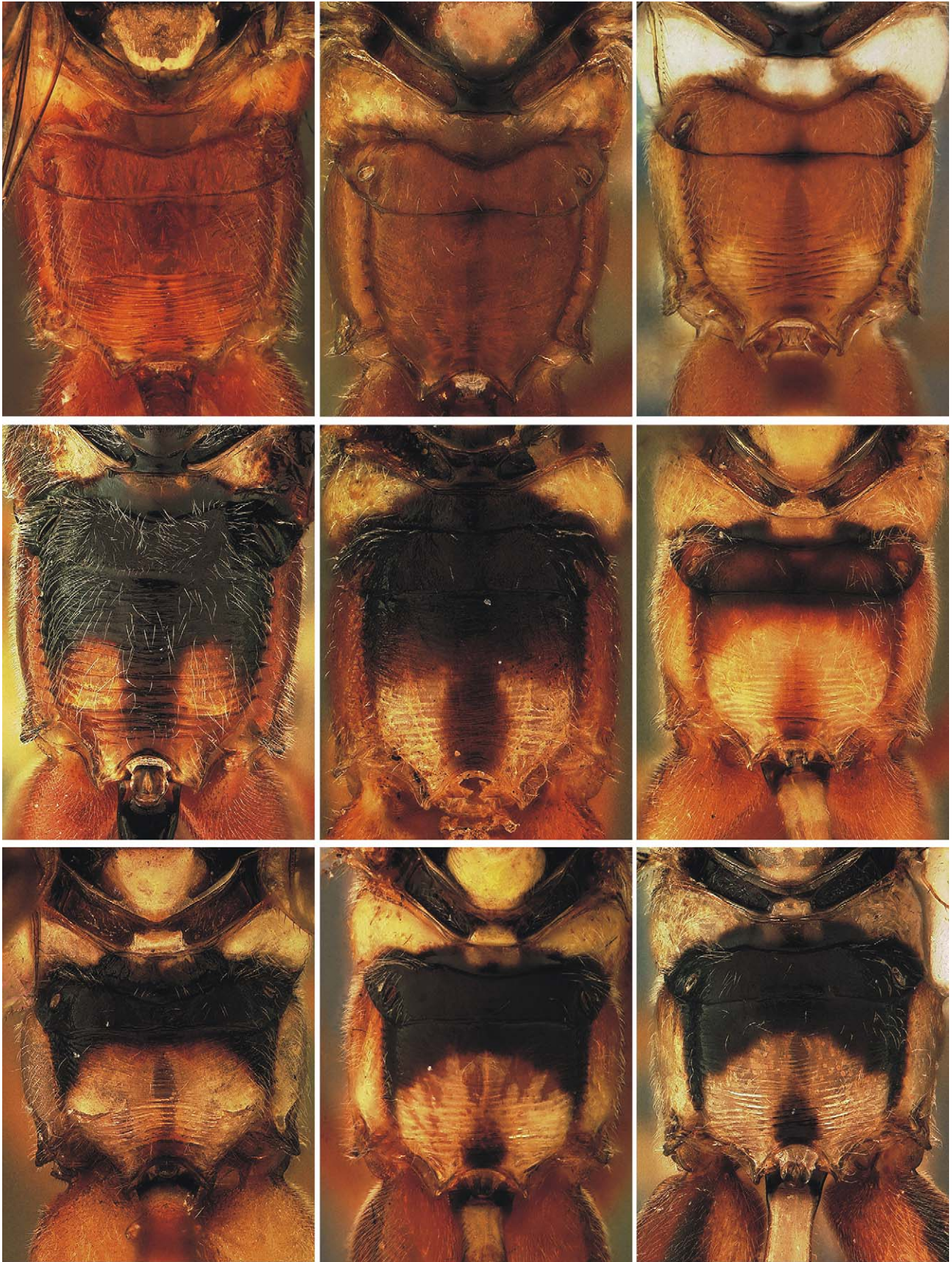
FIGURES 139–152. Head, frontal view. 139, *M. nigriscutus**. 140, *M. transversostriatus*. 141, *M. maculiscus*. 142, *M. laevilatus*. 143, *M. elektor**. 144, *M. versicolor**. 145, *M. opacus**. 146, *M. semialbiventris**. 147, *M. lunatus**. 148, *M. bimaculatus**. 149, *M. andinus**. 150, *M. bennetti**. 151, *M. teutonicus**. 152, *M. paeneater**.



FIGURES 153–161. Mesoscutum, dorsal view. 153, *M. lissonotus*. 154, *M. copiosus**. 155, *M. pallidus**. 156, *M. semialbiventris**. 157, *M. nigriangulatus**. 158, *M. orientalis**. 159, *M. opacus**. 160, *M. bimaculatus**. 161, *M. jalapa*.



FIGURES 162–170. Propodeum, dorsal view. **162**, *M. advenus**. **163**, *M. paradoxus**. **164**, *M. badius**. **165**, *M. albiaterartus**. **166**, *M. longicaudis**. **167**, *M. amarelus*. **168**, *M. apertus*. **169**, *M. convexus**. **170**, *M. laevilatus*.



FIGURES 171–179. Propodeum, dorsal view. **171**, *M. paraguayensis*. **172**, *M. pallidus**. **173**, *M. fulvator*. **174**, *M. nigriscutus**. **175**, *M. tenuirobis**. **176**, *M. elektor**. **177**, *M. versicolor**. **178**, *M. maculiscus*. **179**, *M. opacus**.



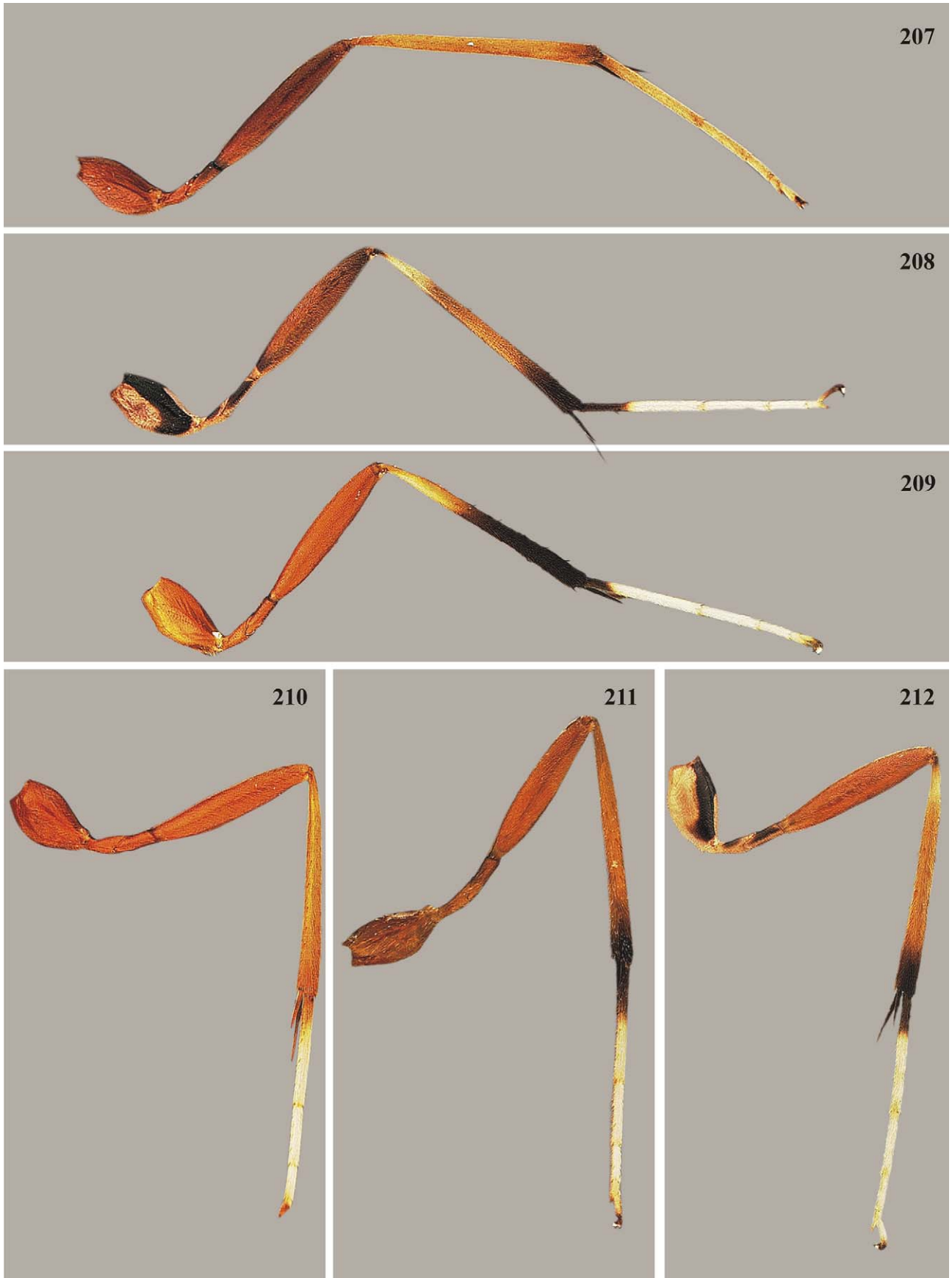
FIGURES 180–188. Propodeum, dorsal view. **180,** *M. concavivenus**. **181,** *M. teutonicus*. **182,** *M. semialbiventris**. **183,** *M. orientalis**. **184,** *M. euryoikos*. **185,** *M. transversostriatus*. **186,** *M. titans**. **187,** *M. amplithorax*. **188,** *M. lordos*.



FIGURES 189–197. Propodeum, dorsal view. 189, *M. bimaculatus*. 190, *M. unidentatus**. 191, *M. semiaurantigaster*. 192, *M. occidentalis*. 193, *M. tibiator*. 194, *M. dominicanus**. 195, *M. jalapa*. 196, *M. allomeros**. 197, *M. mesonotator*.



FIGURES 198–206. Propodeum, dorsal view. **198**, *M. maculipes*. **199**, *M. caxiuanensis**. **200**, *M. amazonensis*. **201**, *M. variegatus*. **202**, *M. atrifoveus**. **203**, *M. dissidens**. **204**, *M. complexifemur*. **205**, *M. copiosus*. **206**, *M. ellipsicavus**.



FIGURES 207–212. Hind leg. **207,** *M. convexus*. **208,** *M. copiosus*. **209,** *M. apertus*. **210,** *M. paraguayensis*. **211,** *M. amarelus*. **212,** *M. amazonensis*.



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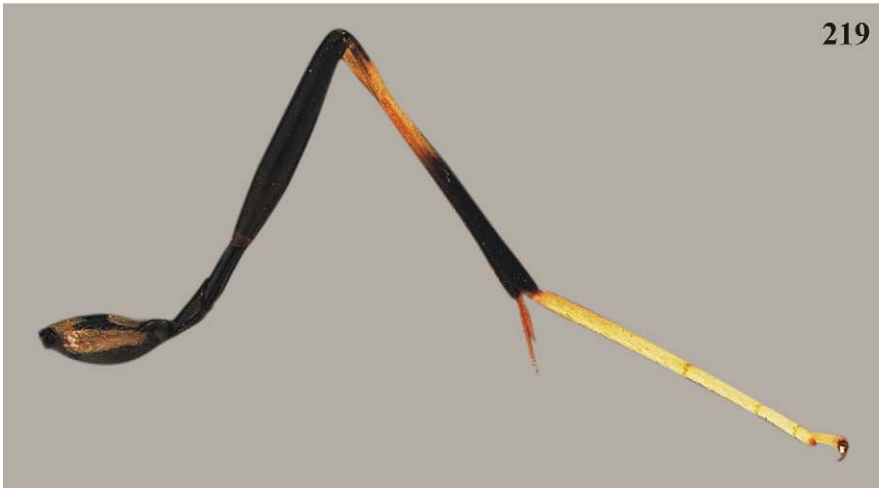
FIGURES 213–217. Hind leg. 213, *M. maculiscus*. 214, *M. complexifemur**. 215, *M. jalapa*. 216, *M. ellipsicavus**. 217, *M. paralissonotus*.



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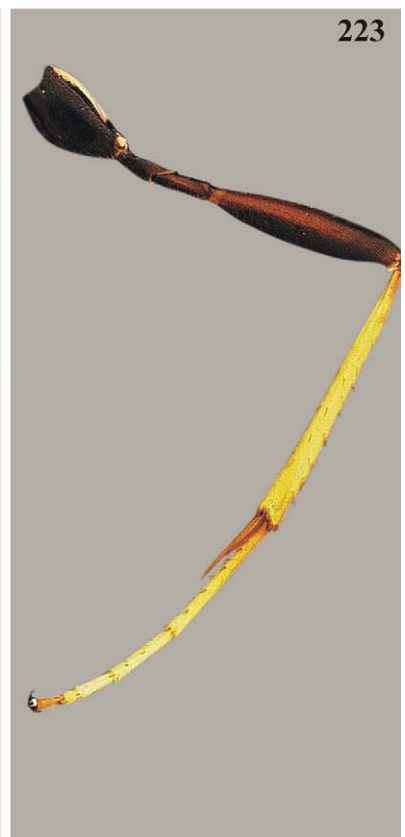
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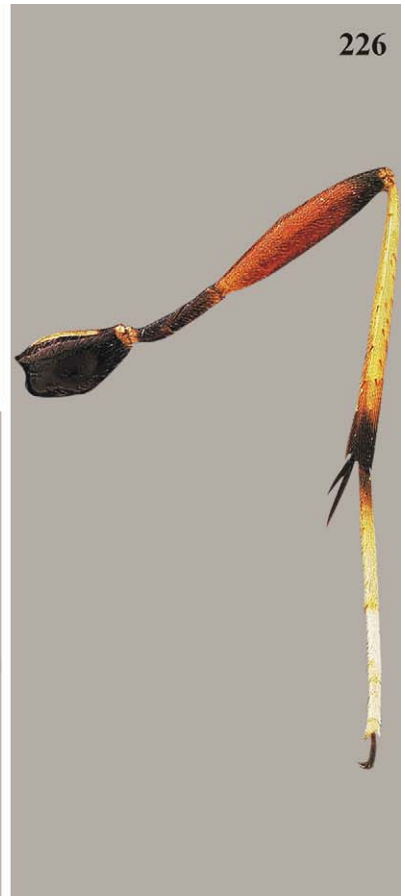


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FIGURES 218–223. Hind leg. 218, *M. nigriscutus*. 219, *M. bennetti**. 220, *M. atlanticus*. 221, *M. lissonotus*. 222, *M. paeneater**. 223, *M. orientalis*.



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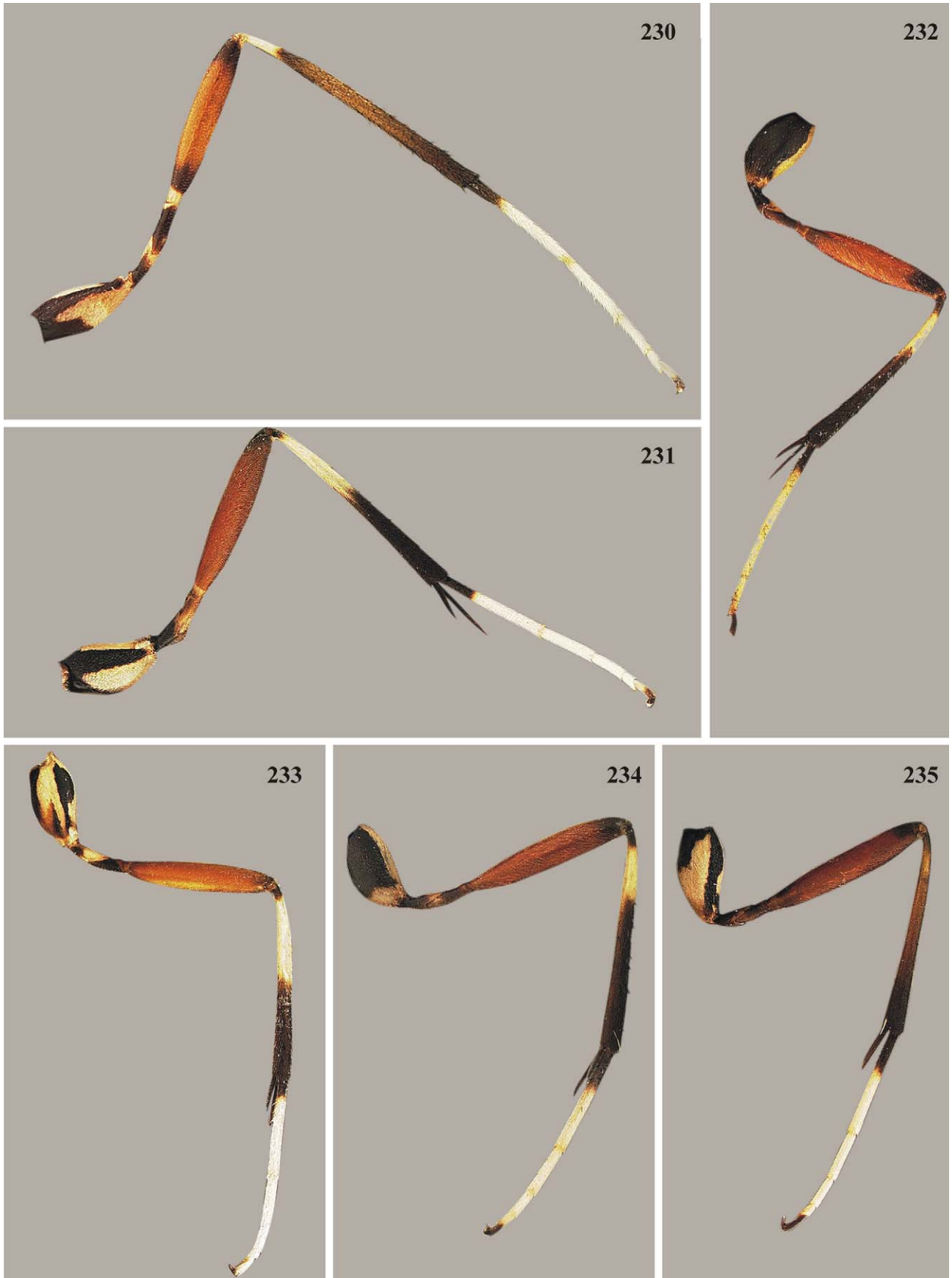


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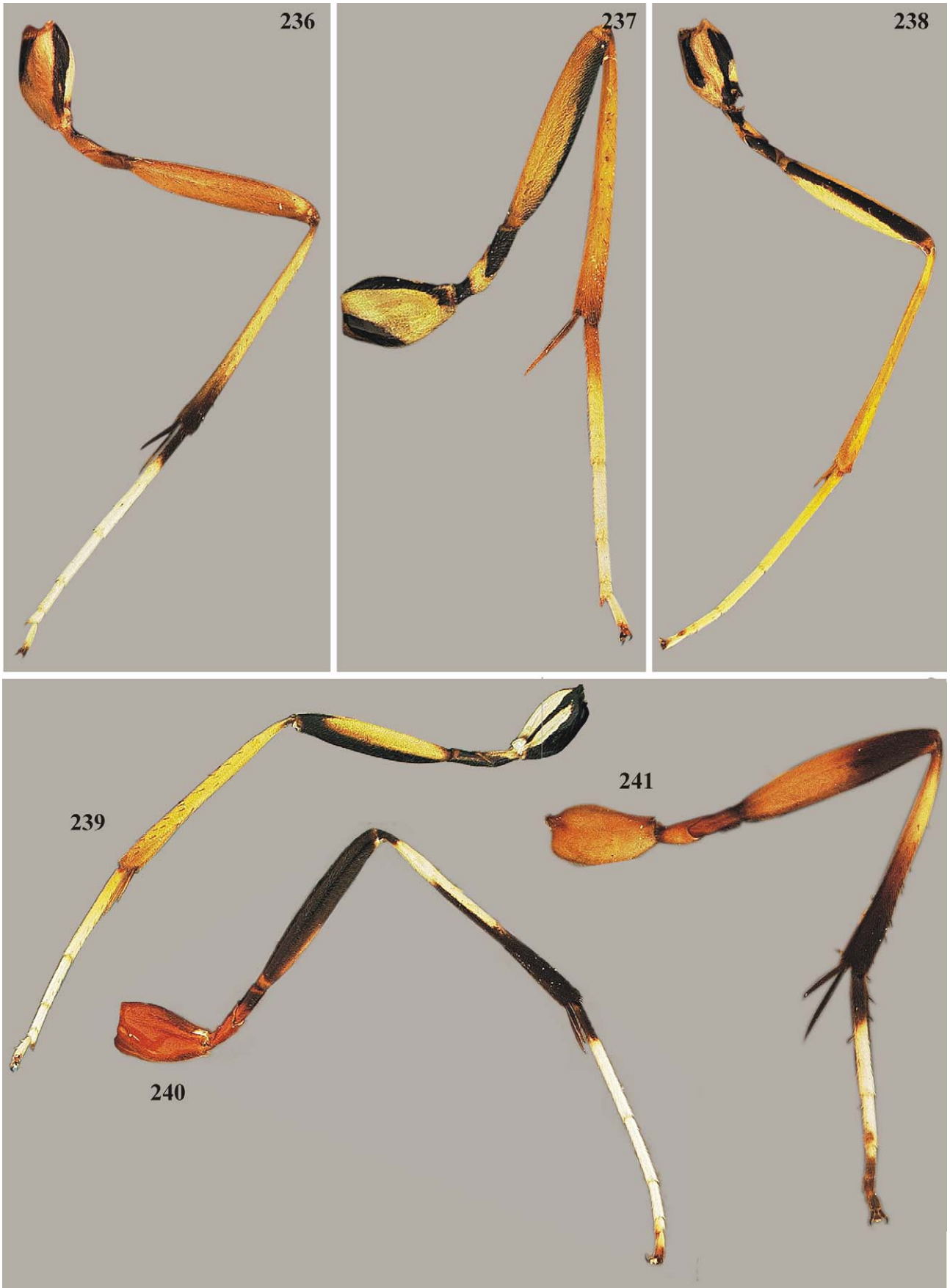


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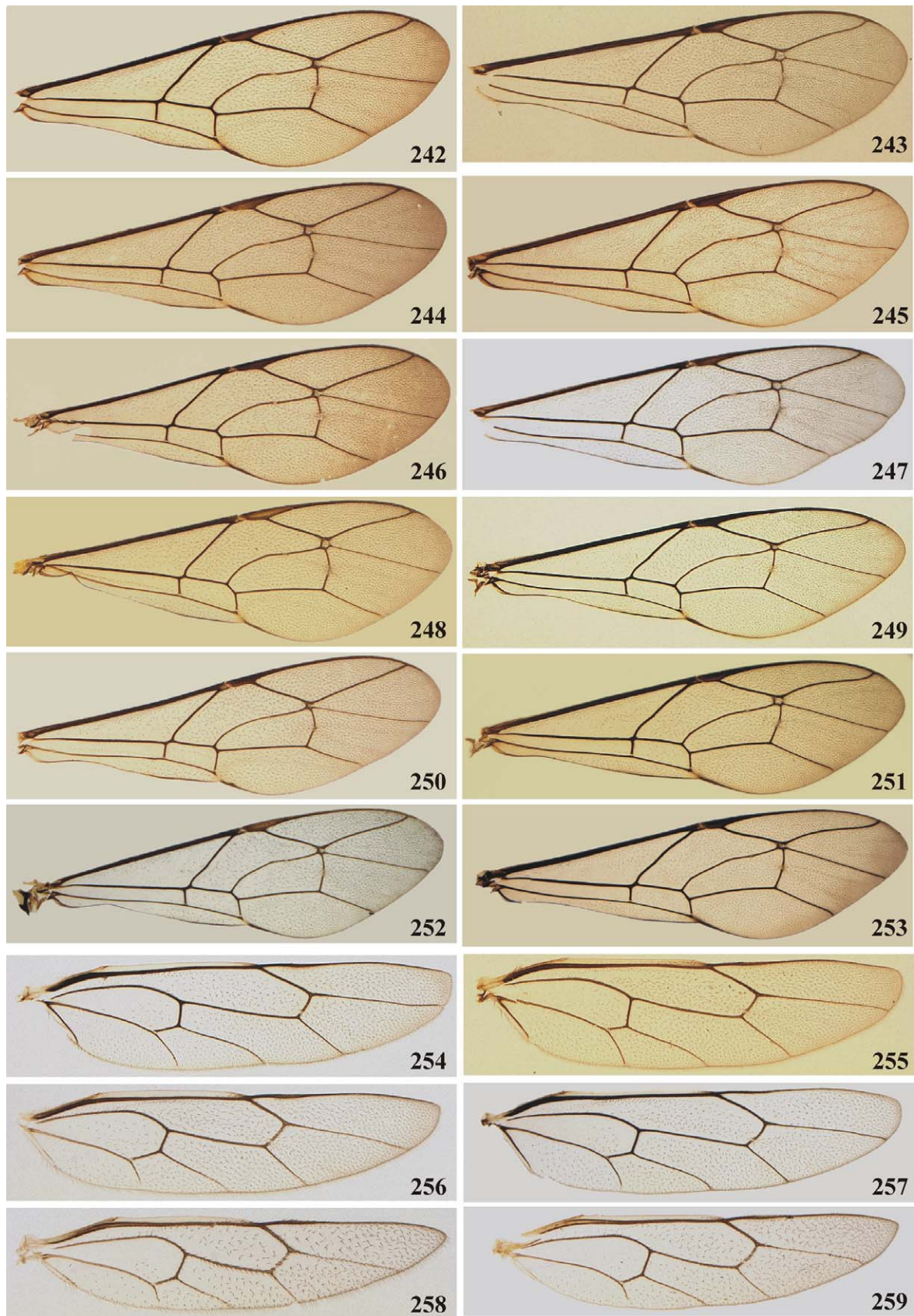
FIGURES 224–229. Hind leg. 224, *M. opacus**. 225, *M. euryoikos*. 226, *M. semiaurantigaster*. 227, *M. interceptus*. 228, *M. discoidalis*. 229, *M. occidentalis*.



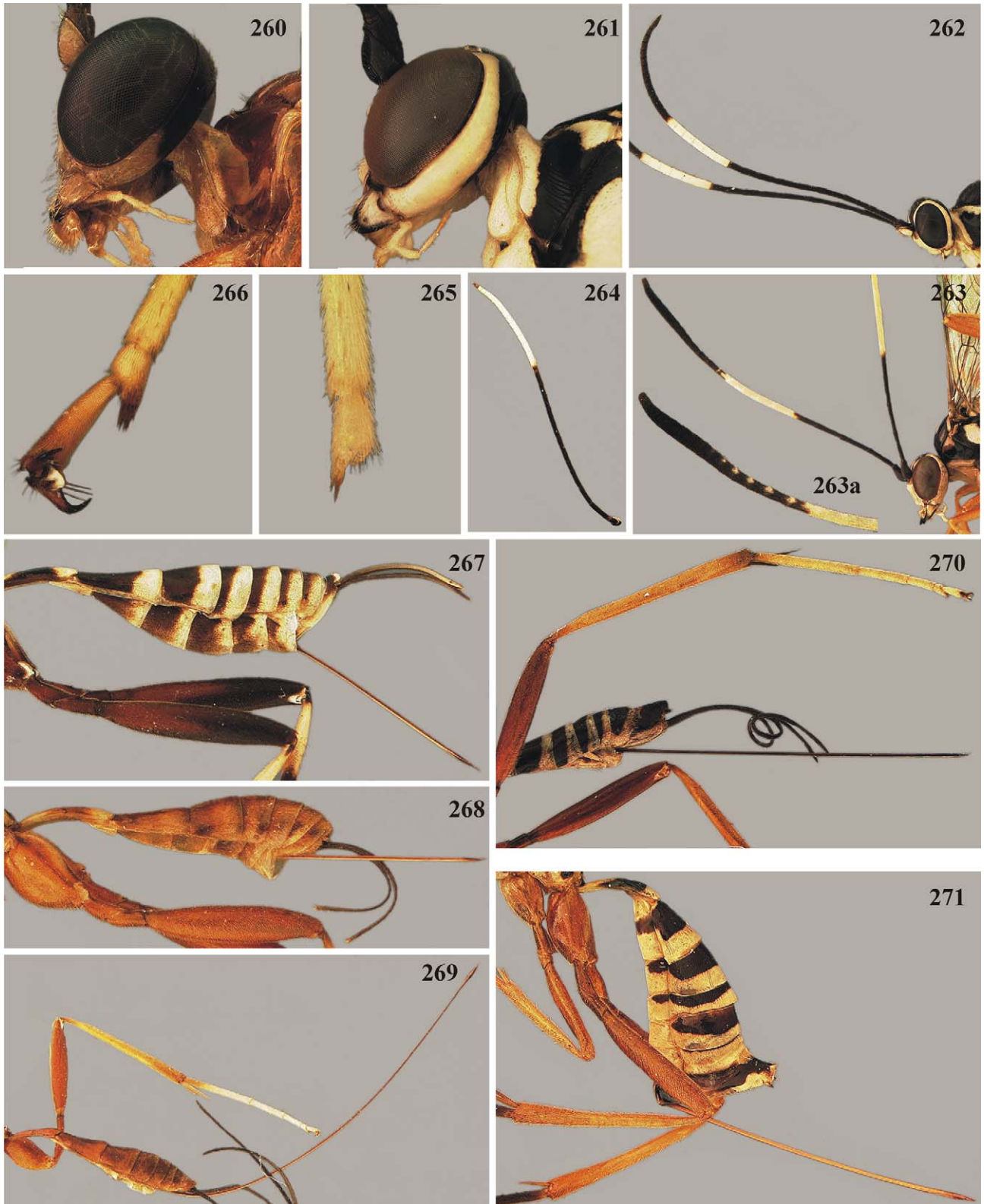
FIGURES 230–235. Hind leg. 230, *M. tenuissimus**. 231, *M. variegatus*. 232, *M. unimaculatus**. 233, *M. caxiuanensis**. 234, *M. bimaculatus**. 235, *M. tibiator*.



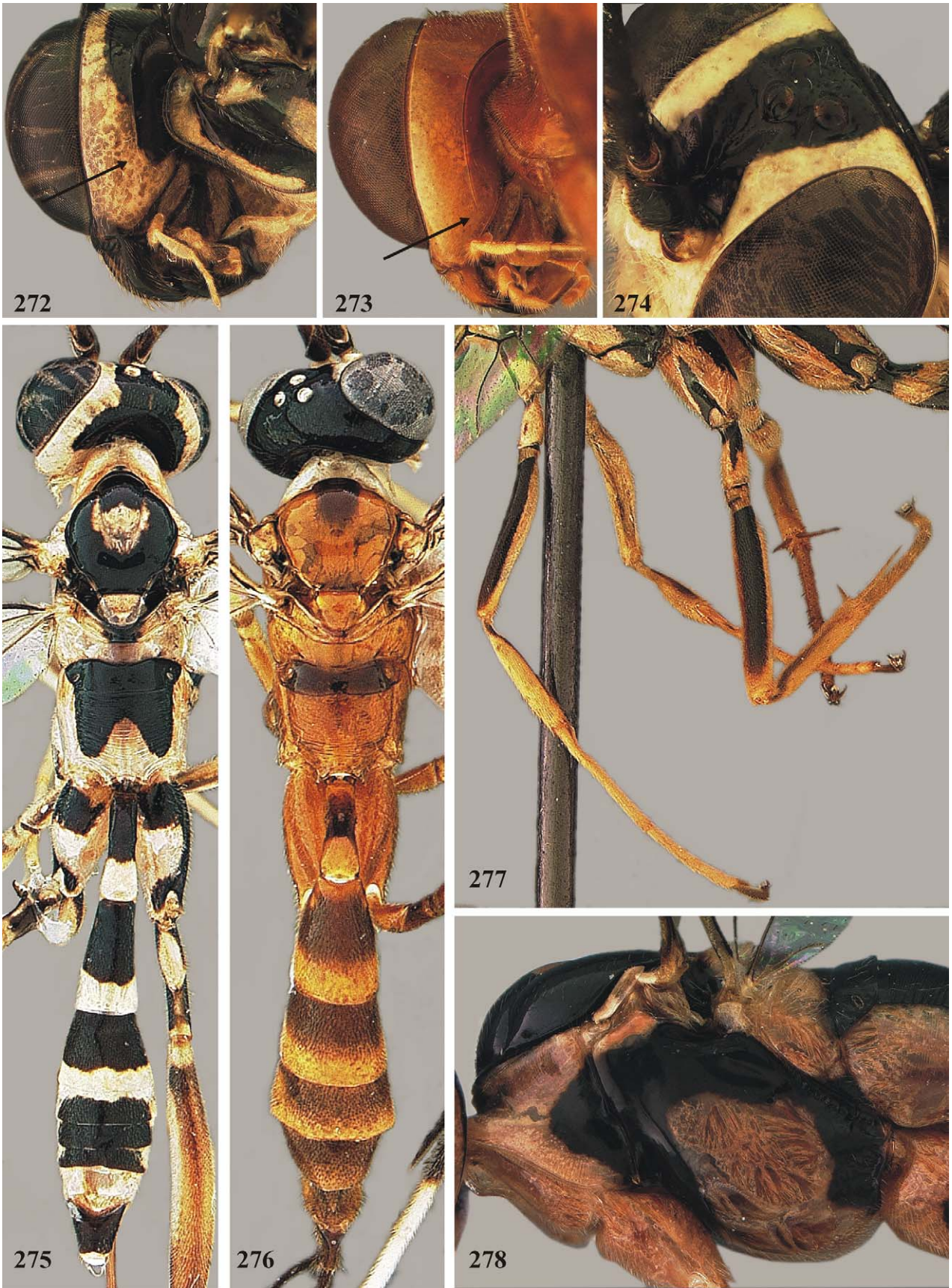
FIGURES 236–241. Hind leg. 236, *M. mesonotator*. 237, *M. arcuatus*. 238, *M. keraiopetalus*. 239, *M. mesosternalis*. 240, *M. albiaterartus**. 241, *M. versicolor**.



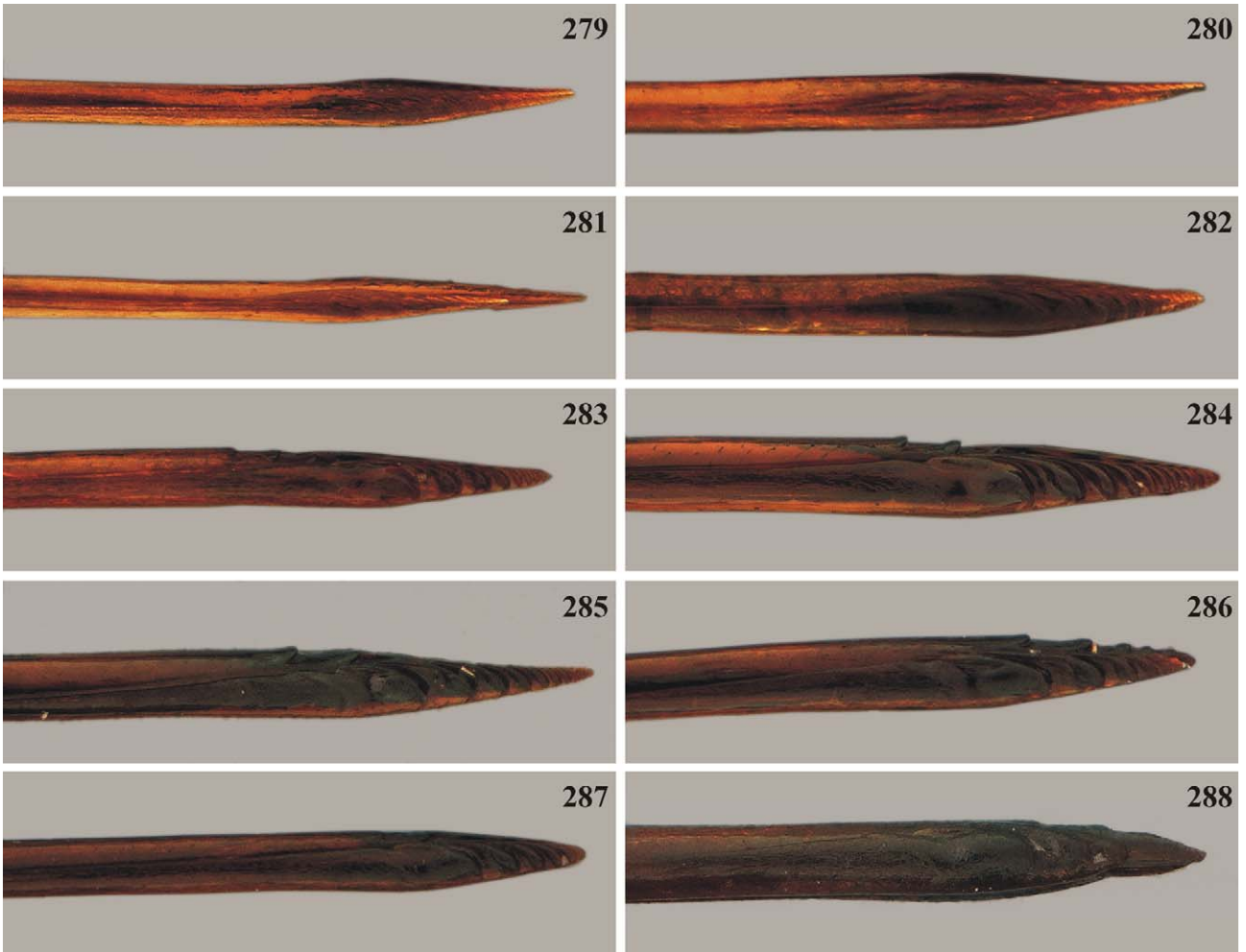
FIGURES 242–259. Wings. 242–253, Fore wing. 242, *M. convexus*. 243, *M. teutonicus*. 244, *M. anepomius**. 245, *M. andinus*. 246, *M. apertus*. 247, *M. paraguayensis*. 248, *M. jalapa*. 249, *M. euryoikos*. 250, *M. copiosus*. 251, *M. lissonotus*. 252, *M. unidentatus*. 253, *M. transversostriatus*. 254–259, Hind wing. 254, *M. amplithorax*. 255, *M. andinus*. 256, *M. teutonicus*. 257, *M. euryoikos*. 258, *M. copiosus*. 259, *M. ellipsicavus*.



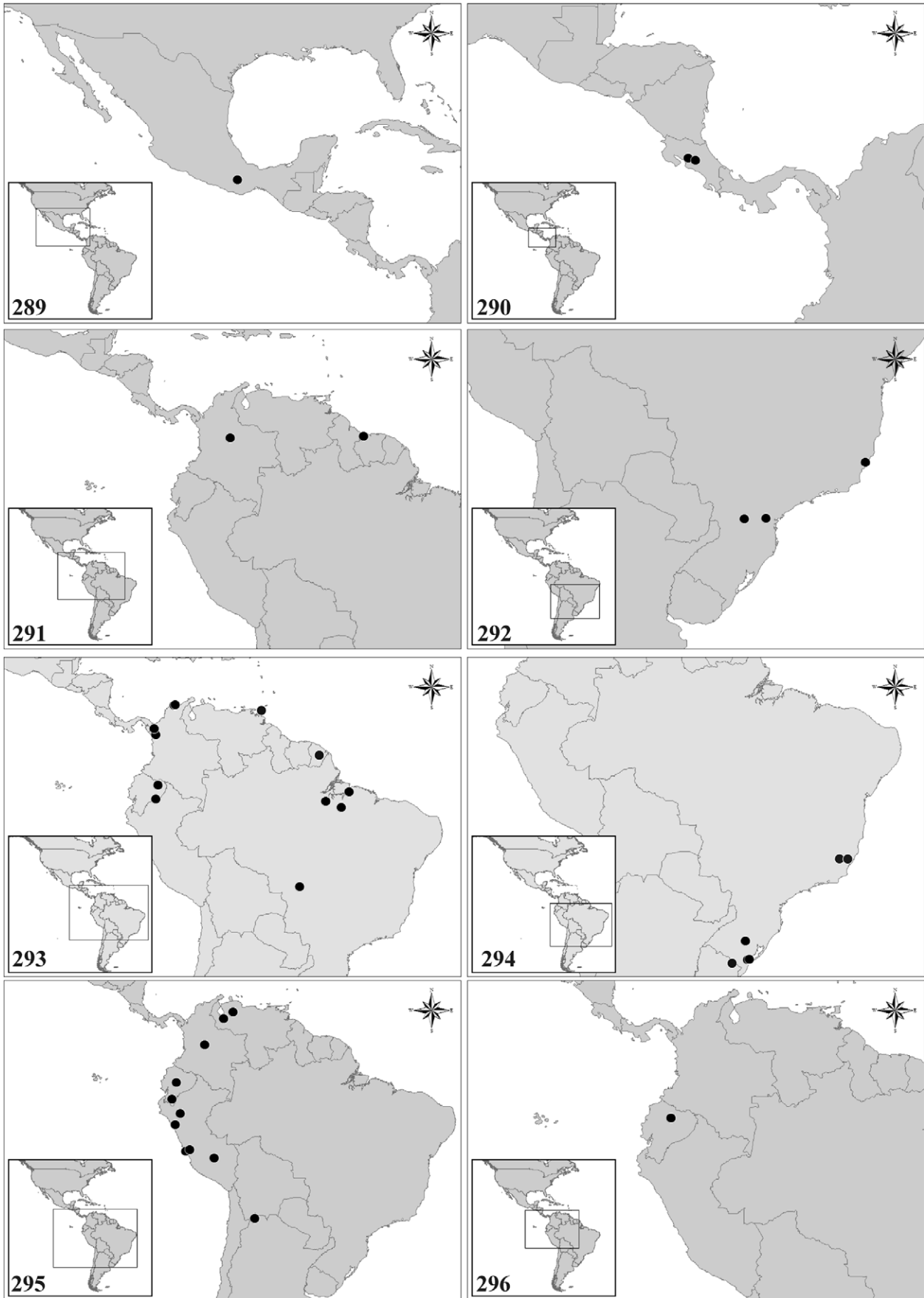
FIGURES 260–271. 260–261, Gena, lateral. 260, *M. longicaudis**. 261, *M. compressicornis*. 262–264, Antenna. 262, *M. tibiator*. 263, *M. compressicornis*. 264, *M. antennator*, male. 265–266, Hind t4. 265, *M. paeneater**. 266, *M. nigriscutus**. 267–271, Metasoma and ovipositor. 267, *M. opacus**. 268, *M. discoidalis*. 269, *M. longicaudis**. 270, *M. convexus*. 271, *M. townesi*.



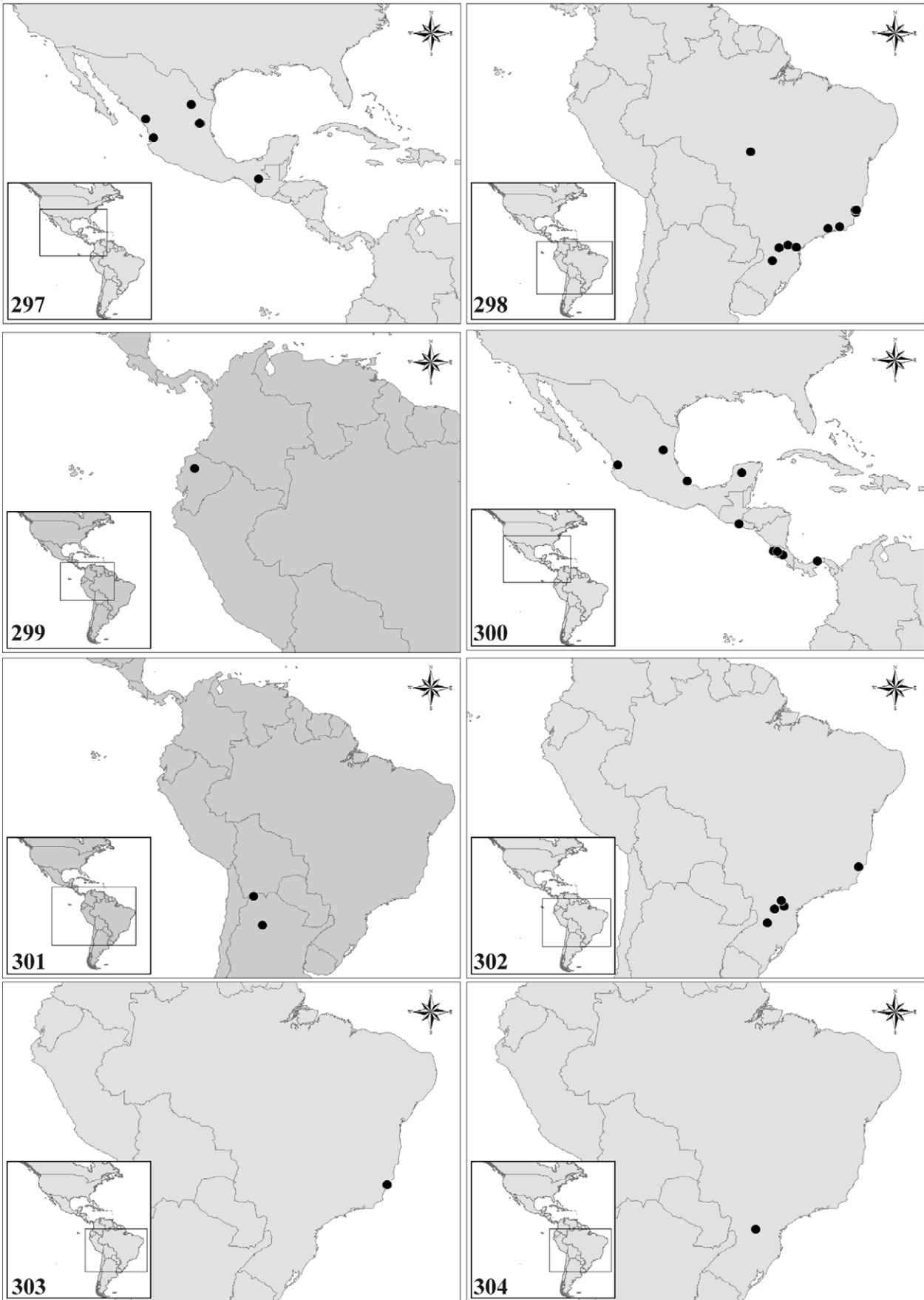
FIGURES 272–278. 272–273, Gena and occiput, back view. 272, *M. euryoikos*. Occipital carina ending far from hypostomal carina. 273, *M. lissonotus*. Occipital carina ending near hypostomal carina 274, *M. depressifrons**, supra-antennal area. 275–276, Dorsal view. 275, *M. complexifemur*. 276, *M. amarelus**. 277, *M. keraioptalus*. Fore and mid femora with dorsal brown stripes. 278, *M. complexifemur*, mesopleuron.



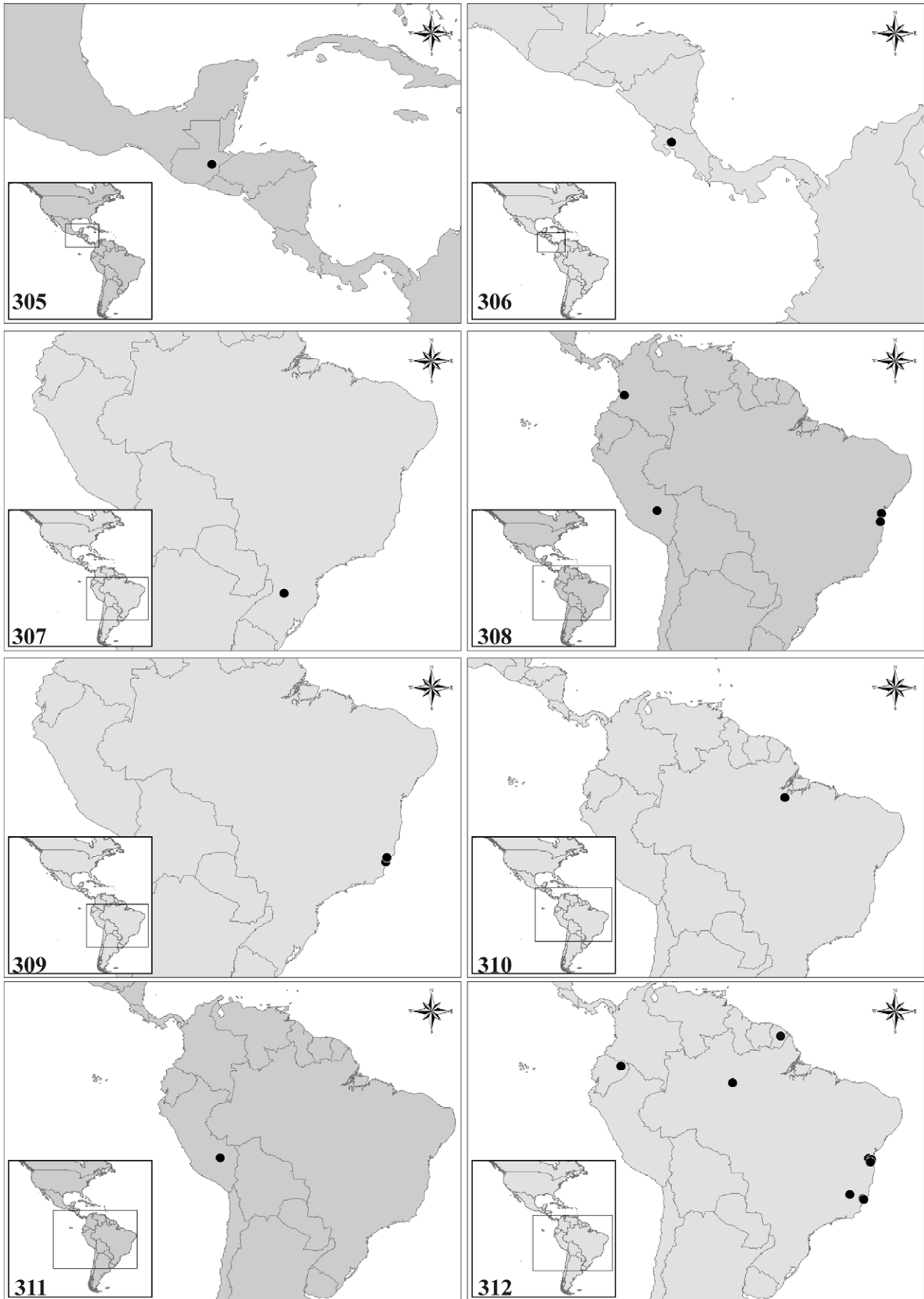
FIGURES 279–288. Ovipositor tip. 279, *M. discoidalis*. 280, *M. paradoxus**. 281, *M. tibiator*. 282, *M. citreocephalus**. 283, *M. teutonicus**. 284, *M. compressicornis*. 285, *M. nigriscutus**. 286, *M. bennetti**. 287, *M. semiaurantigaster**. 288, *M. titans**.



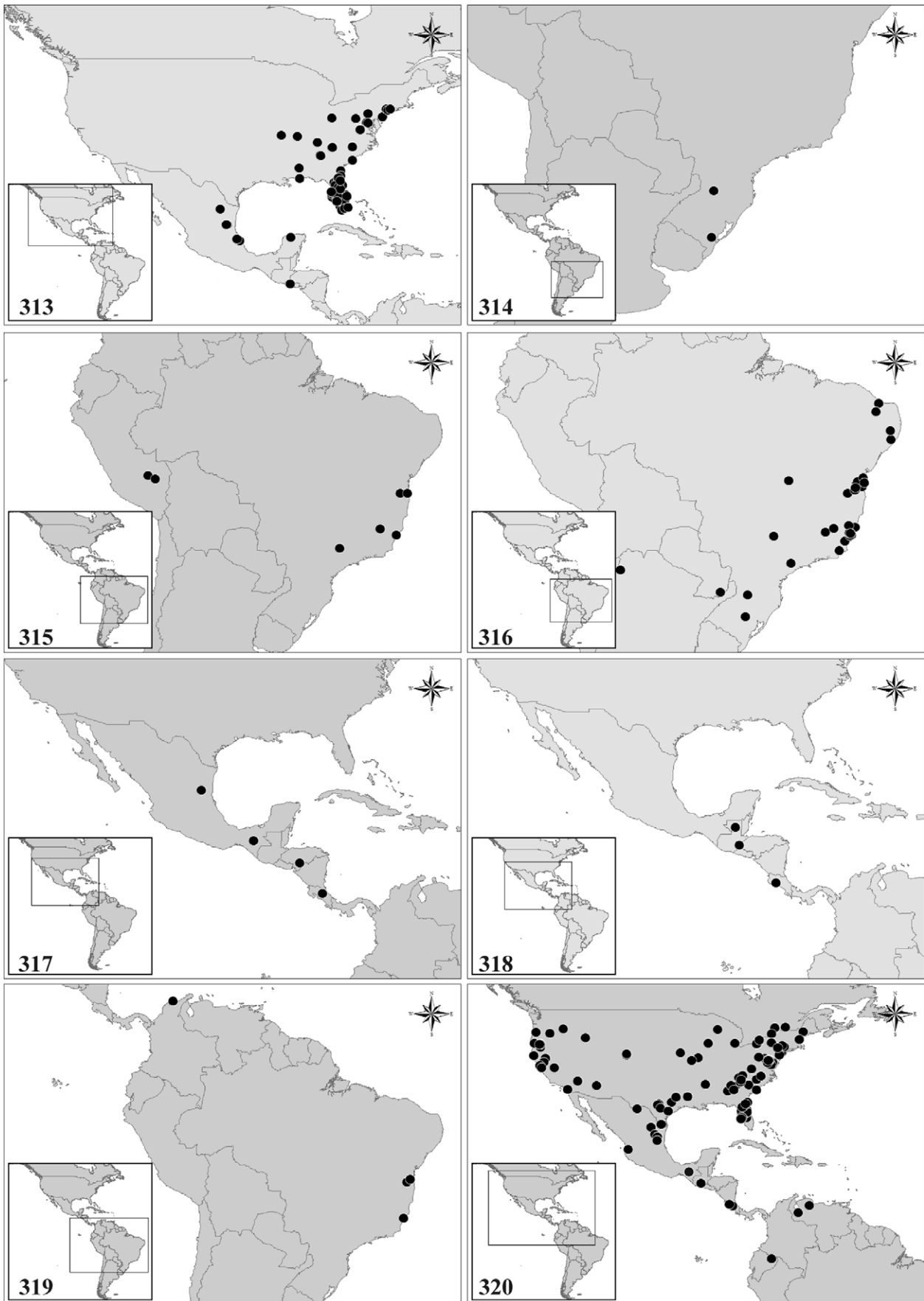
FIGURES 289–296. Distribution maps for species of *Messatoporus*. 289, *M. advenus*. 290, *M. albiaterartus*. 291, *M. allomeros*. 292, *M. amarelos*. 293, *M. amazonensis*. 294, *M. amplithorax*. 295, *M. andinus*. 296, *M. anepomius*.



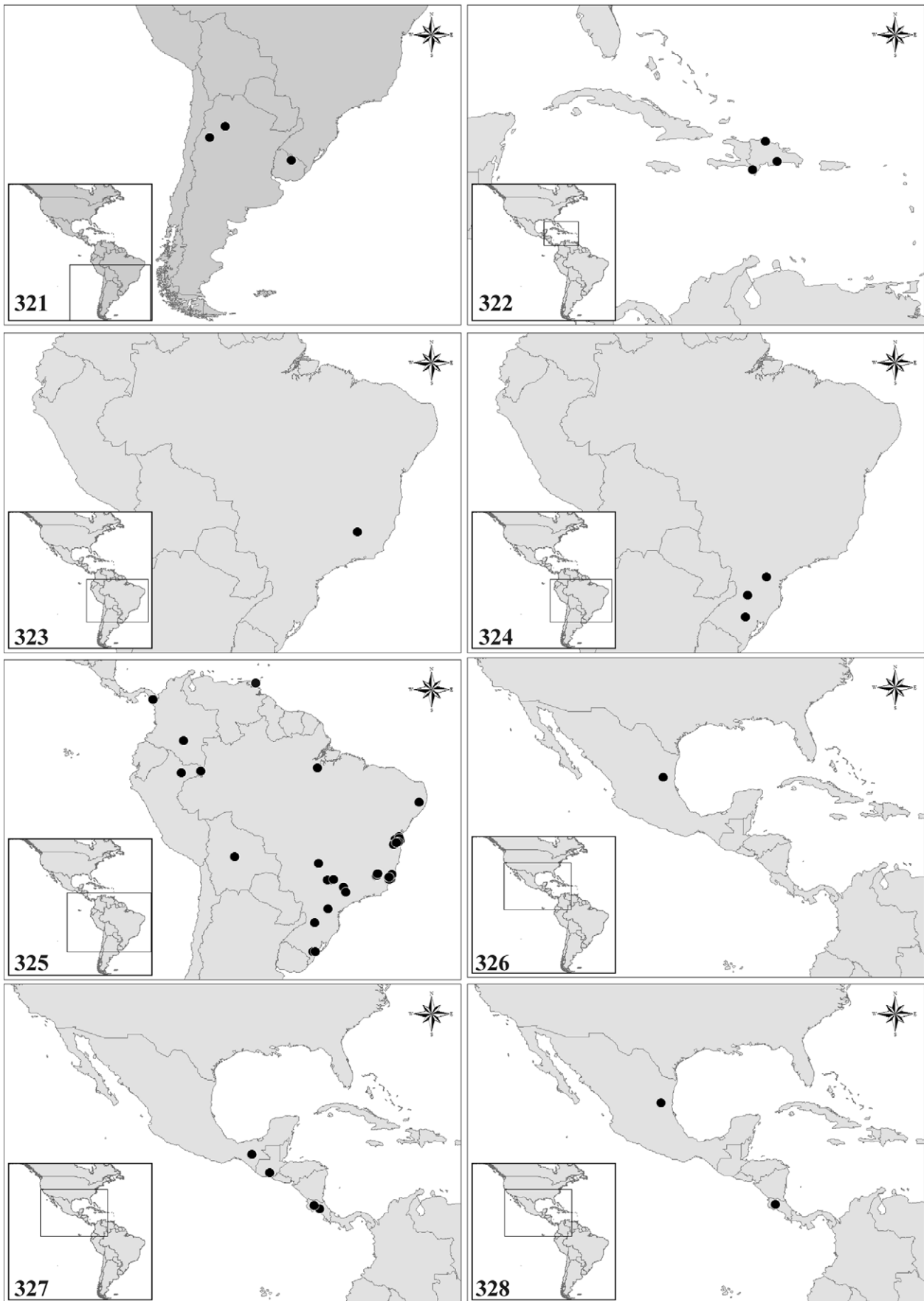
FIGURES 297–304. Distribution maps for species of *Messatoporus*. 297, *M. antennator* 298, *M. apertus*. 299, *M. apiopharkis*. 300, *M. arcuatus*. 301, *M. argentinus*. 302, *M. atlanticus*. 303, *M. atrifoveus*. 304, *M. aurantius*.



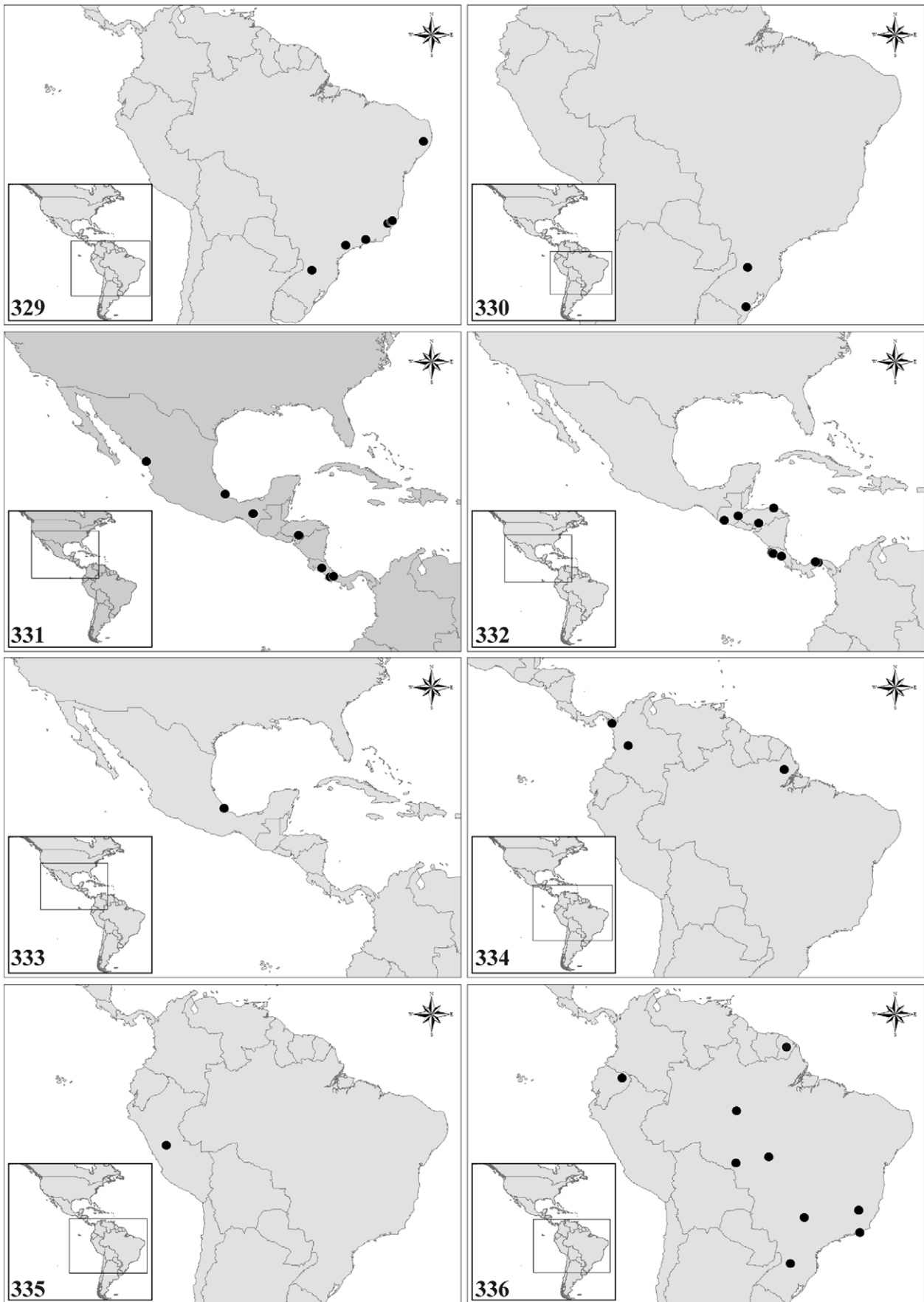
FIGURES 305–312. Distribution maps for species of *Messatoporus*. **305**, *M. badius*. **306**, *M. bennetti*. **307**, *M. bicolor*. **308**, *M. bimaculatus*. **309**, *M. campanulatus*. **310**, *M. caxiuanensis*. **311**, *M. citreocephalus*. **312**, *M. complexifemur*.



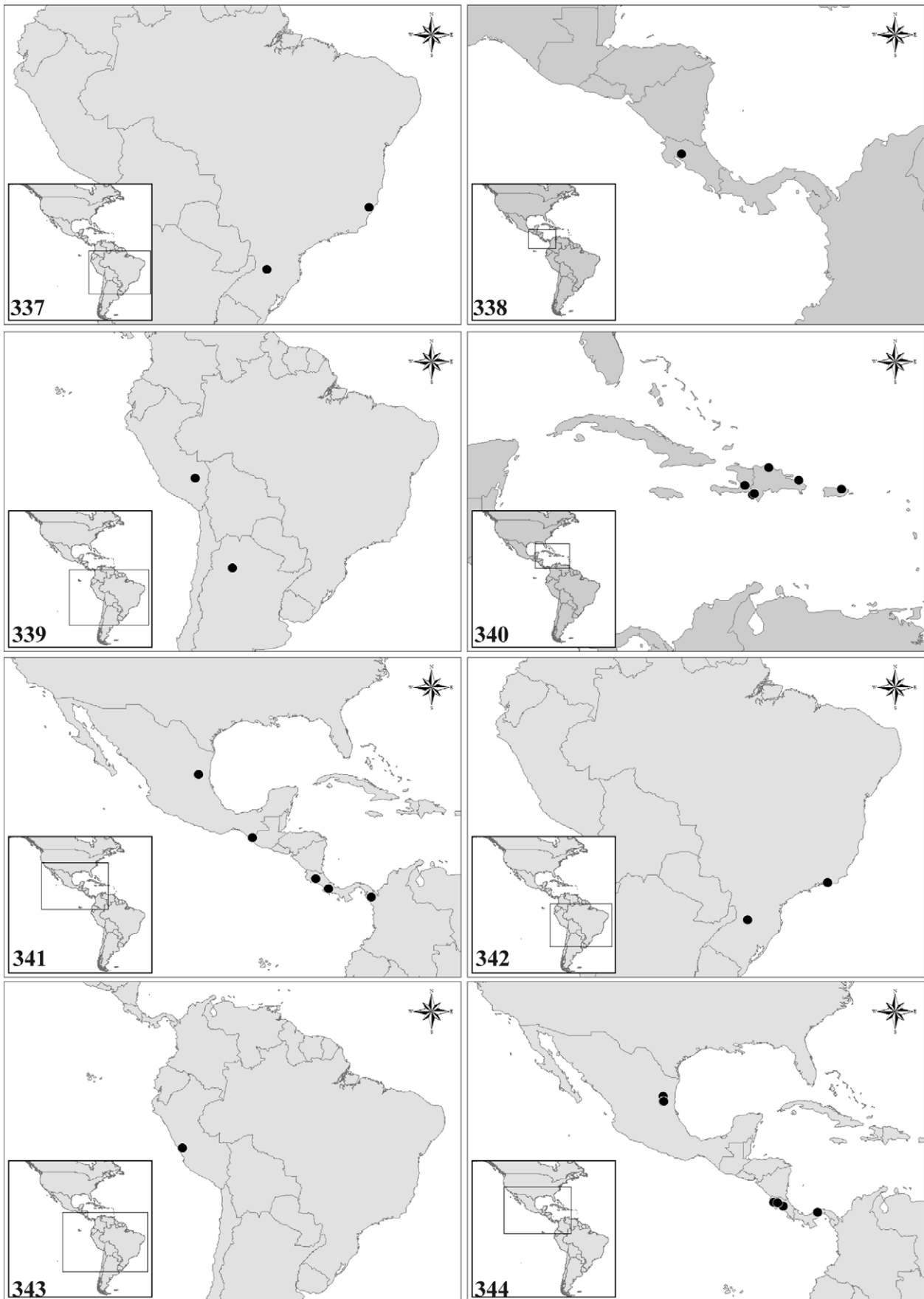
FIGURES 313–320. Distribution maps for species of *Messatoporus*. 313, *M. compressicornis*. 314, *M. concavivenus*. 315, *M. convexus*. 316, *M. copiosus*. 317, *M. covarrubiasi*. 318, *M. depressifrons*. 319, *M. dialeipsis*. 320, *M. discoidalis*.



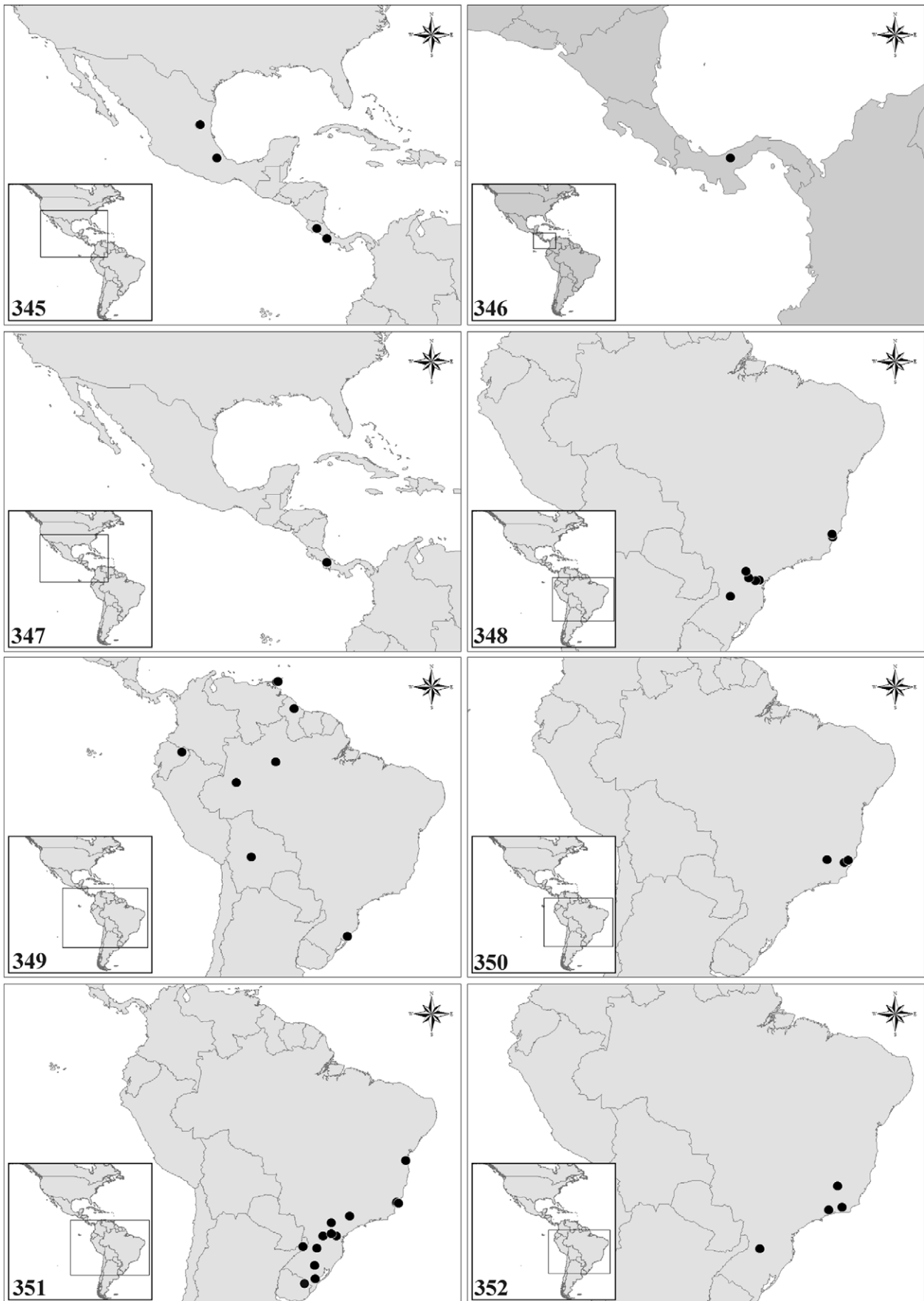
FIGURES 321–328. Distribution maps for species of *Messatoporus*. 321, *M. dissidens*. 322, *M. dominicanus*. 323, *M. elektor*. 324, *M. ellipsicavus*. 325, *M. euryoikos*. 326, *M. femorator*. 327, *M. fulvator*. 328, *M. grandis*.



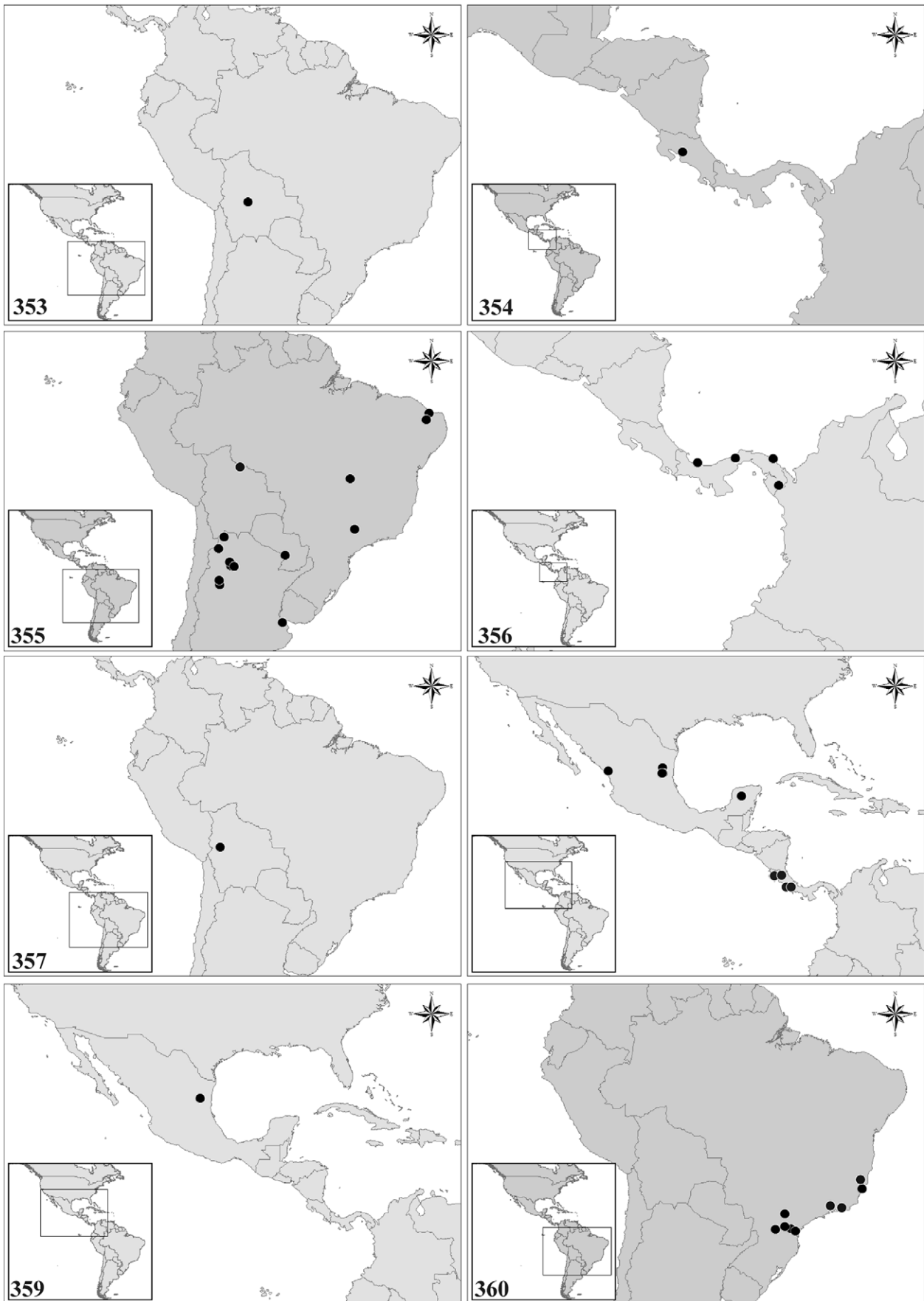
FIGURES 329–336. Distribution maps for species of *Messatoporus*. 329, *M. igneus*. 330, *M. interceptus*. 331, *M. jalapa*. 332, *M. keraiopetalus*. 333, *M. kerzhneri*. 334, *M. laevilatus*. 335, *M. latissulcus*. 336, *M. lissonotus*.



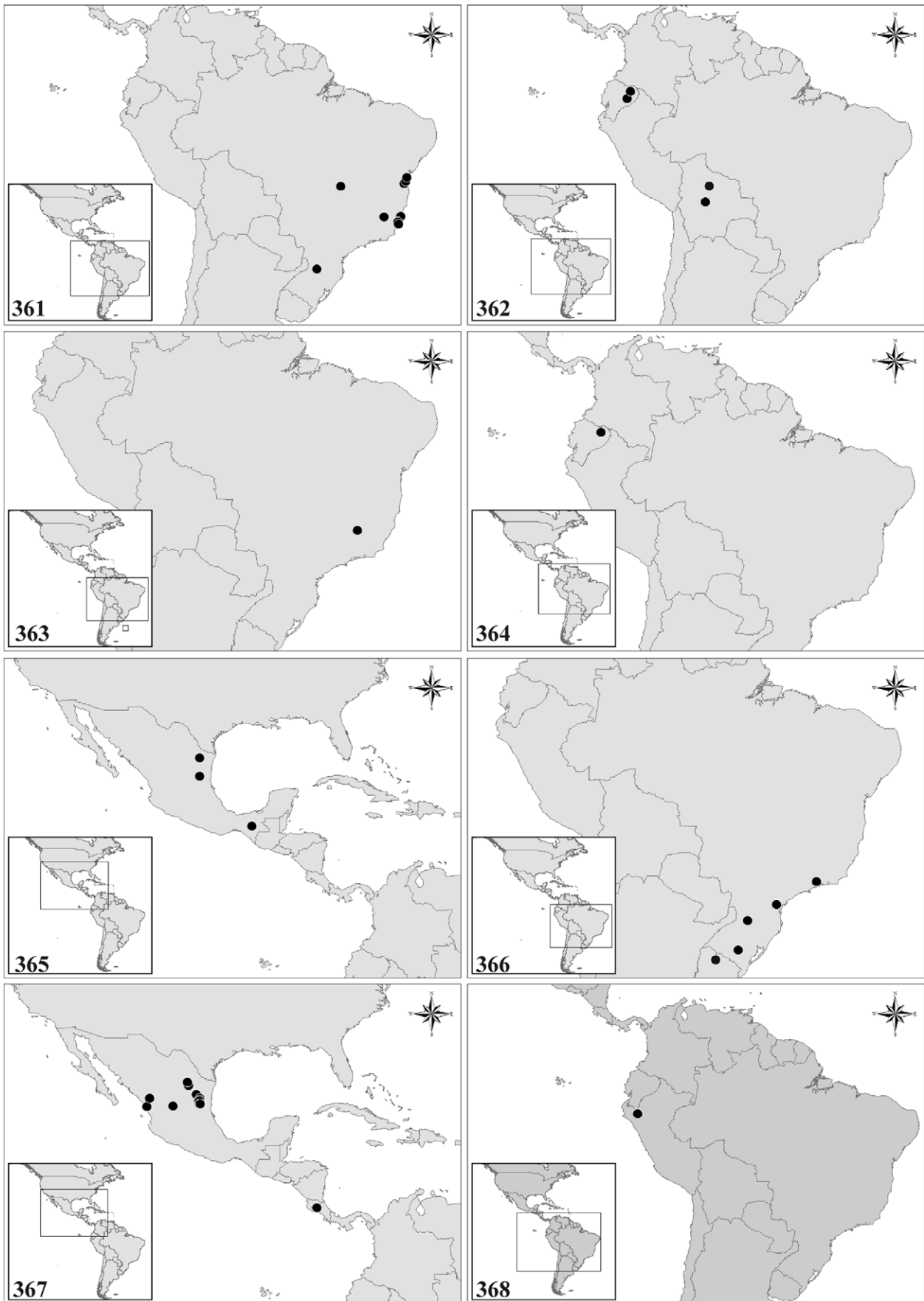
FIGURES 337–344. Distribution maps for species of *Messatoporus*. 337, *M. longicaudis*. 338, *M. longitergus*. 339, *M. lordos*. 340, *M. lunatus*. 341, *M. maculipes*. 342, *M. maculistis*. 343, *M. matucanus*. 344, *M. mesonotator*.



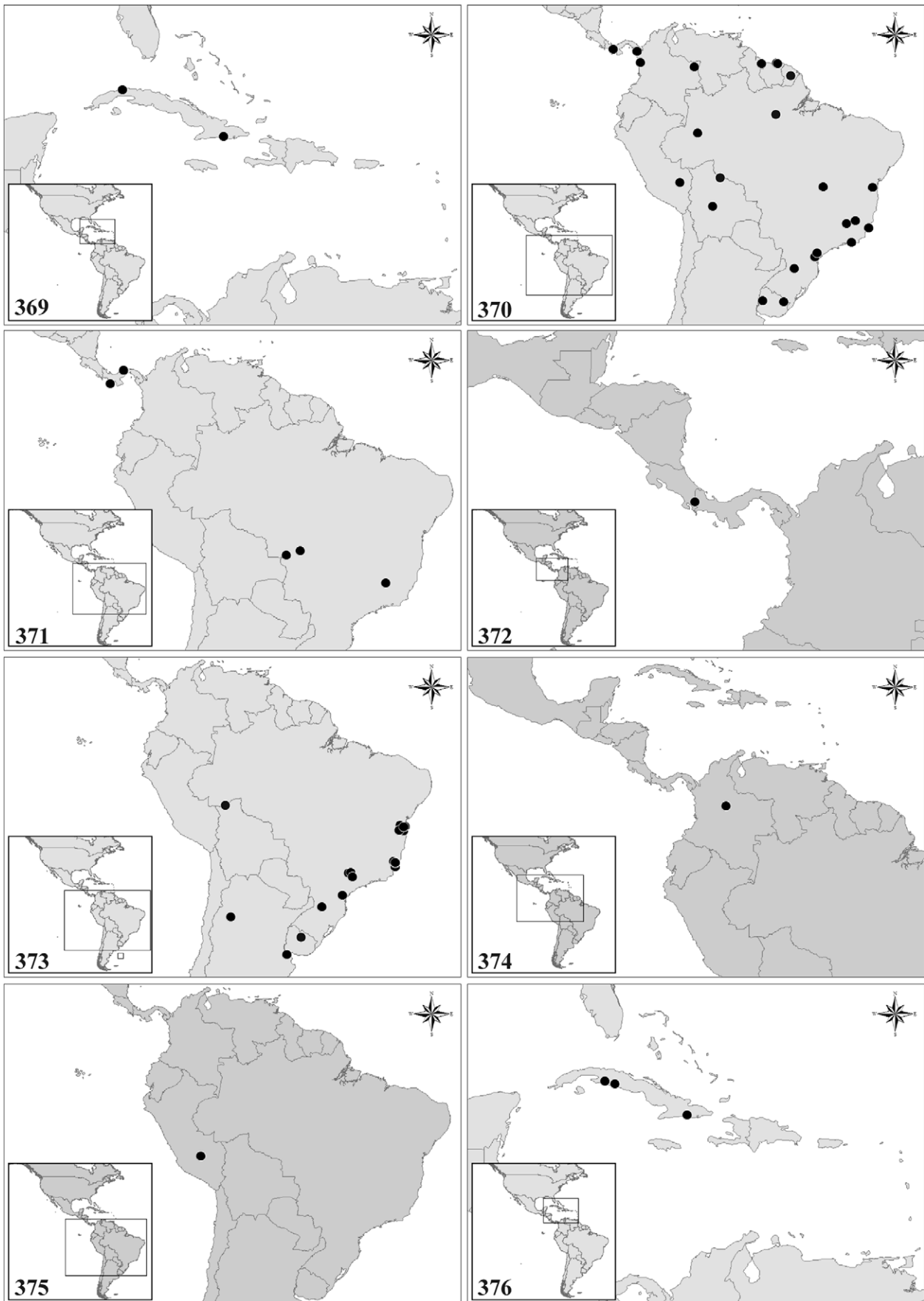
FIGURES 345–352. Distribution maps for species of *Messatoporus*. 345, *M. mesosternalis*. 346, *M. nigriangulatus*. 347, *M. nigriscapus*. 348, *M. nigriscutus*. 349, *M. occidentalis*. 350, *M. opacus*. 351, *M. orientalis*. 352, *M. paeneater*.



FIGURES 353–360. Distribution maps for species of *Messatoporus*. 353, *M. pallidus*. 354, *M. paradoxus*. 355, *M. paraguayensis*. 356, *M. paralissonotus*. 357, *M. pleuriflavus*. 358, *M. propodeator*. 359, *M. rufator*. 360, *M. semialbiventris*.



FIGURES 361–368. Distribution maps for species of *Messatoporus*. **361,** *M. semiaurantigaster*. **362,** *M. subalaris*. **363,** *M. tenuiorbis*. **364,** *M. tenuissimus*. **365,** *M. terebrator*. **366,** *M. teutonicus*. **367,** *M. tibiator*. **368,** *M. titans*.



FIGURES 369–376. Distribution maps for species of *Messatoporus*. **369** *M. townesi*. **370**, *M. transversostriatus*. **371**, *M. unidentatus*. **372**, *M. unimaculatus*. **373**, *M. variegatus*. **374**, *M. versicolor*. **375**, *M. xanthogaster*. **376**, *M. zonatus*.