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Male-based key to the subfamilies and genera of Malagasy ants (Hymenoptera, Formicidae)

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1 **Male-based key to the subfamilies and genera of Malagasy ants (Hymenoptera, Formicidae)**

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7 **ABSTRACT**

8 The males of the family Formicidae in the Malagasy region, including the islands of the southwest Indian
9 Ocean (Madagascar, Mauritius, Reunion, Comoros, and Seychelles) are reviewed. A male-based synopsis
10 of each subfamily and genera are provided. A richly illustrated male-based key to the eight subfamilies
11 and 71 genera for which males are known are provided. Terminologies for morphology and wing cells are
12 also reviewed. The keys are a product of three decades of collecting across the region. Despite efforts to
13 collect males for all genera, males from four genera (*Brachyponera*, *Chrysapace*, *Dicroaspis*, *Ochetellus*)
14 were included in the keys based on males from species collected outside the region, and males from one
15 genus (*Parvaponera*) are unknown globally and not included in the key.

16 **Keywords:** male ants, Malagasy region, Formicidae, morphology, identification.

17

18 **INTRODUCTION**

19

20 Most identification tools for ants are based on the worker female caste and neglect the male caste.
21 Identifying males is important to understanding the life history, phenology, and reproductive biology of
22 ants. In addition, some collecting methods like Malaise and light traps preferentially trap males and,
23 without tools for their identification, limit these methods for gaining insights into ant community diversity
24 and structure through time and space.

25 In the Malagasy region, (Madagascar, Mauritius, Reunion, Comoros, and Seychelles), there has been a
26 pioneering effort to develop the taxonomic tools to identify male ants to genus: Ponerinae (Yoshimura
27 and Fisher 2007), Amblyoponinae (Yoshimura and Fisher 2014), Dolichoderinae (Yoshimura and Fisher
28 2011), and Proceratinae (Yoshimura and Fisher 2009), and Myrmicinae tribes (Ramamonjisoa et al.
29 2023). This body of work has greatly enriched our understanding of the diversity of ants in the region.
30 Borowiec (2016) also provided an identification key for male Dorylinae from the African and Malagasy
31 regions. Here, we update this previous work, providing additional characters and updated classification
32 and provide keys to all genera, including the Myrmecinae for which males are known. The newly
33 proposed key uses a combination of morphological characters to create a navigational tool to identify the
34 diversity of ant genera in the Malagasy region. The effectiveness of the key is enhanced by the integration
35 of photographic illustrations, which provide a visual portal to the subtle intricacies that distinguish each

36 genre. This study aims to increase the accessibility, accuracy, and applicability of ant genera
37 identification in the Malagasy region.

38 MATERIALS AND METHODS

39 Morphological observations were carried out under Leica stereoscopic microscopes (MZ9.5). Digital
40 color montage images were created using a JVC KY-F75 digital camera and Syncrosopy Auto-Montage
41 software (ver. 5.0), or a Leica DFC 425 camera in combination with the Leica Application Suite software
42 (ver. 3.8). These images are available online through AntWeb.org (2022) and are accessible using the
43 unique specimen identifier code.

44 Terminology for general morphology follows Bolton (1994) and Boudinot (2013, 2015). The terminology
45 of the wing venation follows Yoshimura and Fisher (2007). When referring to the presence or absence of
46 veins in the descriptions, a vein is considered present regardless of whether it is tubular, nebulous, or
47 spectral (Mason 1986).

48 **Subfamilies and genera in the Malagasy Region**

49 The specimens used in this study are the product of a long-term effort to document the diversity of ants in
50 the Malagasy region (Fisher 2005; Fisher and Peeters 2019). Males were collected by hand as part of
51 colony series but also in light and Malaise traps. Despite the effort, not all genera had representative
52 males collected in the Malagasy region. Four genera (*Brachyponera*, *Chrysapace*, *Dicroaspis*, *Ochetellus*)
53 have males known from outside the region but collection efforts failed to locate males from the Malagasy
54 region. Males of *Brachyponera* (known from Mauritius), *Dicroopsis*, (from Anjouan), and *Ochetellus*,
55 (from Reunion) are most likely absent because of the limited effort spent collecting on those islands.
56 *Chrysapace*, which is a large Doryline and present in northern Madagascar is surprising that males have
57 never been collected in the region despite the numerous malaise and light traps throughout the range of
58 the genus. Even more puzzling is the complete global absence of males of *Parvaponera*. *Parvaponera*
59 queens are regularly collected at black lights (Fig. 1). For a period of 7 years, the Madagascar ant team
60 directed efforts to collect males at sites where queens were present at lights. Searching at one site (Nosy
61 Faly in NW Madagascar) we located the first ground nest including workers for the genus in Madagascar.
62 We set a series of yellow pan traps and Malaise traps during the period queens were present at black
63 lights (Fig. 2) but no males were located. Males of the genus remain unknown in Madagascar and
64 globally. *Parvaponera* is the only genus in the Malagasy region absent from the key.



65
66

Figure 1. Black light. Photographer Brian Fisher



67
68

Figure 2. Yellow pan and Malaise trap. Photographer Brian Fisher

69 **Synoptic list of genera**

70 For genera absent from Madagascar, the distribution is indicated in parentheses.

71 * Males unknown for the genus within the Malagasy region but included in keys based on males from
72 outside the region.

73 + Males unknown for genus globally and not included in key.

74 **AMBLYOPONINAE** Forel, 1893

75 1. *Adetomyrma* Ward, 1994

76 2. *Mystrium* Roger, 1862

77 3. *Prionopelta* Mayr, 1866

78 4. *Stigmatomma* Roger, 1859

79 5. *Xymmer* Santschi, 1914

80 **DOLICHODERINAE** Forel, 1878

81 1. *Aptinoma* Fisher, 2009

82 2. *Ochetellus** Shattuck, 1992 (Mauritius, Reunion)

83 3. *Ravavy* Fisher, 2009

84 4. *Tapinoma* Foerster, 1850

85 5. *Technomyrmex* Mayr, 1872

86 **DORYLINAE** Leach, 1815

87 1. *Eburopone* Borowiec, 2016

88 2. *Chrysapace** Crawley, 1924

89 3. *Lioponera* Mayr, 1879

90 4. *Lividopone* Bolton and Fisher, 2016

91 5. *Ooceraea* Roger, 1862

92 6. *Parasyscia* Emery, 1882

93 7. *Simopone* Forel, 1891

94 8. *Tanipone* Bolton and Fisher, 2012

95 **FORMICINAE** Latreille, 1809

96 1. *Anoplolepis* Santschi, 1914 (Seychelles)

97 2. *Brachymyrmex* Mayr, 1868

98 3. *Camponotus* Mayr, 1861

99 4. *Lepisiota* Santschi, 1926

100 5. *Nylanderia* Emery, 1906

101 6. *Paraparatrechina* Donithorpe, 1947

102 7. *Paratrechina* Motschoulsky, 1863

103 8. *Plagiolepis* Mayr, 1861

104 9. *Tapinolepis* Emery, 1925

105 MYRMICINAE *Lepelletier de Saint-Fargeau, 1835*

- 106 1. *Adelomyrmex* Emery, 1897 (Seychelles)
- 107 2. *Aphaenogaster* Mayr, 1853
- 108 3. *Calyptomyrmex* Emery, 1887 (Comoros)
- 109 4. *Cardiocondyla* Emery, 1869
- 110 5. *Carebara* Westwood, 1840
- 111 6. *Cataulacus* Smith, 1853
- 112 7. *Crematogaster* Lund, 1831
- 113 8. *Cyphomyrmex* Mayr, 1862 (Reunion)
- 114 9. *Dicroaspis** Emery, 1908 (Comoros)
- 115 10. *Erromyrma* Bolton and Fisher, 2016
- 116 11. *Eurhopalothrix* Brown and Kempf, 1961 (Comoros)
- 117 12. *Eutetramorium* Emery, 1899
- 118 13. *Malagidris* Bolton and Fisher, 2014
- 119 14. *Melissotarsus* Emery, 1877
- 120 15. *Meranoplus* Smith, 1853
- 121 16. *Metapone* Forel, 1911
- 122 17. *Monomorium* Mayr, 1855
- 123 18. *Nesomyrmex* Wheeler, 1910
- 124 19. *Pheidole* Westwood, 1839
- 125 20. *Pilotrochus* Brown, 1978
- 126 21. *Pristomyrmex* Mayr, 1866 (Mauritus)
- 127 22. *Royidris* Bolton and Fisher, 2014
- 128 23. *Solenopsis* Westwood, 1840
- 129 24. *Strumigenys* Smith, 1860
- 130 25. *Syllophopsis* Santschi, 1915
- 131 26. *Terataner* Emery, 1912
- 132 27. *Tetramorium* Mayr, 1855
- 133 28. *Trichomyrmex* Mayr, 1865
- 134 29. *Vitsika* Bolton and Fisher, 2014
- 135 30. *Vollenhovia* Mayr, 1865 (Seychelles)

136 PONERINAE *Lepelletier de Saint-Fargeau, 1835*

- 137 1. *Bothroponera* Mayr, 1862
- 138 2. *Brachyponera** Emery, 1900 (Mauritus)
- 139 3. *Euponera* Forel, 1891
- 140 4. *Hypoponera* Santschi, 1938
- 141 5. *Leptogenys* Roger, 1861
- 142 6. *Mesoponera* Emery, 1900
- 143 7. *Odontomachus* Latreille, 1804
- 144 8. *Parvaponera*+ Schmidt and Shattuck, 2014
- 145 9. *Platythyrea* Roger, 1863
- 146 10. *Ponera* Latreille, 1804

147 PROCERATIINAE Emery, 1895

148 1. *Discothyrea* Roger, 1863

149 2. *Probolomyrmex* Mayr, 1901

150 3. *Proceratium* Roger, 1863

151 PSEUDOMYRMICINAE Smith, 1952

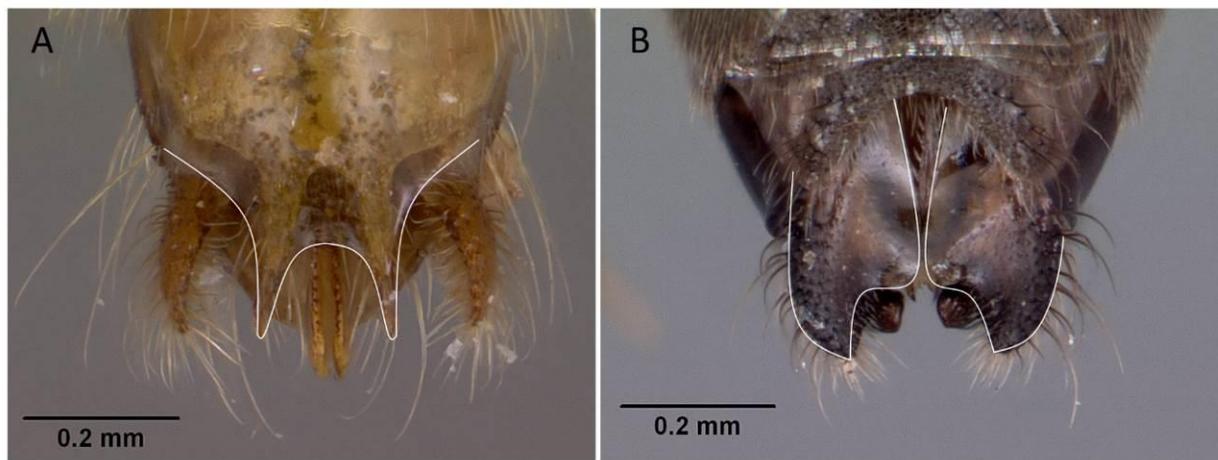
152 1. *Tetraponera* Smith, 1852

153

154 **Key to Subfamilies alate male ants from the Malagasy region.**

155 1 Two distinct, long, narrow spines or lobes present on the apical portion of abdominal sternum IX
156 (Fig. 3A) or, if absent, then mandibles extremely elongated, distinctly longer than head, and volsella
157 massive, claw-shaped, directed dorsally. Pygostyles absentDorylinae

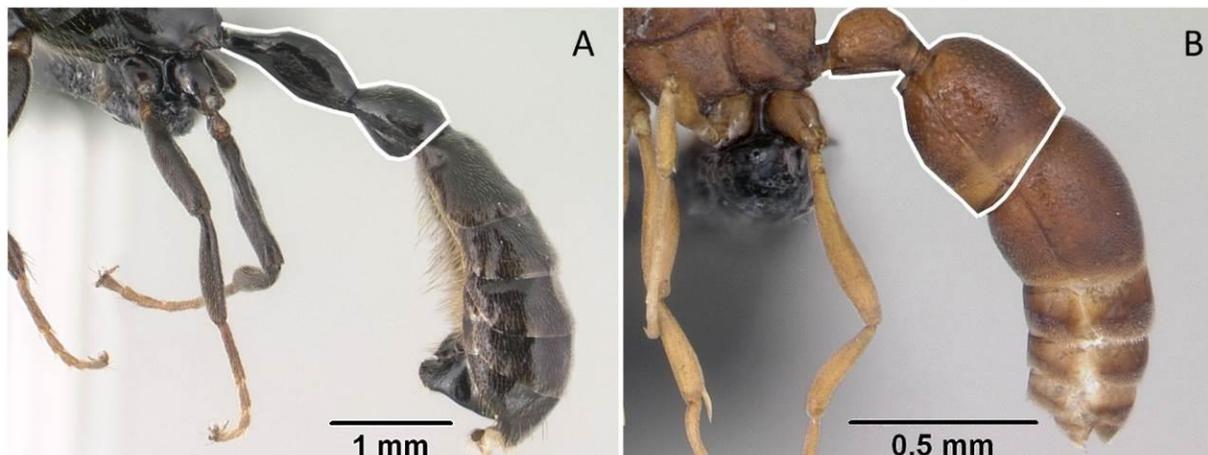
158 – Spines or lobes absent on apical portion of abdominal sternum IX or the apical portion bilobed,
159 with each lobe very wide (Fig. 3B). Mandibles not elongated, distinctly shorter than head. Volsella
160 moderate, not claw-shaped, not directed dorsally. Pygostyles present or absent2



161 **Figure 3.** Portion of abdominal sternum IX. **A** *Lioponera* indet (CASENT0001042) **B** *Technomyrmex* mg08 (CASENT0049527).
162 Photographer Masashi Yoshimura.
163

164 2 Abdominal segment II nearly as long as segment III in lateral view (Fig. 4A)3

165 – Abdominal segment II much shorter than segment III in lateral view (Fig. 4B)4



166
167 **Figure 4.** Abdominal segment II and III in lateral view. **A** *Tetraponera longula* (CASENT0138661) **B** *Probolomyrmex*
168 *curculiformis* (CASENT0050214). Photographers Dimby Raharinjanahary (4A), April Nobile (4B).

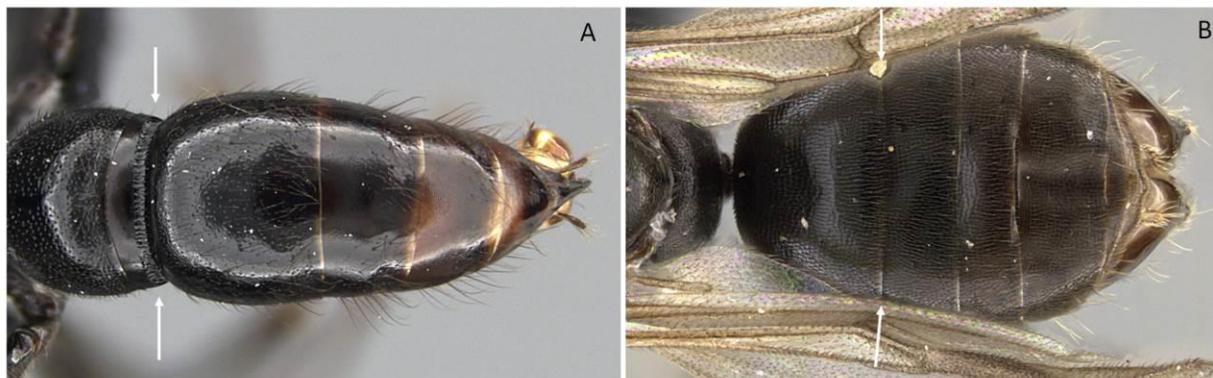
- 169 3 Ventral apex of meso- and metatibia, when viewed from the front with the femur at right angle to
170 the body, with two spurs consisting of a large pectinate spur and a small simple spur (Fig. 5A)
171Pseudomyrmecinae
172 – Ventral apex of metatibia, when viewed from the front with the femur at right angle to the body,
173 with single, large pectinate spur (Fig. 5B)Myrmicinae



174
175 **Figure 5.** Metatibial spur. **A** *Tetraponera psw094* (CASENT0053316) **B** *Aphaenogaster swammerdami* (CASENT0000990).
176 Photographers April Nobile (5A), Masashi Yoshimura (5B).

- 177
178 4 Metatibia with one or two ventroapical spurs; if only one spur present then cinctus present
179 between abdominal segment III and abdominal segment IV (Fig. 6A)5

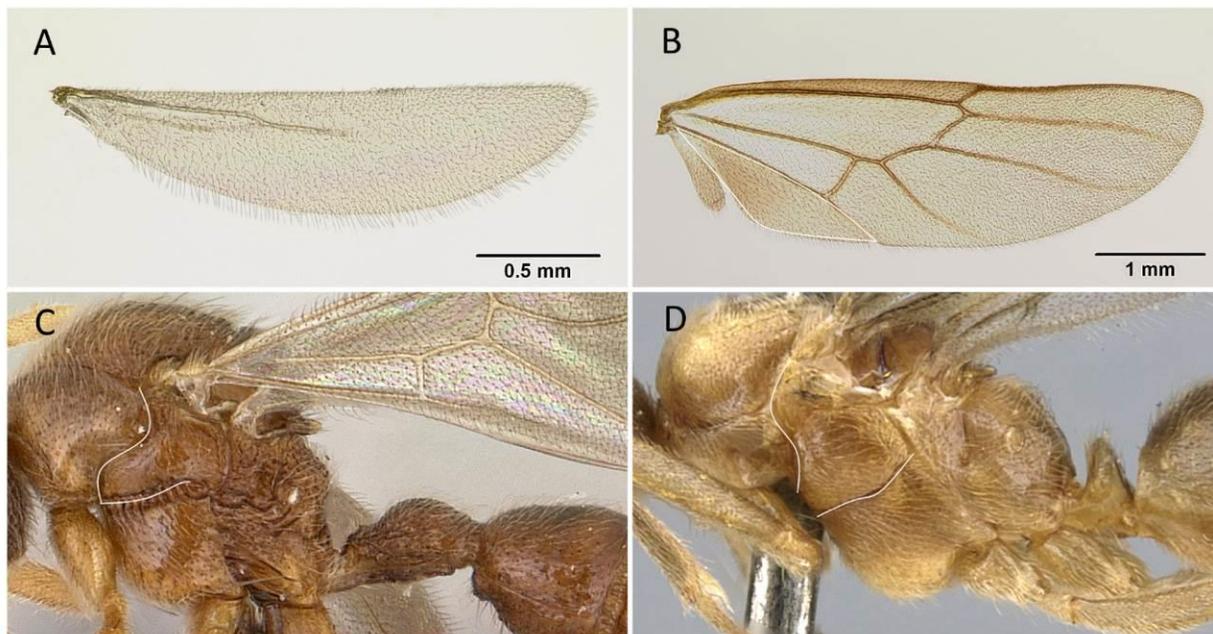
180 – Metatibia always with single ventroapical spur, cinctus absent between abdominal segment III
 181 and abdominal segment IV (Fig. 6B)7



182
 183 **Figure 6.** Gaster in dorsal view, the cinctus at abdominal segment IV level. **A** *Euponera sikorae* (CASENT0065480) **B**
 184 *Technomyrmex albipes* (CASENT0055727). Photographer Michele Esposito.
 185

186 5 Anal region of hind wing vestigial (Fig. 7A) and with the mesosoma in lateral view, oblique
 187 mesopleural furrow reaching pronotum close to pronotal posteroventral margin (Fig. 7C)
 188Proceratiinae

189 – Anal region of hind wing well developed (Fig. 7B); if vestigial, oblique mesopleural furrow
 190 always reaching pronotum far away from pronotal posteroventral margin or oblique mesopleural furrow
 191 absent (Fig. 7D)6



192
 193 **Figure 7.** Hindwings of male ants. **A** *Discothyrea mgm01* (CASENT0083649) **B** *Odontomachus coquereli* (CASENT0049797).
 194 Mesosoma in lateral view, showing the oblique mesopleural furrow **C** *Proceratium dr01* (CASENT0145100) **D** *Acropyga goeldii*
 195 (CASENT0903184). Photographers Erin Prado (7A, 7B), Dimby Raharinjanahary (7C), Z. Lieberman (7D).
 196

197 6 Abdominal segment II broadly and dorsally attached to abdominal segment III; mandible long,
 198 falcate, curved inward and closed (Fig. 8A)Amblyoponinae

199 – Abdominal segment II narrowly and ventrally attached to abdominal segment III; mandible short,
 200 linear, mostly subtriangular, never closed (Fig. 8B)

201Ponerinae



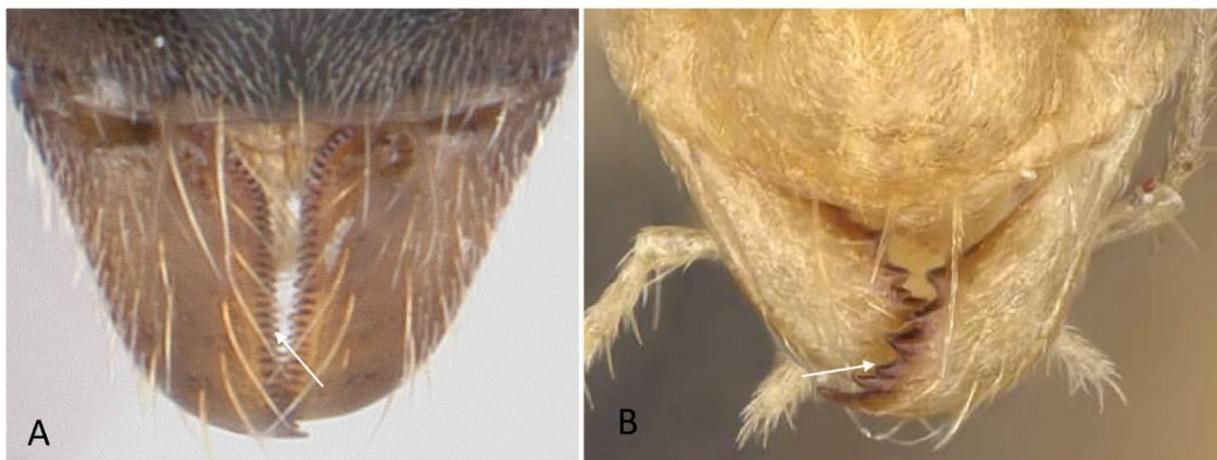
202
203 **Figure 8.** Attachment of petiole (abdominal segment II) to abdominal segment III. **A** *Stigmatomma* mgm04 (CASENT0063981)
204 **B** *Bothroponera perroti* (CASENT0135783). Photographers Erin Prado (8A), Dimby Raharinjanahary (8B).
205

206 7 With the head in full face view, masticatory margin of mandible edentate or with many minute,
207 serrate teeth (Fig. 9A), if teeth absent, then scape short not reaching posterior margin of head

208Dolichoderinae

209 – With the head in full face view, masticatory margin of mandible with several larger teeth (Fig.
210 9B); scape long, distinctly exceeding posterior margin of head

211Formicinae



212
213 **Figure 9.** Mandible in full face view. **A** *Technomyrmex albipes* (CASENT0055727) **B** *Anoplolepis gracilipes*
214 (CASENT0158950). Photographers April Nobile (9A), Michele Esposito (9B).

215 **AMBLYOPONINAE** Forel, 1893

216 Diagnosis of male ants of the subfamily Amblyoponinae in the Malagasy region

- 217 – Antenna filiform, consisting of 13 segments.
- 218 – Scape not reaching posterior margin of head.

219 – Mesopleural oblique furrow usually vestigial, and when present, reaching pronotum far away
220 from pronotal posteroventral margin.

221 – Petiole (abdominal segment II) broadly and dorsally attached to abdominal segment III.

222 – Abdominal segment II much smaller than segment III in lateral view.

223 – Metatibia with one or two spurs.

224

225 Remarks. Our key includes five Amblyoponinae genera recorded from the Malagasy region. Key
226 modified from Yoshimura and Fisher (2014).

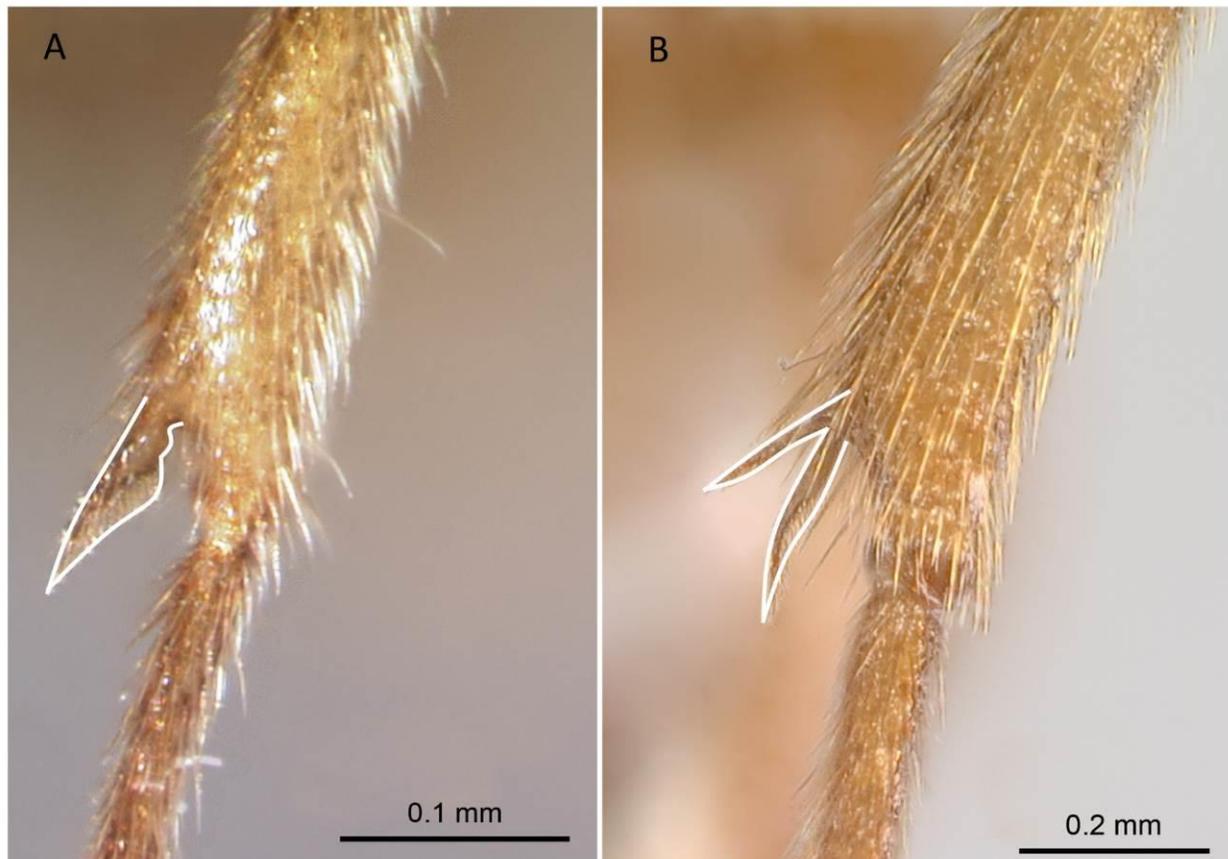
227 **Male-based key to genera of the subfamily Amblyoponinae**

228 1 A single tibial spur present on metatibia (Fig. 10A). Mandible with apical and pre-apical teeth.

229 Pterostigma reduced in size*Prionopelta*

230 – Two tibial spurs present on metatibia (Fig. 10B). Mandible with a single apical tooth. Pterostigma
231 well developed

2322

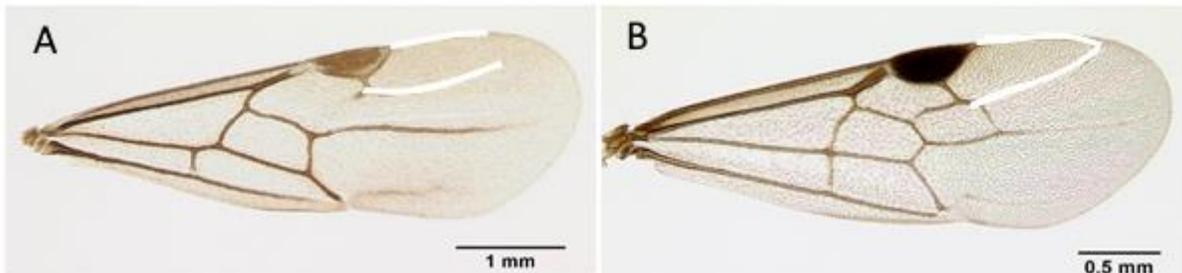


233 **Figure 10.** Tibial spur on metatibia. **A** *Prionopelta subtilis* (CASENT0049809) **B** *Mystrium mirror* (CASENT0492154).
234 Photographer Masashi Yoshimura
235
236

237 2 Constriction between petiole and abdominal segment III indistinct in dorsal view. Pretergite of
238 abdominal segment IV not divided from post-tergite by transverse furrow. On forewing, radial sector fails
239 to reach costal margin and is disconnected from radius (Fig. 11A)*Adetomyrma*

240 – Constriction between petiole and abdominal segment III distinct in dorsal view. Pretergite of

241 abdominal segment IV distinctly divided from post-tergite by transverse furrow. On forewing, radial
 242 sector reaches costal margin and is connected with radius (Fig. 11B)
 2433



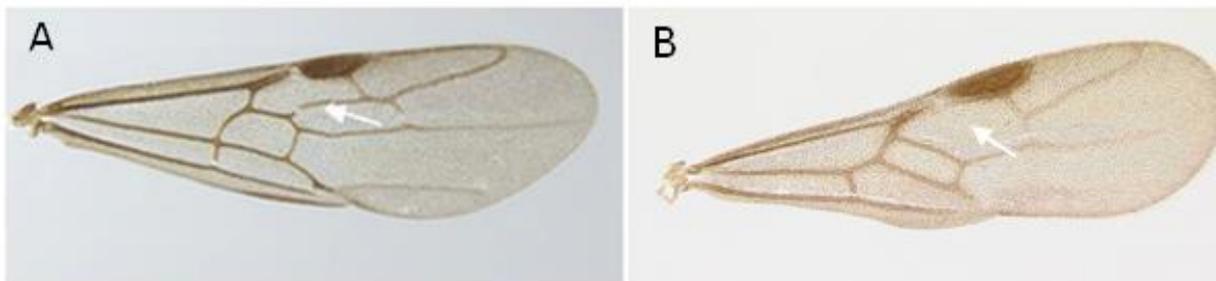
244
 245 **Figure 11.** Venation of forewing. **A** *Adetomyrma* mgm01 (CASENT0218013) **B** *Stigmatomma* mg01 (CASENT0083104).
 246 Photographer Masashi Yoshimura.

247 3 Pygostyles present (Fig. 12A)*Stigmatomma*
 248 – Pygostyles absent (Fig. 12B)
 2494



250
 251 **Figure 12.** Posterior portion of the abdomen in oblique view. **A** *Stigmatomma* mgm01 (CASENT0007139) **B** *Xymmer* drm01
 252 (CASENT0135825). Photographers April Nobile (10A), Dimby Raharinjanahary (10B).
 253

254 4 Anterior margin of clypeus with dent-like projections. Radial sector on forewing fully complete
 255 (Fig. 13A). Radius vein*Mystrium*
 256 – Anterior margin of clypeus without dent-like projections. Radial sector on forewing wholly or
 257 partially absent between M+Rs and 2r-rs, (Fig. 13B). Radius vein on hindwing absent*Xymmer*



258
 259 **Figure 13.** Venation of forewing. **A** *Mystrium barrybressleri* (CASENT0078803) **B** *Xymmer* mgm04 (CASENT0113147).
 260 Photographer Masashi Yoshimura.
 261

262 *Adetomyrma* Ward, 1994

263 Antenna consisting of 13 segments. Frontal carinae absent. Anterior margin of clypeus with dent-like
264 projections. Mandible falcate with single apical tooth. Palpal formula 3,3/2,3/2,2. Notauli absent.
265 Mesepimeron with or without epimeral lobe. Protibial spur simple. Mesotibia with two spurs. Metatibia
266 with two spurs. In dorsal view, constriction between abdominal segment III and abdominal segment IV
267 absent. Pygostyles present. On the forewing, pterostigma well-developed. Costal vein (C) present. Cross-
268 vein 1m-cu present. Radial sector (Rs) between M+Rs and 2r-rs wholly or partially absent and fails to
269 reach costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein
270 2rs-m absent. Cross-vein cu-a located far from the junction between media and cubitus. Media (M) fused
271 with Rs+M. On the hindwing, radius (R) absent. Rs present. 1rs-m absent. Media (M) usually present.
272 M+Cu present. 1rs-m+M absent. Free section of the cubitus present. Cross-vein cu-a present.

273 *Mystrium* Roger, 1862

274 Antenna consisting of 13 segments. Frontal carinae present. Anterior margin of clypeus with dent-like
275 projections. Mandible falcate with single apical tooth. Palpal formula 4,3. Notauli absent. Mesepimeron
276 with epimeral lobe. Protibial spur simple. Mesotibia with single or two spurs. Metatibia with two spurs. In
277 dorsal view, constriction between abdominal segment III and abdominal segment IV distinct. Pygostyles
278 absent. On the forewing; pterostigma well developed; costal vein (C) present, cross-vein: 1m-cu present.
279 Radial sector (Rs) fully present. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with
280 radial sector posterior to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a position variable located
281 close to or far from junction between media and cubitus. Media (M) between Rs+M and 2rs-m completely
282 present and after 2rs-m completely present. On the hindwing, Radius (R) present. Rs present. 1rs-m
283 present. Media (M) present apical to 1rs-m. M+Cu present. 1rs-m+M present. Free section of the cubitus
284 present. Cross-vein cu-a present.

285 *Prionopelta* Mayr, 1866

286 Antenna consisting of 13 segments. Frontal carinae present. Anterior margin of clypeus with dent-like
287 projections. Mandible falcate with two sharp apical teeth. Palpal formula 2,2. Notauli present.
288 Mesepimeron without epimeral lobe. Pro-, meso and metatibia with single simple spur. In dorsal view,
289 constriction between abdominal segment III and abdominal segment IV distinctly present. Pygostyles
290 present. On the forewing, pterostigma reduced in size. Costal vein (C) present. Cross-vein 1m-cu present.
291 Radial sector (Rs) absent between M+Rs and 2r-rs. Radial sector (Rs) reaches costal margin. Cross-vein
292 2r-rs connected with radial sector distal to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a located
293 far from junction between media and cubitus. Media (M) between Rs+M and 2rs-m completely present
294 and after 2rs-m at least partially present. On the hindwing, radius (R) present but absent in one species. Rs
295 present. 1rs-m present. Media (M) present apical to 1rs-m. M+Cu present. 1rs-m+M present. Free section
296 of the cubitus absent. Cross-vein cu-a present.

297 *Stigmatomma* Roger, 1859

298 Antenna consisting of 13 segments. Frontal carinae absent. Anterior margin of clypeus with dent-like
299 projections. Antenna consisting of 13 segments. Mandible falcate with single apical tooth. Palpal formula
300 4,3/4,2/3,2. Notauli present. Mesepimeron with epimeral lobe. Protibia with single simple spur. Mesotibia
301 with single or two spurs. Metatibia with two spurs. In dorsal view, constriction between abdominal
302 segment III and abdominal segment IV distinctly present. Pygostyles present. On the forewing,

303 pterostigma well-developed. Costal vein (C) present. Cross-vein 1m-cu present. Radial sector (Rs) fully
304 present. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior
305 to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a located close to or far from the junction
306 between media and cubitus. Media (M) between Rs+M and 2rs-m completely present and after 2rs-m at
307 least partially present. On the hindwing, radius (R) present or absent. Rs present. 1rs-m present. Media
308 (M) present apical to 1rs-m. M+Cu present. 1rs-m+M present. Free section of the cubitus present. Cross-
309 vein cu-a present.

310 *Xymmer* Santschi, 1914

311 Antenna consisting of 13 segments. Frontal carinae absent. Anterior margin of clypeus straight, without
312 dent-like projections. Mandible falcate with single apical tooth. Palpal formula 3,3 /3,2/4,3. Notauli
313 present. Mesepimeron with epimeral lobe. Protibia with single simple spur. Mesotibia with or without
314 single spur. Metatibia with two spurs. In dorsal view, constriction between abdominal segment III and
315 abdominal segment IV distinctly present. Pygostyles absent. On the forewing, pterostigma well-
316 developed. Costal vein (C) present. Cross-vein 1m-cu present. Radial sector (Rs) absent between M+Rs
317 and 2r-rs. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior
318 to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a located far from junction between media and
319 cubitus. Media (M) between Rs+M and 2rs-m completely present and after 2rs-m at least partially
320 present. On the hindwing, radius (R) absent. Rs present. 1rs-m absent. Media (M) absent apical to 1rs-m.
321 M+Cu present. 1rs-m+M absent. Free section of the cubitus absent. Cross-vein cu-a present.

322 **DOLICHODERINAE** Forel, 1878

323 Diagnosis of male ants of the subfamily Dolichoderinae in the Malagasy region

- 324 – Antenna filiform, consisting of 12 to 13 segments.
- 325 – Scape short, not reaching the posterior margin of head.
- 326 – Mesopleural oblique furrow reaching pronotum far away from pronotal posteroventral margin.
- 327 – Notauli absent.
- 328 – Scuto-scutellar suture simple.
- 329 – Single, well-developed spur presents on pro-, meso-, and metatibia.
- 330 – Abdominal segment II much smaller than segment III in lateral view.
- 331 – Petiole (abdominal segment II) narrowly or broadly attached to abdominal segment III.
- 332 – No constriction present between abdominal segments III and IV.
- 333 – Jugal lobe absent.
- 334 – Pygostyles present.
- 335 – Wing venation: Venation on forewing varies. Radius (R), Sc+R+Rs, radial sector (Rs), cubitus
336 (Cu), anal (A), 2r-rs, and cu-a present in all genera. Media (M) often vestigial between Rs+M and 2rs-m.
337 2rs-m often vestigial or continuous with media. On hindwing, R+Rs and anal present. Radius and media
338 apical to rs-m absent. M+Cu, cubitus, 1rs-m, and cu-a variable. Clavus moderate in size, and jugum
339 absent.

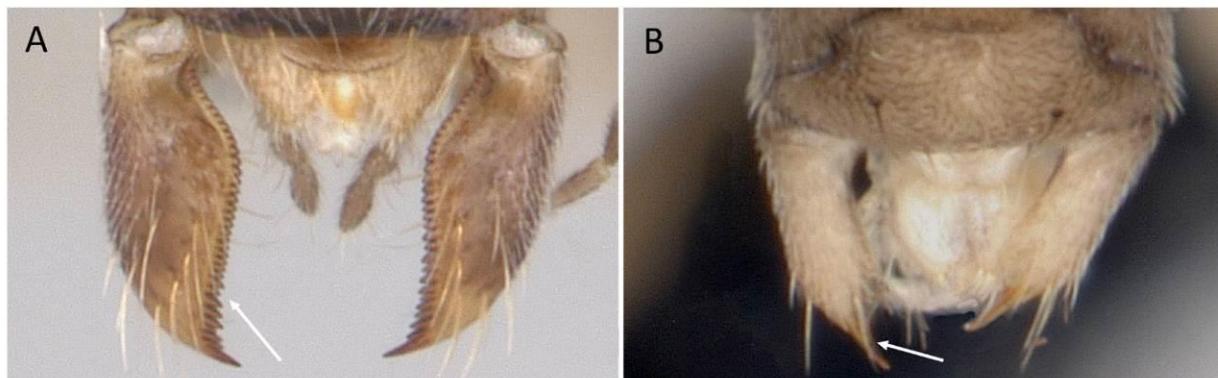
340

341 Remarks. Our key includes five dolichoderine genera recorded from the Malagasy region. Key modified
342 from Yoshimura and Fisher (2011). It is important to note that while the males of *Ochetellus* are currently

343 unknown in Malagasy region, they have been included in this key based on examination of Japan
344 specimens. This decision was taken to ensure a global approach to the classification and identification of
345 Dolichoderinae ants in the Malagasy region.

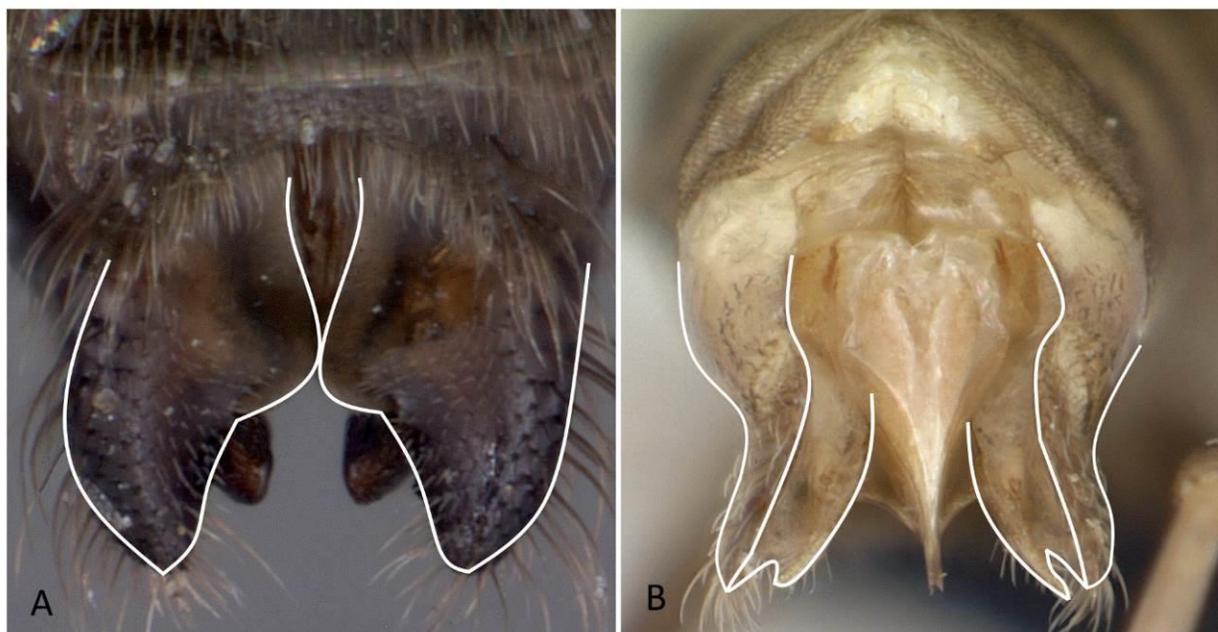
346 **Male-based key to genera of the subfamily Dolichoderinae**

- 347 1 Masticatory margin of mandible with many serrate denticles (Fig.14A)2
348 – Masticatory margin of mandible with one to several large teeth (Fig.14B)4



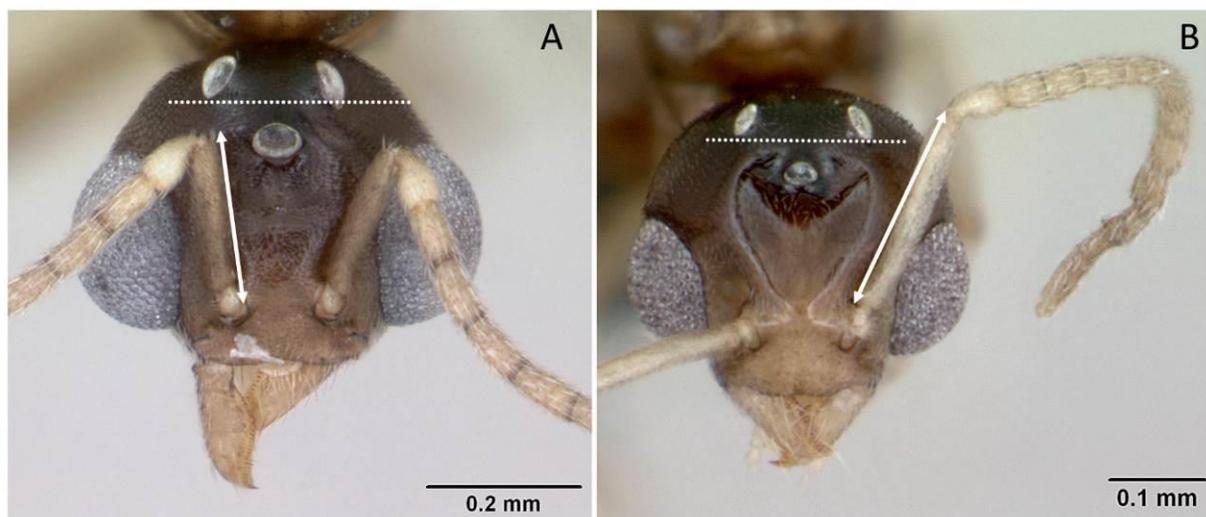
349 **Figure 14.** Mandible in full face view. **A** *Technomyrmex difficilis* (CASENT0049968) **B** *Ravavy miafina* (CASENT0474633).
350 Photographer April Nobile.
351

- 352 2 On the hindwing, M+Cu absent. In ventral view, Apical portion of abdominal sternum IX greatly
353 expanded mesally, forming a distinct and more or less flat ventral face (Fig. 15A)*Technomyrmex*
354 – On the hindwing, M+Cu present. In ventral view, Apical portion of abdominal sternum IX
355 narrow, without a distinct ventral face (Fig. 15B)3



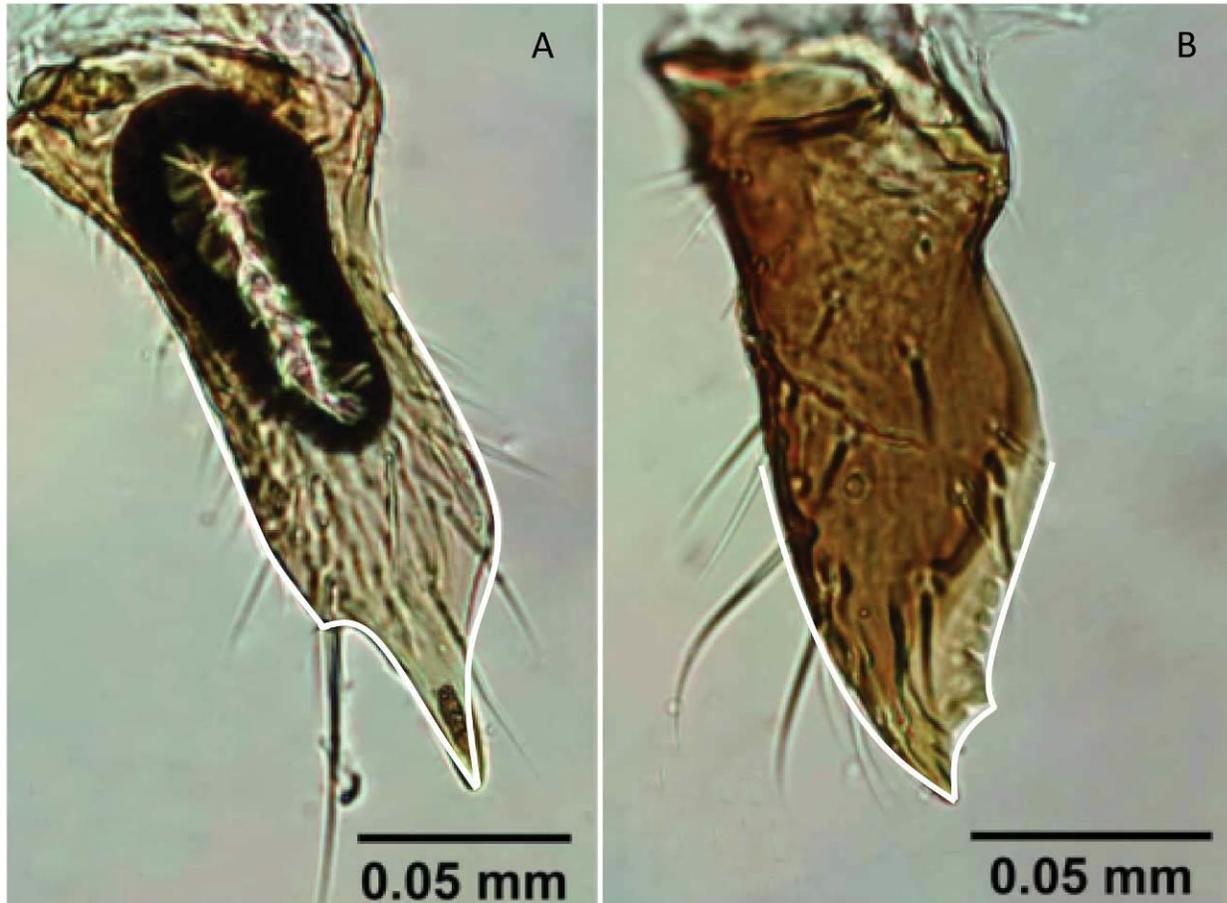
356 **Figure 15.** Apical portion of abdominal sternum IX **A** *Technomyrmex mg08* (CASENT0049527) **B** *Tapinoma mg07*
357 (CASENT0137327). Photographers Masashi Yoshimura (15A), Erin Prado (15B).
358

- 359
360 3 With the head in full-face view, scape short, not reaching the lower edge of lateral ocelli (Fig.
361 16A)*Aptinoma*
362 – With the head in full-face view, scape long, reaching the lower edge of lateral ocelli (Fig. 16B)
363*Tapinoma*



364
365 **Figure 16.** Head in full face view showing the comparison of the scape length. **A** *Aptinoma mangabe* (CASENT0173594). **B**
366 *Tapinoma mg12* (CASENT0115678). Photographer April Nobile.

- 367 4 Mandible broadly spatulate, with a single long, acute tooth on its distal apex (Fig. 17A). Petiole
368 narrowly attached to abdominal segment III*Ravavy*
369 – Mandible triangular, with several stout teeth on its distal apex (Fig. 17B). Petiole broadly
370 attached to abdominal segment III*Ochetellus*



371
372 **Figure 17.** Mandible. **A** *Ravavy miafina* (CASENT0179530). **B** *Ochetellus glaber* (CASENT0179489). Photographer Masashi
373 Yoshimura.

374
375 *Aptinoma* Fisher, 2009

376 Antenna consisting of 13 segments, pedicel conical, first basal flagellar segment straight. Medial
377 hypostoma present. Mandible triangular, its masticatory margin with serrate denticles. Palpal formula 6,3.
378 Scape shorter than flagellar segments 1+2. Propodeal spiracle oval. Petiole not unusually expanded,
379 narrowly attached to abdominal segment III. Abdominal segment III with a groove or indentation on its
380 anterior face. Pygostyles present. On the forewing, pterostigma well-developed; Costal vein (C) and 1m-
381 cu present. Radial sector (Rs) partially absent between M+Rs and 2r-rs and reaches costal margin. Cross-
382 vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m vestigial. Cu-a located
383 far from the junction between media and cubitus. Media between Rs+M and 2rs-m vestigial. On the
384 hindwing, radius (R) absent. Rs vestigial. Cross-vein 1rs-m absent. Media (M) absent. M+Cu present. 1rs-
385 m+M absent. Free section of the cubitus absent. Cross-vein cu-a vestigial.

386 *Ochetellus* Shattuck, 1992

387 Antenna consisting of 12 segments. Pedicel barrel-shaped. First basal flagellar segment straight. Medial
388 hypostoma present. Mandible triangular, edentate. Palpal formula 6,4. Scape shorter than flagellar
389 segments 1+3. Propodeal spiracle circular. Petiole expanded laterally and widened dorsally, broadly
390 attached to abdominal segment III. Abdominal segment III without a groove. Pygostyles present. On the

391 forewing, pterostigma well-developed. Costal vein (C) and 1m-cu present. Radial sector (Rs) between
392 M+Rs and 2r-rs complete and reaches costal margin. Cross-vein 2r-rs connected with radial sector
393 posterior to pterostigma. Cross-vein 2rs-m vestigial. Cu-a located far from the junction between media
394 and cubitus. Media between Rs+M and 2rs-m completely absent. On the hindwing, radius (R) absent. Rs
395 present. Cross-vein 1rs-m absent. Media (M) absent. M+Cu usually present. 1rs-m+M present. Free
396 section of the cubitus present. Cross-vein cu-a present.

397 *Ravavy* Fisher, 2009

398 Antenna consisting of 12 segments. Pedicel conical. First basal flagellar segment bent laterally. Medial
399 hypostoma absent. Mandible broadly spatulate, edentate. Palpal formula 6,3. Scape shorter than flagellar
400 segments 1+4. Propodeal spiracle circular. Petiole not unusually expanded and narrowly attached to
401 abdominal segment III. Abdominal segment III with a groove or indentation on its anterior face.
402 Pygostyles present. On the forewing, pterostigma well-developed. Costal vein (C) present. Cross-vein
403 1m-cu absent. Radial sector (Rs) fused to M+Rs and fails to reach costal margin. Cross-vein 2r-rs
404 connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cu-a located far from
405 junction between media and cubitus. Media before the junction Rs vestigial. On the hindwing, radius (R)
406 absent. Rs present. Cross-vein 1rs-m absent. Media (M) absent. M+Cu present. 1rs-m+M absent. Free
407 section of the cubitus absent. Cross-vein cu-a vestigial.

408 *Tapinoma* Foerster, 1850

409 Antenna consisting of 13 segments. Pedicel conical. First flagellar segment straight. Medial hypostoma
410 present. Mandible triangular, masticatory margin with or without serrate teeth. Palpal formula usually 6,4
411 but sometimes 6,3. Scape longer than flagellar segments 1+2 but not exceeding the posterior margin of
412 head. Propodeal spiracle circular. Petiole not unusually expanded and narrowly attached to abdominal
413 segment III. Abdominal segment III with a groove or indentation on its anterior face. Pygostyles present.
414 On the forewing, pterostigma well-developed. Costal vein (C) present. Cross-vein 1m-cu present. Radial
415 sector (Rs) fused to M+Rs. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with
416 radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cu-a located far from junction between
417 media and cubitus. Media between Rs+M and 2rs-m completely absent. On the hindwing, radius (R)
418 absent. Rs absent. Cross-vein 1rs-m absent. Media (M) absent. M+Cu vestigial. 1rs-m+M absent. Free
419 section of the cubitus present. Cross-vein cu-a absent.

420 *Technomyrmex* Mayr, 1872

421 Antenna consisting of 13 segments. Pedicel conical. First basal flagellar segment straight. Medial
422 hypostoma present. Mandible triangular, masticatory margin of the mandible wholly covered with serrate
423 denticles. Palpal formula 6,4. Scape shorter than flagellar segments 1+4. Propodeal spiracle circular.
424 Petiole not unusually expanded and narrowly attached to abdominal segment III. Abdominal segment III
425 with a groove or indentation on its anterior face. Pygostyles present. On the forewing, pterostigma well-
426 developed. Costal vein (C) present. Cross-vein 1m-cu absent. Radial sector (Rs) fused to M+Rs. Radial
427 sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma.
428 Cross-vein 2rs-m absent. Cu-a located far from junction between media and cubitus. Media between
429 Rs+M and 2rs-m at least partially present. On the hindwing, radius (R) absent. Rs absent. Cross-vein 1rs-

430 m absent. Media (M) absent. M+Cu absent. 1rs-m+M absent. Free section of the cubitus absent. Cross-
431 vein cu-a absent.

432 **DORYLINAE Leach, 1815**

433 Diagnosis of male ants of the subfamily Dorylinae in the Malagasy region

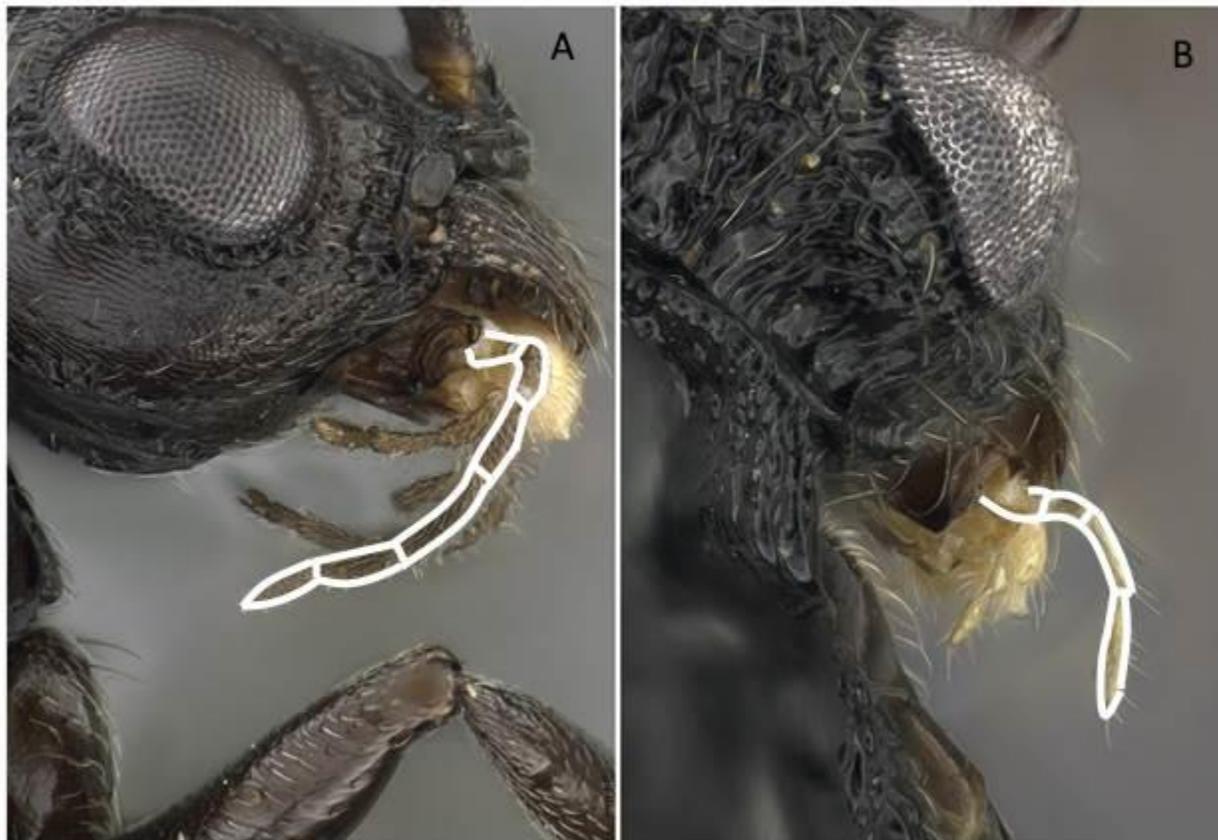
- 434 – Antenna filiform, consisting of 10-13 segments.
- 435 – Scape not reaching posterior margin of head.
- 436 – Scuto-scutellar suture usually longitudinally sculptured.
- 437 – Petiole attached to abdominal segment III ventrally, dorsal constriction between the two segments
438 distinct and deep.
- 439 – Abdominal segment II much smaller than segment III in lateral view.
- 440 – Two distinct, long, narrow spines or lobes present on apical portion of abdominal sternum IX.
- 441 – Pygostyles absent.
- 442 – Protibia with one spur.
- 443 – Girdling constriction between pre- and postsclerites of abdominal segments V and VI absent.
- 444

445 Remarks. Our key includes eight Dorylinae genera recorded from the Malagasy region. Key modified
446 from Borowiec (2016). It is important to note that while the males of Chrysapace are currently unknown
447 in Malagasy region, they have been included in this key based on examination of African specimens. This
448 decision was taken to ensure a global approach to the classification and identification of Dorylinae ants in
449 the Malagasy region.

450 **Male-based key to genera of the subfamily Dorylinae**

- 451 1 Antenna with 11 segments*Ooceraea*
- 452 – Antenna with 12 to 13 segments2

- 453 2 Maxillary palps very long and reaching occipital foramen, 6-segmented and visible in mounted
454 specimens (Fig. 18A)*Tanipone*
- 455 – Maxillary palps short never reaching occipital foramen, usually not visible without dissection and
456 often with fewer than six segments (Fig. 18B)3



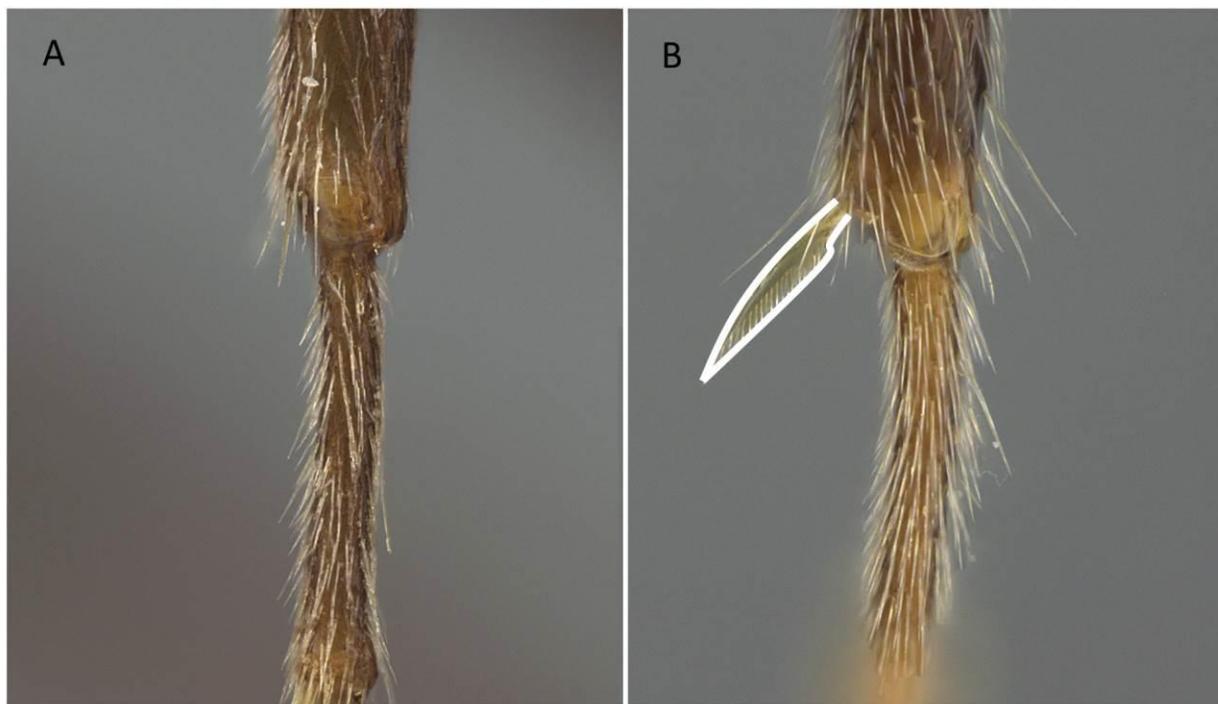
457
458 **Figure 18.** Maxillary palps. **A** *Tanipone zona* (CASENT0168822) **B** *Lividopone mg10* (CASENT0027622). Photographer
459 Michele Esposito.
460

461 3 Cross vein 2rs-m present, partial or complete in forewing (Fig. 19A). Prora forming a V-shaped
462 protrusion *Chrysapace*
463 – Cross vein 2rs-m absent or at most stub-like in forewing (Fig. 19B). Prora forming a simple U-
464 shaped margin or U-shaped protrusion 4



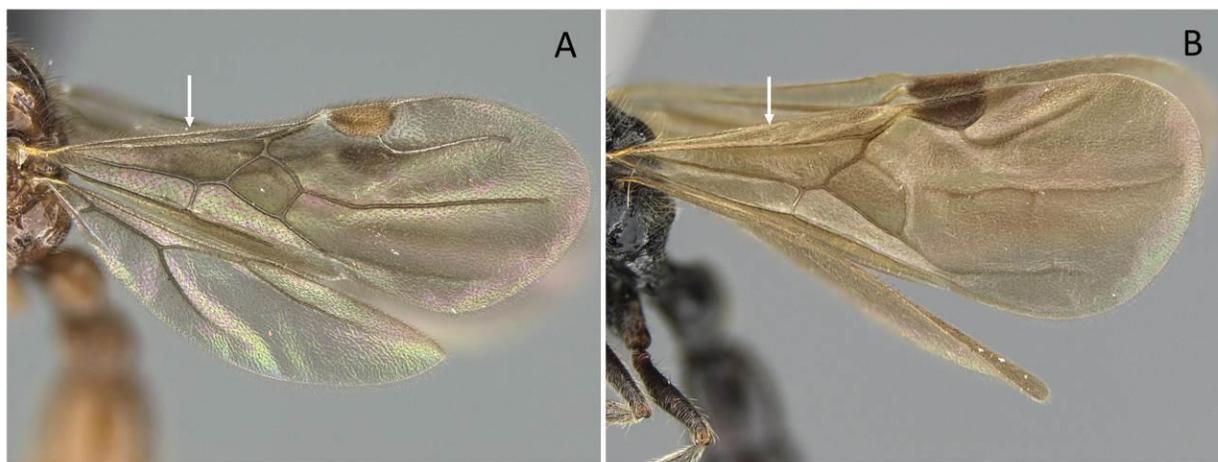
465
466 **Figure 19.** Forewing showing the cross vein 2rs-m. **A** *Chrysapace sauteri* (CASENT0179567) **B** *Eburopone dr03*
467 (CASENT0138666). Photographer Erin Prado (19A) Michele Esposito (19B).

- 468 4 Antenna with 12 segments. Mesotibiae without spurs (Fig. 20A)*Simopone*
469 – Antenna with 13 segments. Mesotibiae with a single spur, which may be simple and
470 inconspicuous (Fig. 20B)5



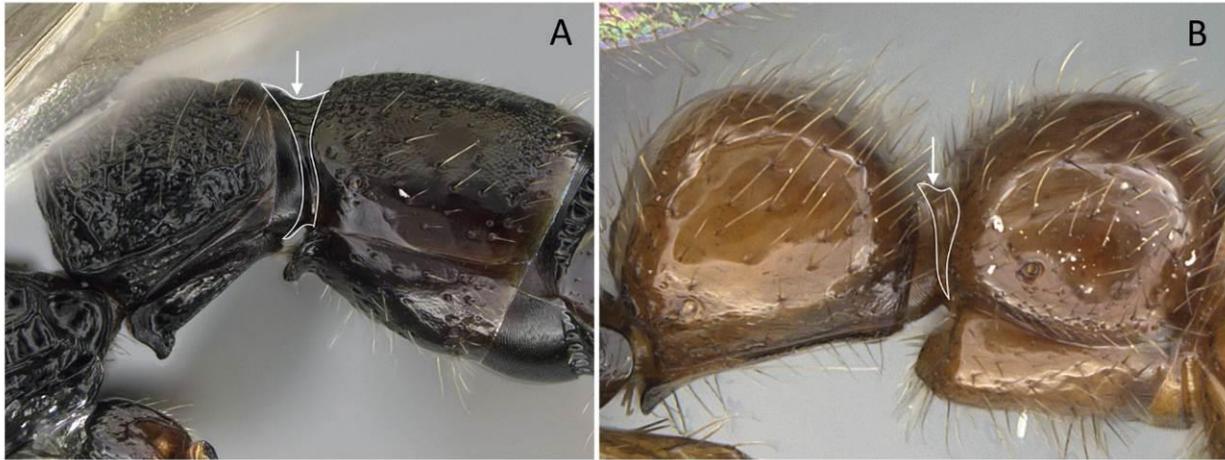
471
472 **Figure 20.** Tibial spurs on the middle leg. **A** *Simopone silens* (CASENT0740895) **B** *Lividopone mg10* (CASENT0496142).
473 Photographer Michele Esposito.

- 474 5 Costal vein (C) present in forewing (Fig. 21A)6
475 – Costal vein (C) absent in forewing (Fig. 21B)7



476
477 **Figure 21.** Forewing in lateral view showing the costal vein (C). **A** *Eburopone dr03* (CASENT0138666) **B** *Lioponera mg06*
478 (CASENT0138558). Photographer Michele Esposito.

- 479 6 Helcium circumference large and in profile the dorsal surface of the helcium arises from
 480 immediately below the anterior dorsal angle of abdominal segment III (Fig. 22A). On forewing, radius
 481 (R) past pterostigma absent*Lividopone*
 482 – Helcium circumference small and in profile the dorsal surface of the helcium arises some
 483 distance below the anterodorsal angle of abdominal segment III (Fig. 22B). On forewing, radius (R) past
 484 pterostigma present*Eburopone*



485
 486 **Figure 22.** Abdominal segment II and III in lateral view showing the helcium circumference. **A** *Lividopone* dr02
 487 (CASENT0135633) **B** *Eburopone* dr03 (CASENT0138666). Photographer Michele Esposito.

- 488 7 On forewing, radial sector partially absent between M+Rs and 2r-rs and not reaching costal
 489 margin; radius (R) absent on the costal margin (Fig. 23A). Parafrontal ridges absent*Lioponera*
 490 – On forewing, radial sector complete and not reaching costal margin; radius (R) absent on the
 491 costal margin (Fig. 23B). Parafrontal ridges present*Parasyscia*



492
 493 **Figure 23.** Forewing showing the Rs vein. **A** *Lioponera* dr02 (CASENT0144823) **B** *Parasyscia imerinensis* (CASENT0117837).
 494 Photographer Michele Esposito.

495
 496 *Chrysapace* Crawley, 1924

497 Antenna consisting of 13 segments. Clypeus without cuticular apron. Parafrontal ridges present. Torulo-
 498 posttorular complex vertical. Maxillary palps unknown. Labial palps unknown. Mandibles triangular,
 499 masticatory margin edentate. Ventrolateral margins of head without lamella or ridge extending towards
 500 mandibles and beyond carina surrounding occipital foramen. Carina surrounding occipital foramen
 501 unknown. Pronotal flange separated from collar by distinct ridge. Notauli present. Transverse groove
 502 dividing mesopleuron present. Propodeal declivity with distinct dorsal edge or margin. Metapleural gland
 503 opening present. Propodeal spiracle present. Petiole anterodorsally marginate, dorsolaterally immarginate,
 504 and laterally above spiracle marginate. In profile the dorsal surface of the helcium arises some distance
 505 below the anterodorsal angle of abdominal segment III. Prora forming a V-shaped protrusion. Spiracle
 506 openings of abdominal segments IV–VI circular. Mesotibia with two pectinate spurs. Metatibia with two
 507 pectinate spurs. Metatibial gland absent. Hind pretarsal claws with a tooth. On the forewing, pterostigma
 508 broad. Costal vein (C) present. Radius (R) present. Radial sector (Rs) fully present between M+Rs and 2r-
 509 rs. Radial sector (Rs) fails to reach costal margin. Cross-vein 2r-rs present and connected with radial
 510 sector posterior to pterostigma. Cross-vein 2rs-m present. Media (M) present, reaches wing margin.
 511 Cross-vein 1m-cu present. Cross-vein cu-a located far from junction between media and cubitus. On the
 512 hindwing, vein (C) absent. Vein (R) absent. Vein Sc+R present. Rs present, not reaching wing margin.
 513 Cross-vein 1rs-m fused with M. Vein M+Cu present. Abscissa M present. Cross-vein cu-a present. Free
 514 section of the cubitus present.

515 *Eburopone* Borowiec, 2016

516 Antenna consisting of 13 segments. Clypeus with or without cuticular apron. Parafrontal ridges absent.
 517 Torulo-posttorular complex vertical. Maxillary palps 3- or 4-segmented. Labial palps 2- or 3-segmented.
 518 Mandibles triangular. Masticatory margin with teeth or falcate. Ventrolateral margins of head without
 519 lamella or ridge extending towards mandibles and beyond carina surrounding occipital foramen. Carina
 520 surrounding occipital foramen ventrally absent or present. Pronotal flange not separated from collar by
 521 distinct ridge. Notauli present at least anteriorly, very rarely absent. Transverse groove dividing
 522 mesopleuron absent or present. Propodeal declivity reduced, without distinct dorsal edge or margin.
 523 Metapleural gland opening absent. Propodeal spiracle present. Petiole anterodorsally immarginate or
 524 marginate, dorsolaterally immarginate, and laterally above spiracle immarginate. In profile the dorsal
 525 surface of the helcium arises some distance below the anterodorsal angle of abdominal segment III. Prora
 526 simple, not delimited by carina. Spiracle openings of abdominal segments IV–VI circular. Mesotibia with
 527 single pectinate spur. Metatibia with single pectinate spur. Metatibial gland present as oval patch of
 528 whitish cuticle. Hind pretarsal claws simple. On the forewing, pterostigma broad. Costal vein (C) present.
 529 Radius (R) present. Radial sector (Rs) absent between M+Rs and 2r-rs. Radial sector (Rs) fails to reach
 530 costal margin. Cross-vein 2r-rs present, forming base of ‘free stigmal vein. Cross-vein 2rs-m absent.
 531 Media (M) reaches wing margin or not, rarely entirely absent. Cross-vein 1m-cu present or rarely absent.
 532 Cross-vein cu-a located far from junction between media and cubitus. On the hindwing, vein (C) absent.
 533 Vein (R) present, extending past Sc+R but not reaching distal wing margin. Vein Sc+R absent or present.
 534 Rs absent or present, not reaching wing margin. Cross-vein 1rs-m fused with M or absent. Vein M+Cu
 535 absent or present. Abscissa M absent. Cross-vein cu-a absent or present. Free section of the cubitus absent
 536 or present.

537 *Lioponera* Mayr, 1879

538 Antenna consisting of 13 segments. Clypeus with cuticular apron. Parafrontal ridges absent. Torulo-
539 posttorular complex vertical. Maxillary palps 3-segmented. Labial palps 2 segmented. Mandibles
540 triangular. Masticatory margin edentate. Ventrolateral margins of head with or without cuticular ridge
541 extending towards mandibles and beyond carina surrounding occipital foramen. Carina surrounding
542 occipital foramen ventrally absent. Pronotal flange not separated from collar by distinct ridge. Notauli
543 absent or present. Transverse groove dividing mesopleuron present. Propodeal declivity with distinct
544 dorsal edge or margin. Metapleural gland opening present. Propodeal spiracle present. Petiole
545 anterodorsally immarginate or marginate, dorsolaterally marginate, and laterally above spiracle
546 marginate. In profile the dorsal surface of the helcium arises some distance below the anterodorsal angle
547 of abdominal segment III. Prora forming a simple U-shaped margin or U-shaped protrusion. Spiracle
548 openings of abdominal segments IV–VI circular. Mesotibia with single pectinate spur. Metatibia with
549 single pectinate spur. Metatibial gland absent. Hind pretarsal claws simple. On the forewing, pterostigma
550 broad. Costal vein (C) absent. Radius (R) absent. Radial sector (Rs) absent between M+Rs and 2r-rs.
551 Radial sector (Rs) fails to reach costal margin. Cross-vein 2r-rs most often present and forming base of
552 ‘free stigmal vein. Cross-vein 2rs-m absent. Media (M) fails to reach wing margin. Cross-vein 1m-cu
553 present or more rarely absent. Cross-vein cu-a located close to junction between media and cubitus. On
554 the hindwing, vein (C) absent. Vein (R) absent. Vein Sc+R present. Rs absent or present, not reaching
555 wing margin. Cross-vein 1rs-m absent or present, about as long as M. Vein M+Cu absent or present.
556 Abscissa M absent. Cross-vein cu-a absent or present. Free section of the cubitus absent or present.

557 *Lividopone* Bolton and Fisher, 2016

558 Antenna consisting of 13 segments. Clypeus with cuticular apron. Parafrontal ridges present. Torulo-
559 posttorular complex vertical. Maxillary palps unknown. Labial palps unknown. Mandibles triangular.
560 Masticatory margin edentate. Ventrolateral margins of head with cuticular ridge extending towards
561 mandibles and beyond carina surrounding occipital foramen. Carina surrounding occipital foramen
562 unknown. Pronotal flange separated from collar by distinct ridge. Notauli present. Transverse groove
563 dividing mesopleuron present. Propodeal declivity with distinct dorsal edge or margin. Metapleural gland
564 opening absent. Propodeal spiracle present. Petiole anterodorsally marginate, dorsolaterally immarginate,
565 and laterally above spiracle marginate. In profile the dorsal surface of the helcium arises from
566 immediately below the anterior dorsal angle of abdominal segment III Prora forming a U-shaped
567 protrusion. Spiracle openings of abdominal segments IV–VI circular. Mesotibia with single pectinate
568 spur. Metatibia with single pectinate spur. Metatibial gland absent. Hind pretarsal claws simple. On the
569 forewing, pterostigma broad. Costal vein (C) absent. Radius (R) absent. Radial sector (Rs) fully present
570 between M+Rs and 2r-rs. Radial sector (Rs) fails to reach costal margin. Cross-vein 2r-rs absent or
571 present, forming base of ‘free stigmal vein. Cross-vein 2rs-m absent. Media (M) absent or a stub. Cross-
572 vein 1m-cu absent or present. Cross-vein cu-a located far from junction between media and cubitus. On
573 the hindwing, vein (C) absent. Vein (R) absent. Vein Sc+R absent. Rs absent or stub present. Cross-vein
574 1rs-m absent or present, about as long as M. Vein M+Cu absent or present. Abscissa M absent or present.
575 Cross-vein cu-a absent. Free section of the cubitus absent or present.

576 *Ooceraea* Roger, 1862

577 Antenna consisting of 11–12 segments. Clypeus with cuticular apron. Parafrontal ridges absent. Torulo-
578 posttorular complex vertical. Maxillary palps 5-segmented. Labial palps 3-segmented. Mandibles

579 triangular. Masticatory margin edentate. Ventrolateral margins of head without lamella or ridge extending
 580 towards mandibles and beyond carina surrounding occipital foramen. Carina surrounding occipital
 581 foramen ventrally absent. Pronotal flange not separated from collar by distinct ridge, occasionally ridge
 582 marked on sides. Notauli present. Transverse groove dividing mesopleuron present. Propodeal declivity
 583 reduced, with or without distinct dorsal edge or margin. Metapleural gland opening absent. Propodeal
 584 spiracle present. Petiole anterodorsally immarginate, dorsolaterally immarginate, and laterally above
 585 spiracle marginate, inconspicuously in small species. In profile the dorsal surface of the helcium arises
 586 some distance below the anterodorsal angle of abdominal segment III Prora forming a simple U-shaped
 587 margin or a U-shaped margin with median ridge. Spiracle openings of abdominal segments IV–VI
 588 circular. Mesotibia with single pectinate spur. Metatibia with single pectinate spur. Metatibial gland
 589 present as oval patch of whitish cuticle. Hind pretarsal claws simple. On the forewing, pterostigma broad.
 590 Costal vein (C) present or absent. Radius (R) absent. Radial sector (Rs) absent between M+Rs and 2r-rs.
 591 Radial sector (Rs) fails to reach costal margin. Cross-vein 2r-rs present, forming base of ‘free stigma vein.’
 592 Cross-vein 2rs-m absent. Media (M) fails to reach wing margin. Cross-vein 1m-cu absent or present.
 593 Cross-vein cu-a located far from junction between media and cubitus. On the hindwing, vein (C) absent.
 594 Vein (R) absent or present, extending past Sc+R but not reaching distal wing margin. Vein Sc+R absent,
 595 Vein Sc+R present. Rs absent or present, not reaching wing margin. Cross-vein 1rs-m absent. Vein M+Cu
 596 absent or present. Abscissa M absent. Cross-vein cu-a absent or present. Free section of the cubitus
 597 absent.

598 *Parasyscia* Emery, 1882

599 Antenna consisting of 13 segments. Clypeus with cuticular apron. Parafrontal ridges present. Torulo-
 600 posttorular complex vertical. Maxillary palps 2-segmented. Labial palps 2-segmented. Mandibles
 601 triangular. Masticatory margin edentate. Ventrolateral margins of head without lamella or ridge extending
 602 towards mandibles and beyond carina surrounding occipital foramen. Carina surrounding occipital
 603 foramen ventrally absent. Pronotal flange separated from collar by distinct ridge mostly on sides or not
 604 separated. Notauli absent or present. Transverse groove dividing mesopleuron present. Propodeal
 605 declivity reduced, with or without distinct dorsal edge or margin. Metapleural gland opening absent.
 606 Propodeal spiracle present. Petiole anterodorsally immarginate or marginate, dorsolaterally immarginate,
 607 and laterally above spiracle marginate. In profile the dorsal surface of the helcium arises some distance
 608 below the anterodorsal angle of abdominal segment III. Prora forming a U-shaped margin with median
 609 ridge. Spiracle openings of abdominal segments IV–VI circular. Mesotibia with single pectinate spur.
 610 Metatibia with single pectinate spur. Metatibial gland absent. Hind pretarsal claws simple. On the
 611 forewing, pterostigma broad. Costal vein (C) absent. Radius (R) absent. Radial sector (Rs) partially absent
 612 between M+Rs and 2r-rs. Radial sector (Rs) fails to reach costal margin. Cross-vein 2r-rs present and
 613 connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Media (M) fails to reach
 614 wing margin. Cross-vein 1m-cu absent or present. Cross-vein cu-a located close to junction between
 615 media and cubitus. On the hindwing, vein (C) absent. Vein (R) absent. Vein Sc+R absent. Rs present, not
 616 reaching wing margin. Cross-vein 1rs-m present, about as long as M. Vein M+Cu present. Abscissa M
 617 absent or present. Cross-vein cu-a present. Free section of the cubitus present.

618 *Simopone* Forel, 1891

619 Antenna consisting of 12 segments. Clypeus without cuticular apron. Parafrontal ridges present. Torulo-
620 posttorular complex horizontal. Maxillary palps 5- or 6-segmented. Labial palps 3- or 4-segmented.
621 Mandibles triangular. Masticatory margin edentate. Ventrolateral margins of head without lamella or
622 ridge extending towards mandibles and beyond carina surrounding occipital foramen. Carina surrounding
623 occipital foramen ventrally absent. Pronotal flange separated from collar by distinct ridge. Notauli
624 present. Transverse groove dividing mesopleuron absent. Propodeal declivity with distinct dorsal edge or
625 margin. Metapleural gland opening absent. Propodeal spiracle present. Petiole anterodorsally marginate,
626 dorsolaterally immarginate, and laterally above spiracle marginate. In profile the dorsal surface of the
627 helcium arises some distance below the anterodorsal angle of abdominal segment III. Prora forming a U-
628 shaped protrusion. Spiracle openings of abdominal segments IV–VI circular. Mesotibia without spurs.
629 Metatibia with single pectinate spur. Metatibial gland absent. Hind pretarsal claws with a tooth. On the
630 forewing, pterostigma broad. Costal vein (C) absent. Radius (R) absent. Radial sector (Rs) fully present
631 between M+Rs and 2r-rs. Radial sector (Rs) fails to reach costal margin. Cross-vein 2r-rs present and
632 connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Media (M) reaches to
633 wing margin. Cross-vein 1m-cu present or absent. Cross-vein cu-a located far from junction between
634 media and cubitus. On the hindwing, vein (C) absent. Vein (R) absent. Vein Sc+R present. Rs absent.
635 Cross-vein 1rs-m present, about as long as M, never tubular. Vein M+Cu present. Abscissa M present.
636 Cross-vein cu-a present. Free section of the cubitus present.

637 *Tanipone* Bolton and Fisher, 2012

638 Antenna consisting of 13 segments. Clypeus without cuticular apron. Parafrontal ridges absent. Torulo-
639 posttorular complex vertical. Maxillary palps 6-segmented. Labial palps 4-segmented. Mandibles
640 triangular. Masticatory margin edentate. Ventrolateral margins of head without lamella or ridge extending
641 towards mandibles and beyond carina surrounding occipital foramen. Carina surrounding occipital
642 foramen ventrally present. Pronotal flange separated from collar by distinct ridge or not. Notauli absent.
643 Transverse groove dividing mesopleuron present. Propodeal declivity with distinct dorsal edge or margin.
644 Metapleural gland opening absent. Propodeal spiracle present. Petiole anterodorsally immarginate,
645 dorsolaterally immarginate, and laterally above spiracle marginate. In profile the dorsal surface of the
646 helcium arises some distance below the anterodorsal angle of abdominal segment III. Prora forming a
647 simple U-shaped margin or U-shaped protrusion. Spiracle openings of abdominal segments IV–VI
648 circular. Mesotibia without spurs. Metatibia with single pectinate spur. Metatibial gland absent. Hind
649 pretarsal claws with a tooth. On the forewing, pterostigma broad. Costal vein (C) absent. Radius (R)
650 absent. Radial sector (Rs) absent between M+Rs and 2r-rs. Radial sector (Rs) fails to reach to costal
651 margin. Cross-vein 2r-rs absent or present and forming base of 'free stigmal vein. Cross-vein 2rs-m
652 absent. Media (M) absent or present, reaches to wing margin. Cross-vein 1m-cu absent or present. Cross-
653 vein cu-a located far from junction media. On the hindwing, vein (C) absent. Vein (R) absent. Vein Sc+R
654 present. Rs absent or present, reaching wing margin. Cross-vein 1rs-m absent or present, about as long as
655 M. Vein M+Cu present. Abscissa M absent. Crossvein cu-a absent or present. Free section of the cubitus
656 present.

657 **FORMICINAE Latreille, 1809**

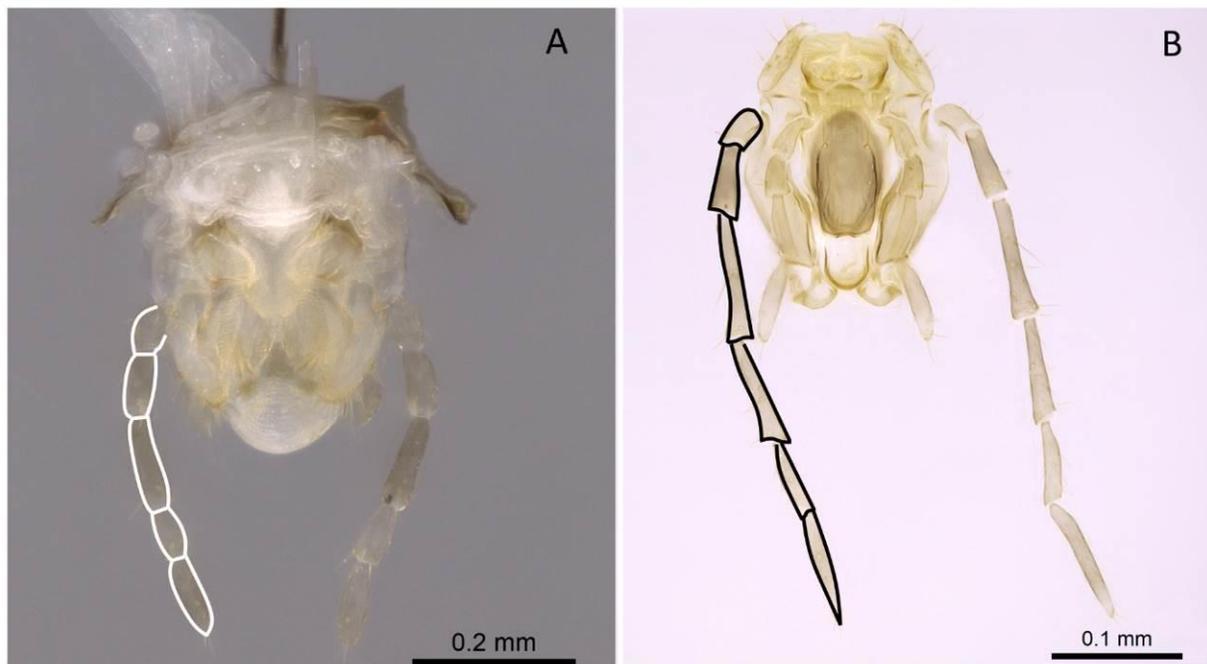
658 Diagnosis of male ants of the subfamily Formicinae in the Malagasy region

- 659 – Antenna filiform, consisting of 10–13 segments.
- 660 – Scape reaching posterior margin of head.
- 661 – Mesopleural oblique furrow reaching pronotum far away from pronotal posteroventral margin.
- 662 – Scuto-scutellar suture simple.
- 663 – Petiole attached to abdominal segment III ventrally, so that dorsal constriction between the two
- 664 segments is distinct and deep.
- 665 – Abdominal segment II much smaller than segment III in lateral view.
- 666 – Apical portion of abdominal sternum IX not bi-spinose.
- 667 – Pygostyles well developed.
- 668 – Metatibia with one spur.

669 Remarks. Our article provides a guide highlighting nine genera of male formicinae ants found in the
 670 Malagasy region. Moreover, we have recently recorded the presence of *Brachymyrmex aphidicola* in
 671 Reunion.

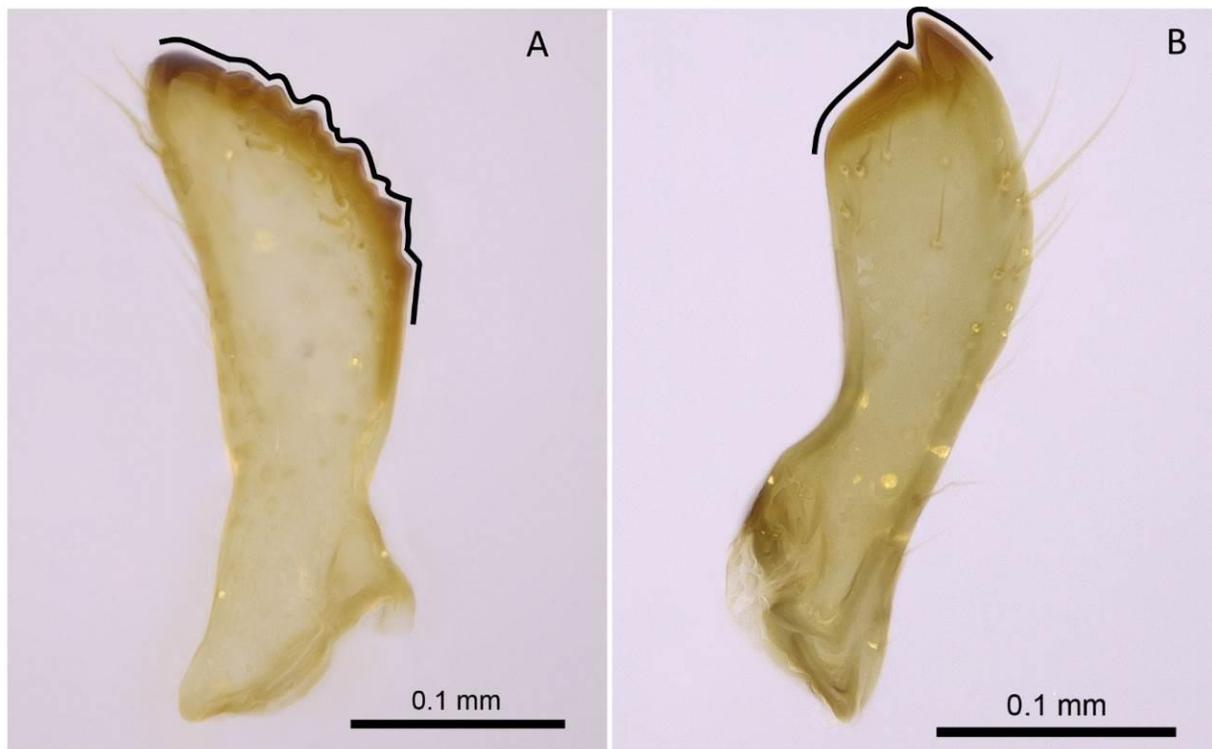
672 **Male-based key to genera of the subfamily Formicinae**

- 673 1 Antenna with 10 segments, maxillary palp formula always 5,3 (Fig. 24A)*Brachymyrmex*
- 674 – Antenna with 12 to 13 segments, maxillary palp formula 6,4 (Fig. 24B)2



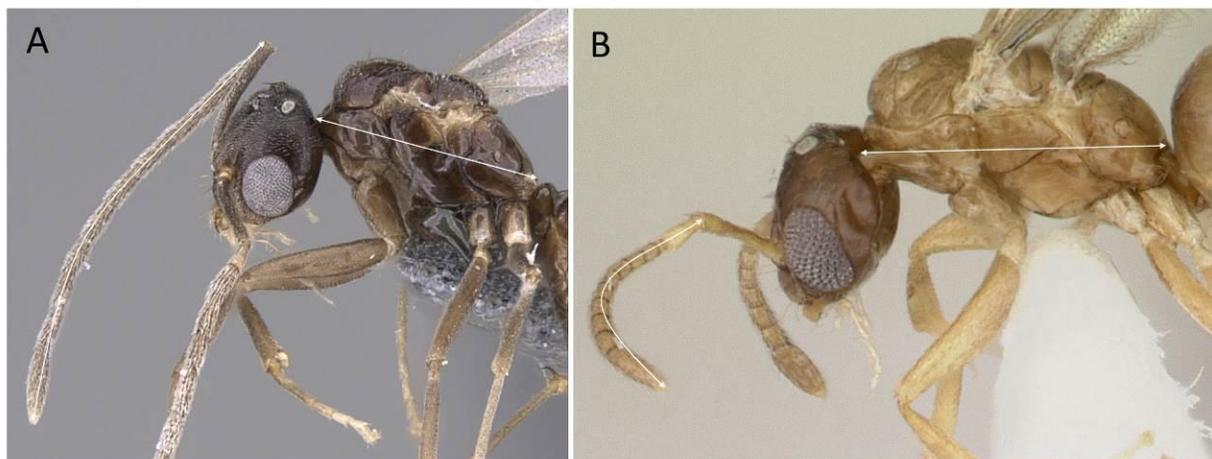
675 **Figure 24.** Maxillary palp **A** *Brachymyrmex cordemoyi* (CASENT0740909) **B** *Tapinolepis mg01* (CASENT0763590).
 676 Photographer Veronica M. Sinotte.
 677

- 678
- 679 2 Antenna consists of 12 segments3
- 680 – Antenna consists of 13 segments6
- 681
- 682 3 Masticatory margin of mandible with 8–9 denticles (Fig. 25A)*Anoplolepis*
- 683 – Masticatory margin of mandible with < 5 denticles (Fig. 25B)4



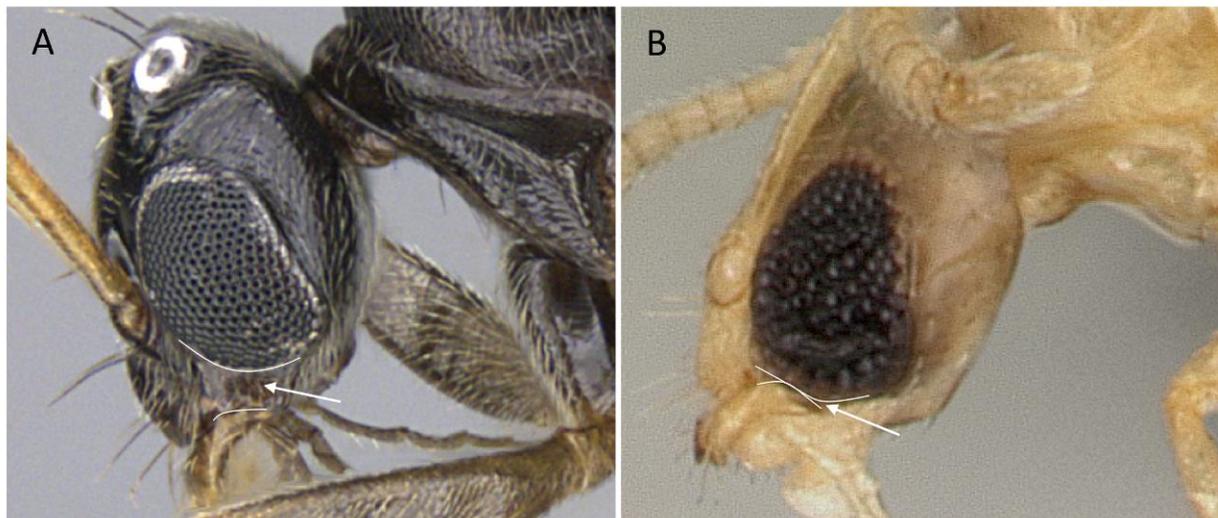
684
685 **Figure 25.** Mandible, showing the number of teeth on the masticatory margin of mandible **A** *Anoplolepis gracilipes*
686 (CASENT0158950) **B** *Nylanderia amblyops* (CASENT0740913). Photographer Veronica M. Sinotte.

- 687
688 4 Flagellum longer than mesosoma length (Fig. 26A).....*Tapinolepis*
689 – Flagellum shorter than mesosoma length (Fig. 26B).....5



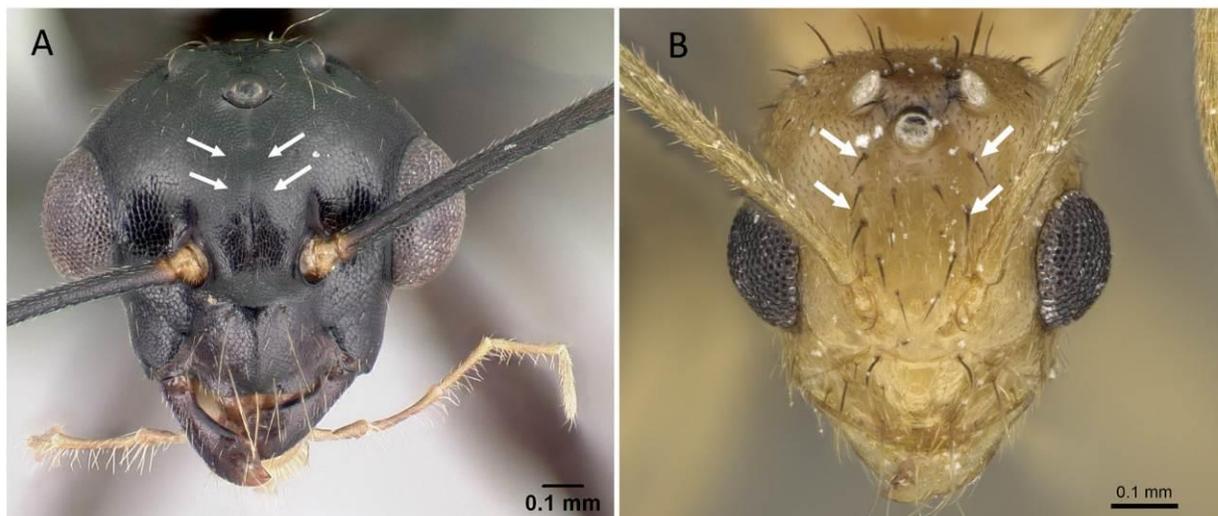
690
691 **Figure 26.** Body in lateral view, showing the comparison between flagellum and mesosoma length. **A** *Tapinolepis* mg01
692 (CASENT0763590) **B** *Plagiolepis* mg02 (CASENT0179486). Photographers Veronica M. Sinotte (26A), Erin Prado (26B).

- 693
694 5 Pedicel length only slightly greater than that of antennomere 3 in medial view. Malar space well
695 developed, about as wide as scape width (Fig. 27A). Maxillary palp longer than maximum eye length
696*Lepisiota*
697 – Pedicel length about three times that of antennomere 3 in medial view. Malar space extremely
698 reduced, much narrower than scape width (Fig. 27B). Maxillary palp shorter than maximum eye length
699*Plagiolepis*



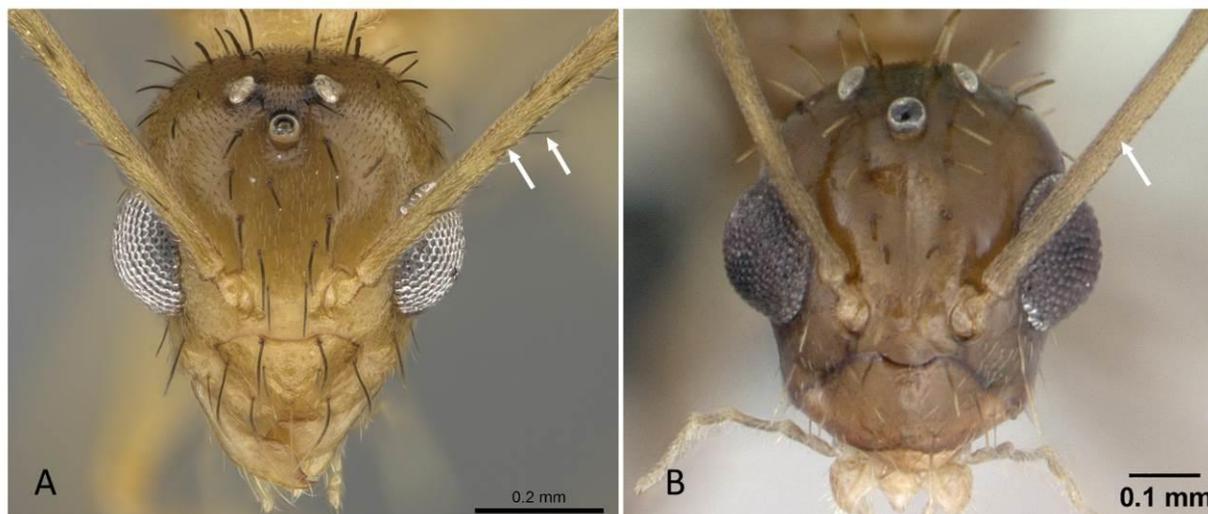
700
701 **Figure 27.** Head in lateral view, showing the size of the malar space **A** *Lepisiota capensis* (CASENT0861517) **B** *Plagiolepis*
702 *alluaudi* (CASENT0495472). Photographers Michele Esposito (27A), Erin Prado (27B).
703

- 704 6 Paired coarse setae absent from frons (Fig. 28A). Aroliae hypertrophied, conspicuous. Flagellum
705 shorter than mesosomal length *Camponotus*
706 – Paired coarse setae present on frons (Fig. 28B). Aroliae small, inconspicuous. Flagellum longer
707 than mesosoma length7



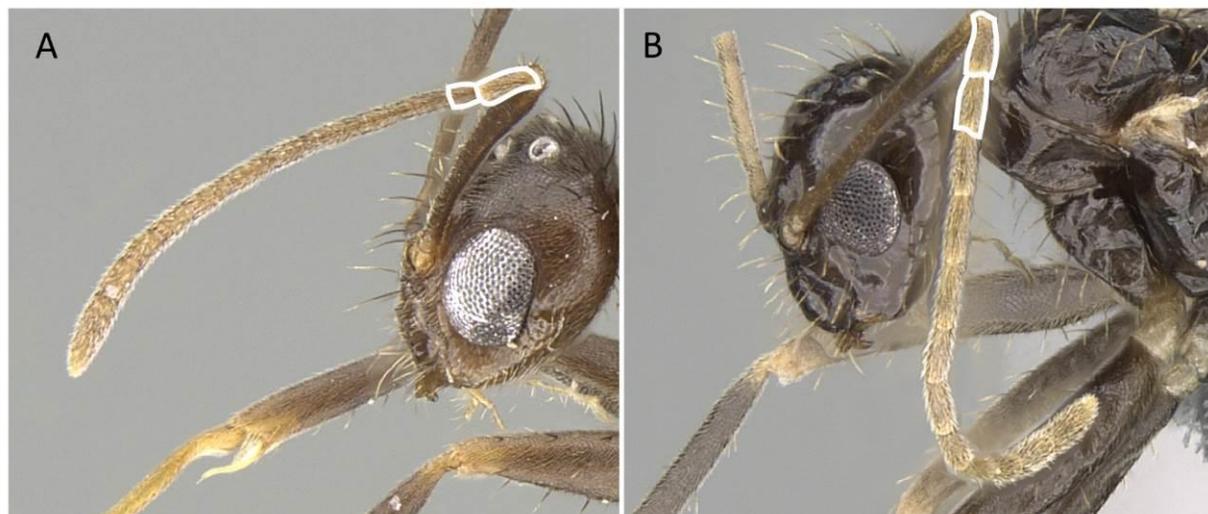
708
709 **Figure 28.** Head in full-face view, showing the setae disposition of the frons **A** *Camponotus alamaina* (CASENT0481800) **B**
710 *Nylanderia amblyops* (CASENT0066704). Photographers Erin Prado (28A), Michele Esposito (28B).
711

- 712 7 Scape with standing macrosetae (Fig. 29A)8
713 – Scape lacking standing macrosetae (Fig. 29B)9



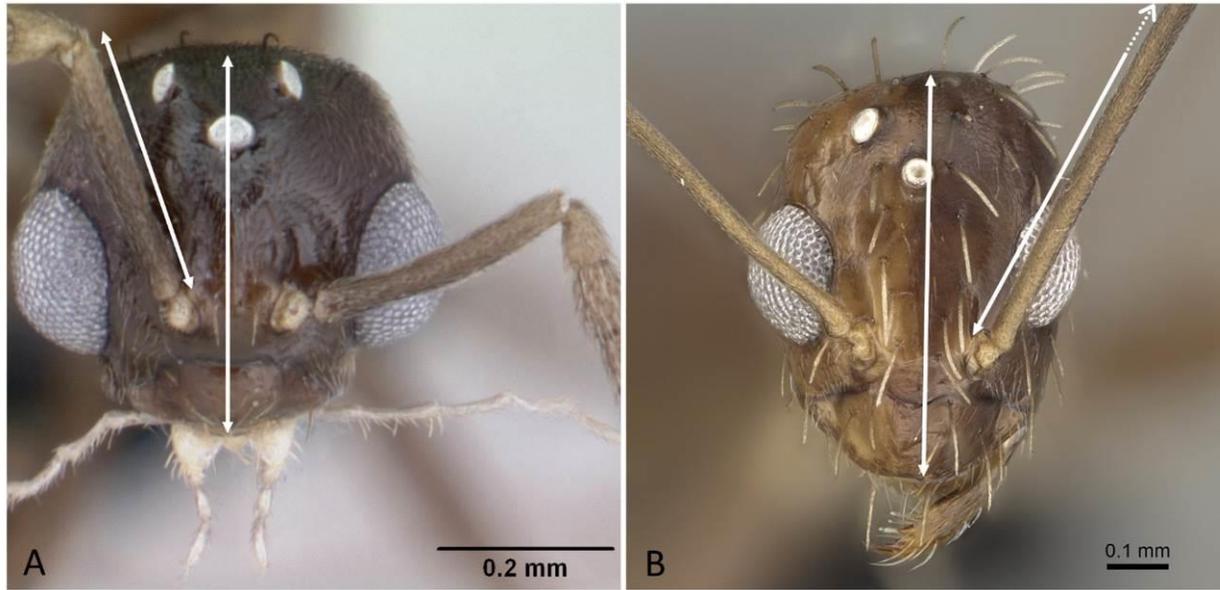
714
715 **Figure 29.** In full-face view, scape **A** *Nylanderia jsl-galo* (CASENT0370667) **B** *Paratrechina longicornis* (CASENT0137341).
716 Photographers Michele Esposito (29A), April Nobile (29B).
717

- 718 8 Pedicel distinctly longer than first basal funiculus in lateral view (Fig. 30A)*Nylanderia*
719 – Pedicel shorter than or equal to first basal funiculus in lateral view (Fig. 30B)
720*Paratrechina*



721
722 **Figure 30.** Antennae in lateral view showing the comparison between the length of the pedicel and first basal funiculus. **A**
723 *Nylanderia bourbonica* (CASENT0160276) **B** *Paratrechina ankarana* (CASENT0701215). Photographer Michele Esposito.
724

- 725 9 Scape slightly shorter than head length (Fig. 31A). Maxillary palp longer than head length
726*Paraparatrechina*
727 – Scape much longer than head length (Fig. 31B). Maxillary palp about as long as head length
728*Paratrechina longicornis*



729
730 **Figure 31.** Head in full face view, showing the comparison of scape and head length. **A** *Paraparatrechina glabra*
731 (CASENT0497708) **B** *Paratrechina longicornis* (CASENT0244951). Photographers April Nobile (31A), Michele Esposito
732 (31B).

733
734 *Anoplolepis* Santschi, 1914

735
736 Antenna with 12 segments. Scape distinctly longer than head length. Scape lacking standing setae.
737 Pedicel slightly shorter in length than antennomere 3 in medial view from basal constriction. Flagellum
738 subequal in length to mesosoma. Mandibles well-developed, masticatory margin of mandible with 8–9
739 denticles. Palpal formula 6,4; maxillary palp exceeding hypostomal margin, but not reaching occipital
740 foramen. Frons lacking paired coarse setae. Malar space well-developed, broader than maximum scape
741 width. Propodeal spiracle slit-shaped. Petiole lacking peduncle, node well-developed. On the forewing,
742 pterostigma reduced in size. Costal vein (C) present. Cross-vein 1m-cu absent. Radial sector (Rs) fused to
743 M+Rs. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to
744 pterostigma. Cross-vein 2rs-m absent. Cross-vein cu-a located far from junction between media and
745 cubitus. Media (M) fails to reach wing margin. On the hindwing, radius (R) present. Rs present. 1rs-m
746 absent. Media (M) present. M+Cu present. 1rs-m+M absent. Free section of the cubitus absent. Cross-
747 vein cu-a absent. Aroliae small, inconspicuous.

748 *Brachymyrmex* Mayr, 1868

749 Antenna with 10 segments. Aroliae small, inconspicuous. Mandibles reduced, spatulate to spiniform.
750 Masticatory margin of mandible uni- to bidentate. Palpal formula 5,3. Maxillary palp about as long as
751 maximum eye diameter. Frons lacking paired coarse setae. Scape shorter than head length. Scape lacking
752 standing macrosetae. Pedicel slightly longer than antennomere 3 in medial view from basal constriction.
753 Flagellum shorter than mesosoma length. Malar space well-developed, about as long as scape width.
754 Propodeal spiracle circular. Petiole lacking peduncle and node, very short anteroposteriorly. On the
755 forewing, pterostigma well-developed. Costal vein (C) absent. Cross-vein 1m-cu absent. Radial sector
756 (Rs) fused to M+Rs. Radial sector (Rs) fails to reach to costal margin. Cross-vein 2r-rs connected with

757 radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein cu-a located far from junction
758 between media and cubitus. Media (M) fails to reach wing margin.

759 *Camponotus* Mayr, 1861

760 Antenna with 13 segments. Aroliae hypertrophied, conspicuous. Mandibles well-developed, lobate.
761 Masticatory margin of mandible with 0–1 denticles. Palpal formula 6,4. Maxillary palp exceeding
762 hypostomal margin, exceeding or occipital foramen or not. Frons lacking paired coarse setae. Scape
763 longer than to subequal with head length. Scape shaft with or without standing setae. Pedicel longer or
764 shorter than antennomere 3 in medial view from basal constriction. Flagellum shorter than mesosomal
765 length. Malar space well developed, much broader than maximum scape width. Propodeal spiracle slit-
766 shaped. Petiole lacking long peduncle, node well developed. On the forewing, pterostigma well
767 developed. Costal vein (C) present. Cross-vein 1m-cu absent. Radial sector (Rs) fused to M+Rs. Radial
768 sector (Rs) reaches to costal margin. Cross-vein 2r-rs connected with radial sector posterior to
769 pterostigma. Cross-vein 2rs-m absent. Cu-a located far from junction between media and cubitus. Media
770 (M) fails to reach wing margin. On the hindwing, radius (R) absent. Rs present. 1rs-m absent. Media (M)
771 present. M+Cu present. 1rs-m+M absent. Free section of the cubitus present. Cross-vein cu-a present.

772 *Lepisiota* Santschi, 1926

773 *Lepisiota capensis* Mayr, 1862

774 Antenna with 12 segments. Aroliae small, inconspicuous. Ocelli placed close to occipital margin in front
775 view. Anteromedian margin of clypeus straight. Mandibles well-developed. Masticatory margin of
776 mandible with 4 denticles. Palpal formula 6,4. Maxillary palp about as long as head length. Frons lacking
777 paired coarse setae. Scape slightly longer than head length. Scape lacking standing macrosetae. Pedicel
778 subequal to or longer than antennomere 3 in medial view from basal constriction. Flagellum shorter than
779 mesosoma length. Malar space well developed, about as long as scape width. Propodeal spiracle oval.
780 Petiole lacking peduncle and node, anteroposteriorly short. On the forewing, pterostigma well developed.
781 Costal vein (C) present. Cross-vein 1m-cu absent. Radial sector (Rs) fused to M+Rs. Radial sector (Rs)
782 reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein
783 2rs-m absent. Cu-a located far from junction between media and cubitus. Media (M) reaches wing
784 margin. On the hindwing, radius (R) absent. Rs present. 1rs-m absent. Media (M) absent. M+Cu present.
785 1rs-m+M absent. Free section of the cubitus absent. Cross-vein cu-a vestigial.

786 *Lepisiota bipartita* Smith, 1861 the species found in Réunion but the males of this species have not yet
787 been collected.

788 *Nylanderia* Emery, 1906

789 Antenna with 13 segments. Aroliae small, inconspicuous. Mandibles well developed. Masticatory margin
790 of mandible with 2 denticles. Palpal formula 6,4. Maxillary palp longer than compound eye diameter and
791 shorter than head length. Frons with paired coarse setae. Scape longer than head length but much shorter
792 than mesosoma length. Scape usually with standing macrosetae. Pedicel distinctly longer than
793 antennomere 3 in medial view from basal constriction. Flagellum longer than mesosoma length. Malar
794 space very broad, about as long as pedicel. Propodeal spiracle circular. Petiole squamiform, posteriorly
795 pedunculate. On the forewing, pterostigma reduced in size. Costal vein (C) absent. Cross-vein 1m-cu

796 absent. Radial sector (Rs) fused to M+Rs. Radial sector (Rs) reaches to costal margin. Cross-vein 2r-rs
797 connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cu-a located far from
798 junction between media and cubitus. Media (M) fails to reach wing margin. On the hindwing, radius (R)
799 absent. Rs vestigial. Irs-m absent. Media (M) present. M+Cu present. Irs-m+M absent. Free section of
800 the cubitus vestigial. Cross-vein cu-a present.

801 *Paraparatrechina* Donithorpe, 1947

802 Antenna with 13 segments. Aroliae small, inconspicuous. Mandibles well developed, spatulate.
803 Masticatory margin of mandible with single apical tooth. Palpal formula 6,4. Maxillary palp longer than
804 head length. Frons with paired coarse setae. Scape slightly shorter than head length. Scape lacking
805 standing macrosetae. Pedicel shorter than antennomere 3 in medial view from basal constriction.
806 Flagellum longer than mesosoma length. Malar space broader than scape width. Propodeal spiracle
807 circular. Petiole squamiform, posteriorly pedunculate. On the forewing, pterostigma reduced in size.
808 Costal vein (C) absent. Cross-vein 1m-cu absent. Radial sector (Rs) fused to M+Rs. Radial sector (Rs)
809 reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein
810 2rs-m absent. Cross-vein cu-a located far from junction between media and cubitus. Media (M) vestigial
811 and fails to reach wing margin. On the hindwing, radius (R) absent. Rs vestigial. Cross-vein Irs-m absent.
812 Media (M) absent. M+Cu absent. Irs-m+M absent. Free section of the cubitus absent. Cross-vein cu-a
813 vestigial.

814 *Paratrechina* Motschoulsky, 1863

815 *Paratrechina longicornis* Latreille, 1802

816 Antenna with 13 segments. Aroliae small, inconspicuous. Mandibles well developed, spatulate.
817 Masticatory margin of mandible with single apical tooth. Palpal formula 6,4. Maxillary palp about as long
818 as head length. Frons with paired coarse setae. Scape very long, longer than mesosoma length. Scape
819 lacking standing macrosetae. Pedicel slightly shorter than antennomere 3 in medial view from basal
820 constriction. Flagellum longer than mesosoma length. Malar space very broad, about as long as pedicel.
821 Propodeal spiracle circular. Petiole squamiform, posteriorly pedunculate. On the forewing, pterostigma
822 reduced in size. Costal vein (C) absent. Cross-vein 1m-cu absent. Radial sector (Rs) fused to M+Rs.
823 Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to
824 pterostigma. Cross-vein 2rs-m absent. Cu-a located far from junction between media and cubitus. Media
825 (M) vestigial and fails to reach wing margin. On the hindwing, radius (R) absent. Rs vestigial. Cross-vein
826 Irs-m absent. Media (M) absent. M+Cu absent. Irs-m+M absent. Free section of the cubitus absent.
827 Cross-vein cu-a vestigial.

828 *Paratrechina ankarana* LaPolla & Fisher, 2014

829 Antenna with 13 segments. Aroliae small, inconspicuous. Mandibles well developed, spatulate.
830 Masticatory margin of mandible with single apical tooth. Palpal formula 6,4. Maxillary palp about as long
831 as head length. Frons with paired coarse setae. Scape very long, longer than mesosoma length. Scape
832 usually with standing macrosetae. Pedicel slightly shorter than antennomere 3 in medial view from basal
833 constriction. Flagellum longer than mesosoma length. Malar space very broad, about as long as pedicel.
834 Propodeal spiracle circular. Petiole squamiform, posteriorly pedunculate. On the forewing, pterostigma

835 reduced in size. Costal vein (C) absent. Cross-vein 1m-cu absent. Radial sector (Rs) fused to M+Rs.
836 Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to
837 pterostigma. Cross-vein 2rs-m absent. Cross-vein cu-a located far from junction between media and
838 cubitus. Media (M) fails to reach wing margin. On the hindwing, radius (R) absent. Rs vestigial. Cross-
839 vein 1rs-m absent. Media (M) absent. M+Cu absent. 1rs-m+M absent. Free section of the cubitus absent.
840 Cross-vein cu-a vestigial.

841 *Paratrechina antsingy* LaPolla & Fisher, 2014 the male is not known.

842 *Plagiolepis* Mayr, 1861

843 Antenna with 12 segments. Aroliae small, inconspicuous. Mandibles well developed. Masticatory margin
844 of mandible with 2–3 teeth. Palpal formula 6,4. Maxillary palp slightly longer than compound eye. Frons
845 lacking paired coarse setae. Scape slightly longer than head length. Scape lacking standing macrosetae.
846 Pedicel about twice the length of antennomere 3 in medial view from basal constriction. Flagellum shorter
847 than mesosoma length. Malar space reduced, shorter than scape width. Propodeal spiracle circular. Petiole
848 anteroposteriorly short, posteriorly pedunculate. On the forewing, pterostigma reduced in size. Costal vein
849 (C) absent. Cross-vein 1m-cu absent. Radial sector (Rs) fused to M+Rs. Radial sector (Rs) reaches to
850 costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m
851 absent. Cross-vein cu-a located far from junction between media and cubitus. Media (M) fails to reach
852 wing margin. On the hindwing, radius (R) absent. Rs vestigial. Cross-vein 1rs-m absent. Media (M)
853 absent. M+Cu absent. 1rs-m+M absent. Free section of the cubitus absent. Cross-vein cu-a vestigial.

854 *Tapinolepis* Emery, 1925

855 Antenna with 12 segments. Aroliae small, inconspicuous. Mandibles well developed. Masticatory margin
856 of mandible with 4 denticles. Palpal formula 6,4. Maxillary palp slightly shorter than head length. Frons
857 lacking paired coarse setae. Scape slightly shorter than head length. Scape lacking standing macrosetae.
858 Pedicel shorter than antennomere 3 in medial view from basal constriction. Flagellum longer than
859 mesosoma. Malar space well developed, about as long as scape width. Propodeal spiracle circular. Petiole
860 squamiform, lacking peduncle and with short node. On the forewing, pterostigma well developed. Costal
861 vein (C) present. Cross-vein 1m-cu absent. Radial sector (Rs) fused to M+Rs. Radial sector (Rs) reaches
862 to costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m
863 absent. Cross-vein cu-a located far from junction between media and cubitus. Media (M) fails to reach
864 wing margin. On the hindwing, radius (R) absent. Rs vestigial. 1rs-m absent. Media (M) absent. M+Cu
865 present. 1rs-m+M absent. Free section of the cubitus absent. Cross-vein cu-a present.

866 **MYRMICINAE Lepeletier de Saint-Fargeau, 1835**

867 Diagnosis of male ants of the subfamily Myrmicinae in the Malagasy region

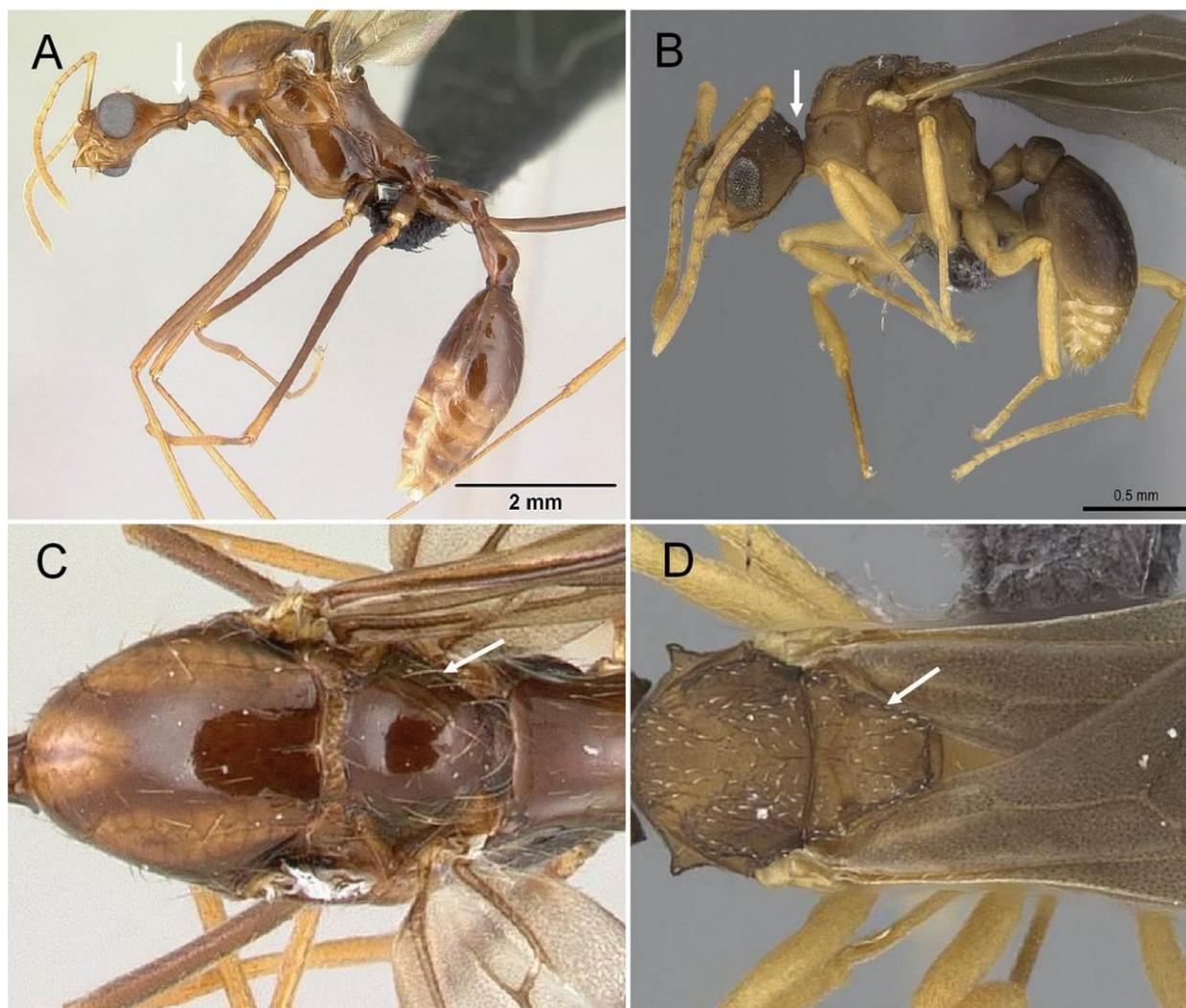
- 868 – Antenna filiform, consisting of 11 to 13 segments.
- 869 – Petiole attached to abdominal segment III ventrally, so that dorsal constriction between the two
870 segments is distinct and deep.
- 871 – Mesopleural oblique furrow reaching pronotum far away from pronotal posteroventral margin.
- 872 – Abdominal segment II nearly as large as segment III in lateral view.

- 873 – Apical portion of abdominal sternum IX not bi-spinose.
- 874 – Pygostyles well developed.
- 875 – Front tibial with or without spur.
- 876 – Metatibia with one spur.

877 Remarks: This key to the Myrmicinae is based specifically on the taxonomic classification of the
878 Myrmicinae tribes of the Malagasy region. Our key includes thirty genera of male myrmicinae recorded
879 from the Malagasy region. Males for *Dicroaspis* are not yet known from the Malagasy region and the
880 diagnosis is based on males from the Afrotropical region specimens and images.

881 **Male-based key to genera of the subfamily Myrmicinae**

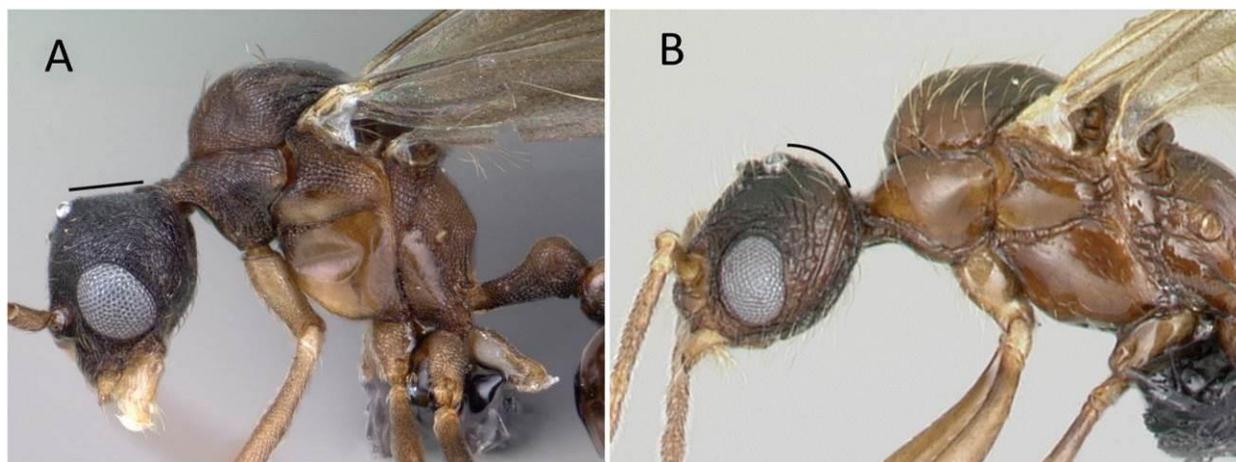
- 882 1 In profile, occipital carina strongly developed (Fig. 32A); mesoscutellum strongly elevated above
883 metanotum; in dorsal view, scutellum smooth and convex (Fig. 32C); petiole distinctly pedunculate. With
884 the head in full-face view, mandible always triangular*Aphaenogaster* (Tribe Stenammini)
- 885 – In profile, occipital carina not forming a sharp ridge (Fig. 32B); mesoscutellum slightly convex to
886 flat; in dorsal view, scutellum with or without sculptured (Fig. 32D); petiole sessile to shortly
887 pedunculate. With the head in full-face view, the mandible broadly triangular to reduced (spatulate or
888 linear)2



889
890 **Figure 32.** In profile view showing occipital carina **A, C** *Aphaenogaster bressleri* (CASENT0495103). In dorsal view form
891 mesoscutellum **B, D** *Cyphomyrmex minutus* (CASENT0264488). Photographers April Nobile (32A, 32C), Michele Esposito
892 (32B, 32D)
893

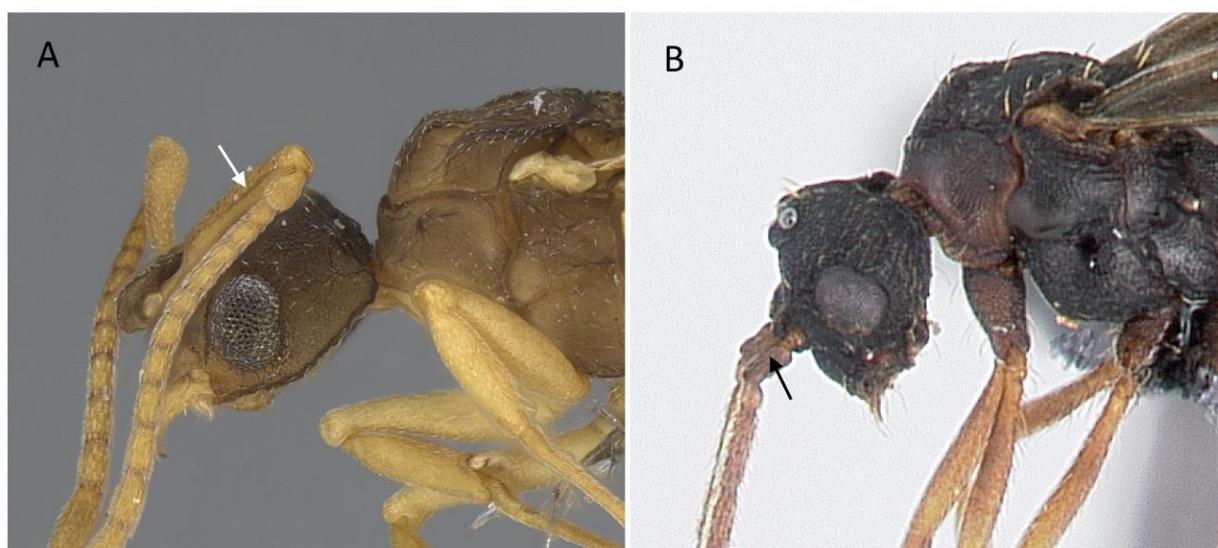
894 2 In profile, posterodorsal margin of head almost straight from the base of the lateral ocelli to the
895 midpoint of the occipital carina. (Fig. 33A)3 (Tribe Attini, part1)

896 – In profile, posterodorsal margin of head gradually rounded from the base of the lateral ocelli to
897 the midpoint of the occipital margin. (Fig. 33B)5 (Tribe Attini, part2)



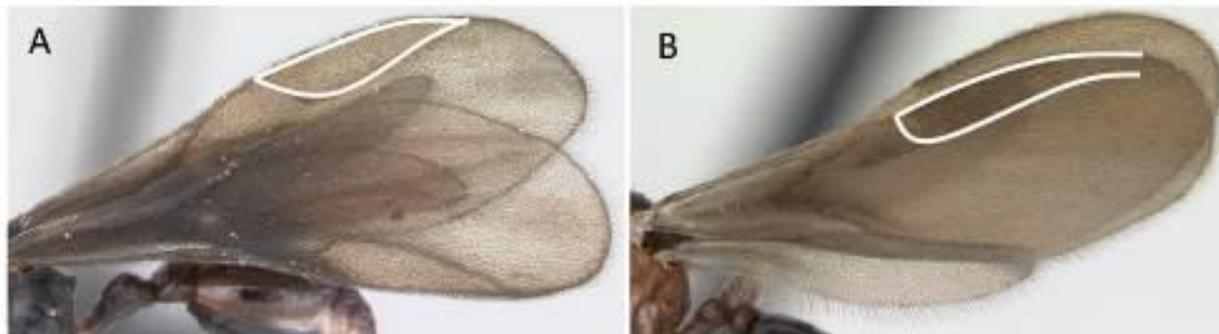
898
899 **Figure 33.** Head in profile view **A** *Strumigenys chilo* (CASENT0145240) **B** *Tetramorium silvicola* (CASENT0494732).
900 Photographers Dimby Raharinjanahary (33A), Erin Prado (33B).
901

- 902 3 Mandible with 3 teeth. Scape long, distinctly exceeding posterior margin of head in full-face view
903 (Fig. 34A)*Cyphomyrmex*
904 – Mandible edentate. Scape not reaching posterior margin of head in full-face view (Fig. 34B)
9054



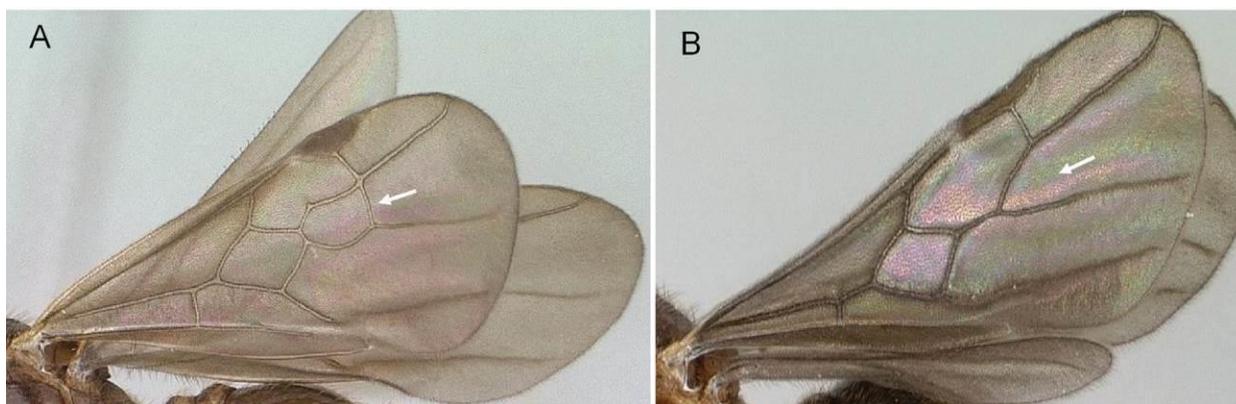
906
907 **Figure 34.** Scape length in profile view **A** *Cyphomyrmex minutus* (CASENT0264488) **B** *Eurhopalothrix* km01
908 (CASENT0146071). Photographers Michele Esposito (34A), Erin Prado (34B).
909

- 910 4 Radial sector on the forewing is curved toward the costal margin and reaches the costal margin
911 (Fig. 35A)*Eurhopalothrix*
912 – Radial sector on the forewing is downcurved and never reaches the costal margin (Fig. 35A)
913*Strumigenys*



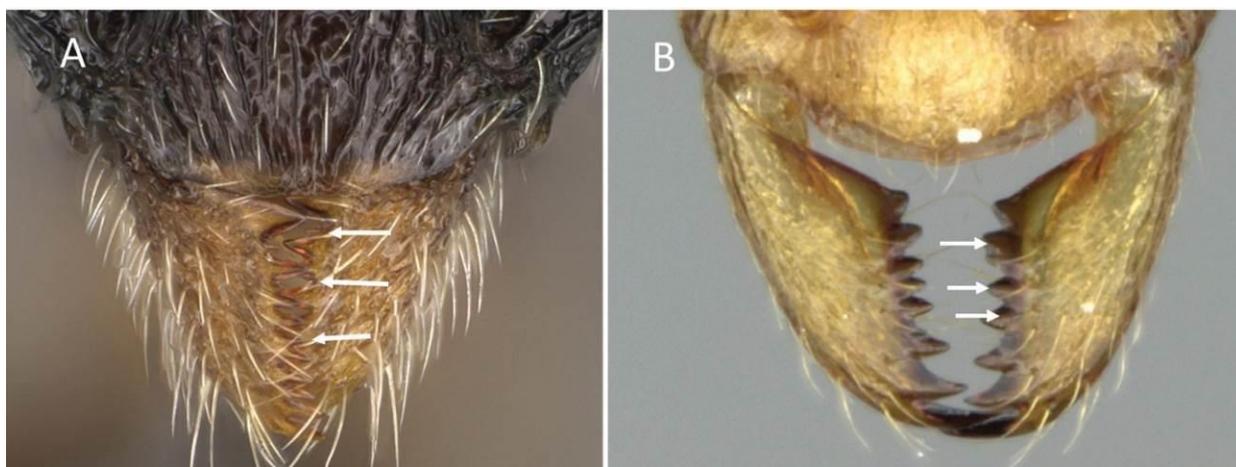
914
915 **Figure 35.** Forewing in lateral view showing the radial sector **A** *Eurhopalothrix* km01 (CASENT0146071) **B** *Strumigenys*
916 *dicomas* (CASENT0135118). Photographer Erin Prado
917

- 918 5 Cross vein 2rs-m present on forewing (Fig. 36A)*Pheidole*
919 – Cross vein 2rs-m absent on forewing (Fig. 36B)6



920
921 **Figure 36.** Forewing in lateral view showing the cross vein 2rs-m. **A** *Pheidole* mgs006 (CASENT0135889) **B** *Carebara* drm03
922 (CASENT0143975). Photographer Dimby Raharinjanahary.
923

- 924 6 Mandible strongly developed; masticatory margin with 7 large teeth which increase in size from
925 apex to base; between each tooth is a minute denticle (Fig. 37A)*Pilotrochus*
926 – Mandible normal to reduced; masticatory margin edentate to multidentate with many acute teeth
927 which decrease in size from apex to base; without denticle between the teeth (Fig. 37B)7



928
929 **Figure 37.** Mandible in full face view. **A** *Pilotrochus besmerus* (CASENT0083498) **B** *Malagidris sofina* (CASENT0906626).
930 Photographers Michele Esposito (37A), Estella Ortega (37B).

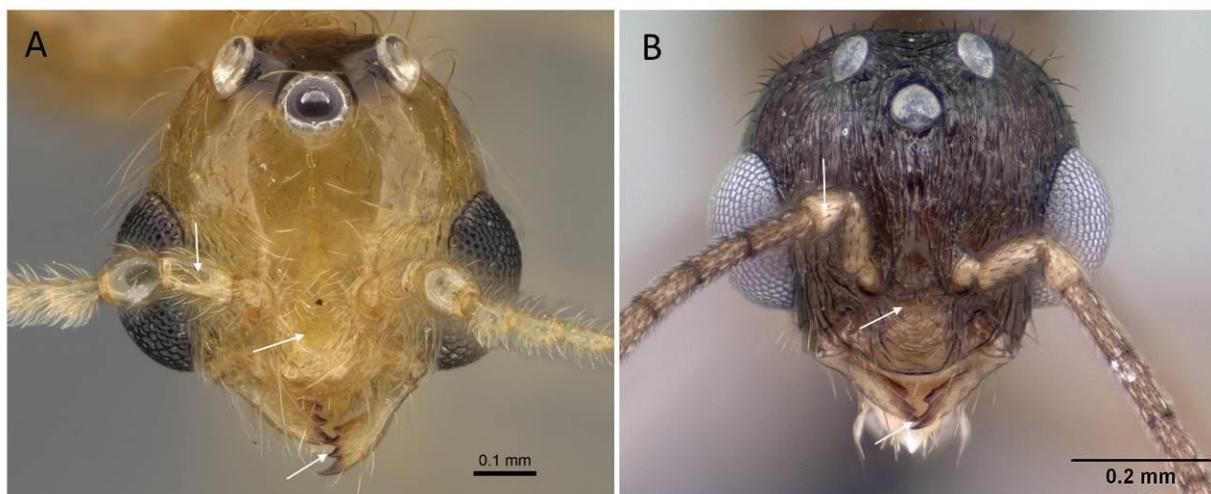
- 931 7 In lateral view, anterior margin of promesonotum forms a continuous outline, pronotal furrow not
 932 breaking outline (Fig. 38A)8 (Tribe Solenopsidini)
 933 – In lateral view, anterior margin of promesonotum interrupted by an impressed pronotal furrow
 934 that breaks the outline (Fig. 38B) or mesonotum strongly produced anterodorsally (Fig. 38C)12
 935 (Tribe Crematogastrinii)



936 **Figure 38.** Head and mesosoma in profile view. **A** *Monomorium termitobium* (CASENT0460162) **B** *Meranoplus mayri*
 937 (CASENT0062813) **C** *Crematogaster hazolava* (CASENT0317643). Photographers Dimby Raharinjanahary (38A), April Nobile
 938 (38B), Estella Ortega (38C).
 939

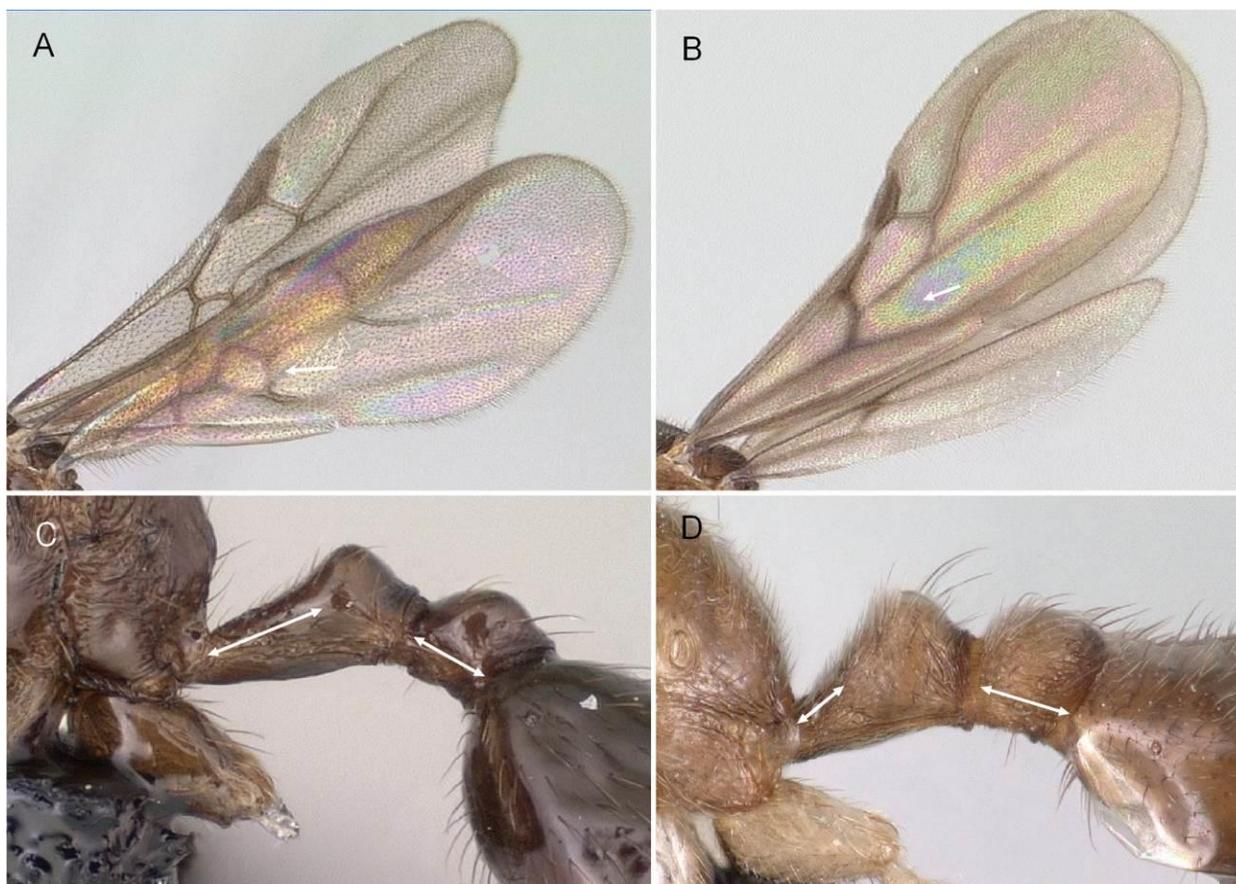
- 940
 941 8 Antennae 12-segmented*Solenopsis*
 942 – Antennae 13-segmented9

- 943 9 In full-face view, pedicel subglobular; posteromedian margin of clypeus effaced so that clypeus
 944 and frons form a continuous surface (Fig. 39A); mandible triangular with distinct basal angle, masticatory
 945 margin with exactly 4 teeth*Erromyрма*
 946 – In full-face view, pedicel not globular, more cylindrical; posteromedian margin of clypeus visible
 947 (Fig. 39B); mandible spatulate to triangular, but its basal angle always indistinct, masticatory margin with
 948 1 to 4 teeth10



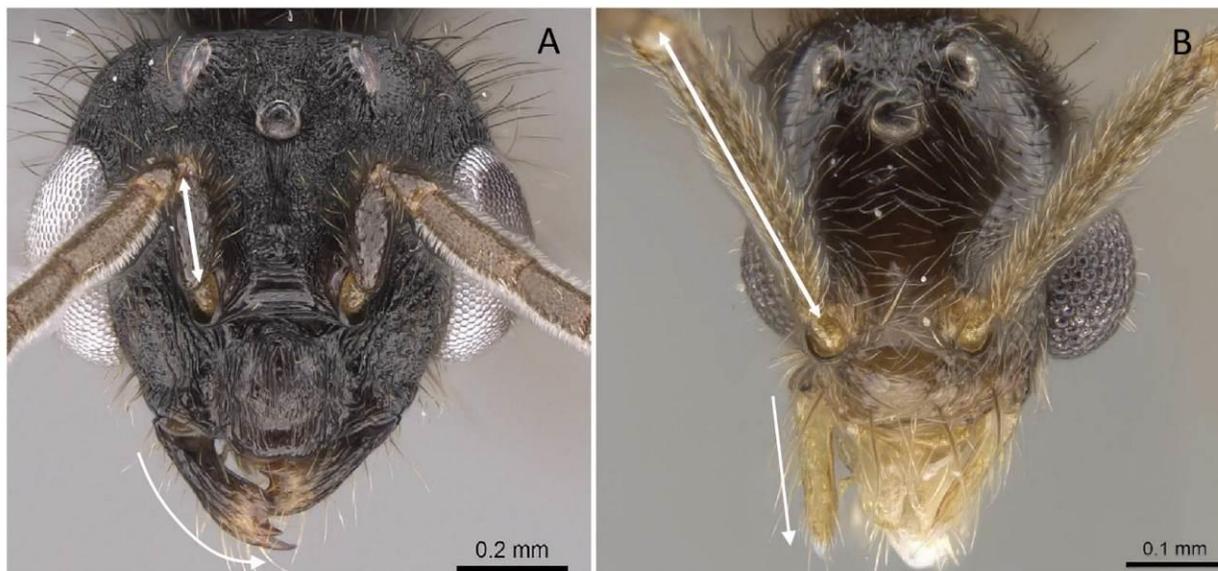
949 **Figure 39.** Head in full-face view showing the pedicel, mandible, postero-median margin of clypeus. **A** *Erromyрма latinodis*
 950 (CASENT0788835) **B** *Syllophopsis modesta* (CASENT0143818). Photographers Michele Esposito (39A), Dimby
 951 Raharinjanahary (39B).
 952

- 953
 954 10 Forewing with five closed cells, 1m–cu cross-vein present (Fig. 40A). In profile, petiolar
 955 peduncle longer than postpetiolar length (Fig. 40C)*Syllophopsis*
 956 – Forewing with four closed cells, 1m–cu cross-vein absent (Fig. 40B). In profile, petiolar peduncle
 957 absent or shorter than postpetiolar length (Fig. 40D)11



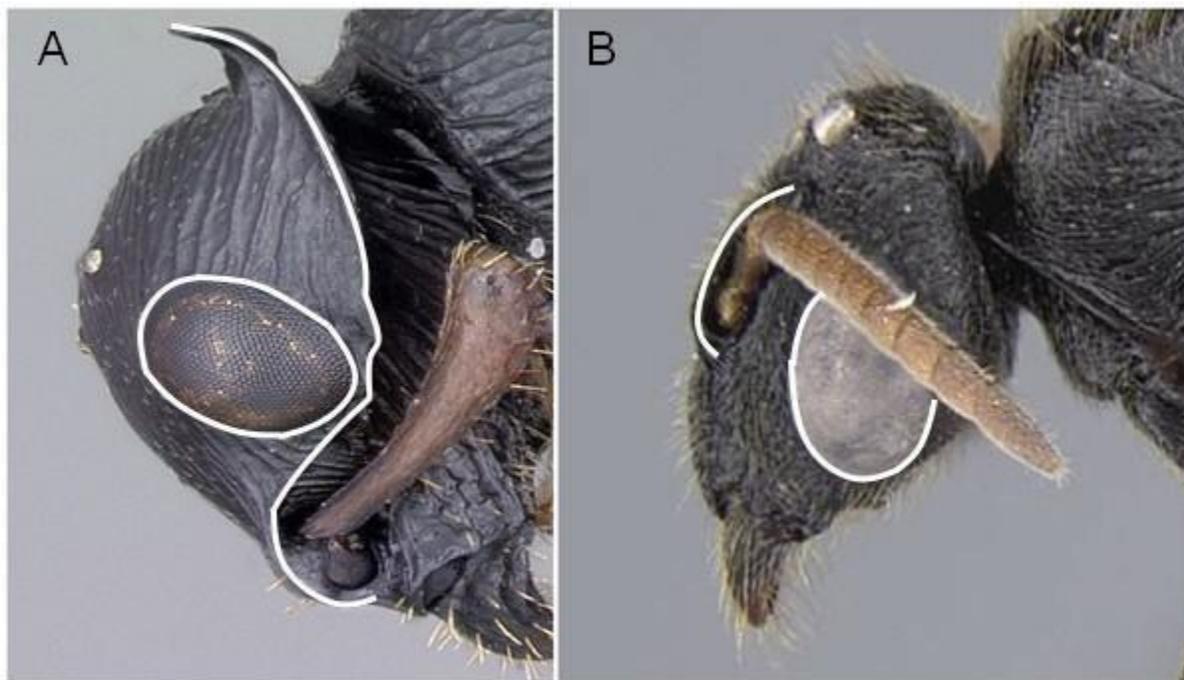
958
 959 **Figure 40.** Forewing, petiole and post petiole in lateral view showing the 1m-cu cross-vein and the peduncular length. **A, C**
 960 *Sylophopsis modesta* (CASENT0135642) **B** *Monomorium termitobium* (CASENT0135673) **D** *Monomorium termitobium*
 961 (CASENT0135952). Photographer Dimby Raharinjanahary.
 962

- 963 11 With the head in full-face view, antennal scape short, barely reaching the posterior ocular margin;
 964 mandible long, curved, masticatory margin with 3 to 4 teeth (Fig. 41A)*Monomorium*
 965 – With the head in full-face view, antennal scape long reaching the occipital margin; mandible
 966 short, spatulate, basal margin linear, unidentate (Fig. 41B)*Adelomyrmex* (Seychelles)



967
 968 **Figure 41.** Head in full-face view showing the form of the mandible and scape length. **A** *Monomorium exiguum*
 969 (CASENT0209350) **B** *Adelomyrmex sc01* (CASENT0160764). Photographers Dimby Raharinjanahary (41A), Michele Esposito
 970 (41B).
 971

- 972 12 Antennal scrobe runs below the eyes (Fig. 42A)*Cataulacus*
 973 – Antennal scrobe absent or runs above the eyes (Fig. 42B)13



974
 975 **Figure 42.** Head in lateral view showing the position of the antennal scrobe. **A** *Cataulacus oberthueri* (CASENT0435930) **B**
 976 *Metapone emersoni* (CASENT0113799). Photographers April Nobile (42A), Michele Esposito (42B).
 977

- 978 13 Protibia without spur (Fig. 43A)*Melissotarsus*
 979 – Protibia with single spur (Fig. 43B)14



980
981 **Figure 43.** Protibia in ventral view. **A** *Melissotarsus insularis* (CASENT0804569) **B** *Terataner fhg22* (CASENT0429745).
982 Photographer Michele Esposito.

- 983
984 14 In lateral view, mesonotal suture extends downward from the transverse suture to the upper
985 margin of the mesopleuron, ending higher than the highest point of the wing insertion (Fig. 44A)
986*Terataner*
987 – In lateral view, mesonotal suture situated at the same level or lower than the highest point of the
988 wing insertion (Fig. 44B)15



989
990 **Figure 44.** Mesosoma in lateral view showing the position of mesonotal suture relative to the point of the wing process. **A**
991 *Terataner alluaudi* (CASENT0496102) **B** *Malagidris dulcis* (CASENT0135071). Photographers Erin Prado (44A), Estella
992 Ortega (44B).

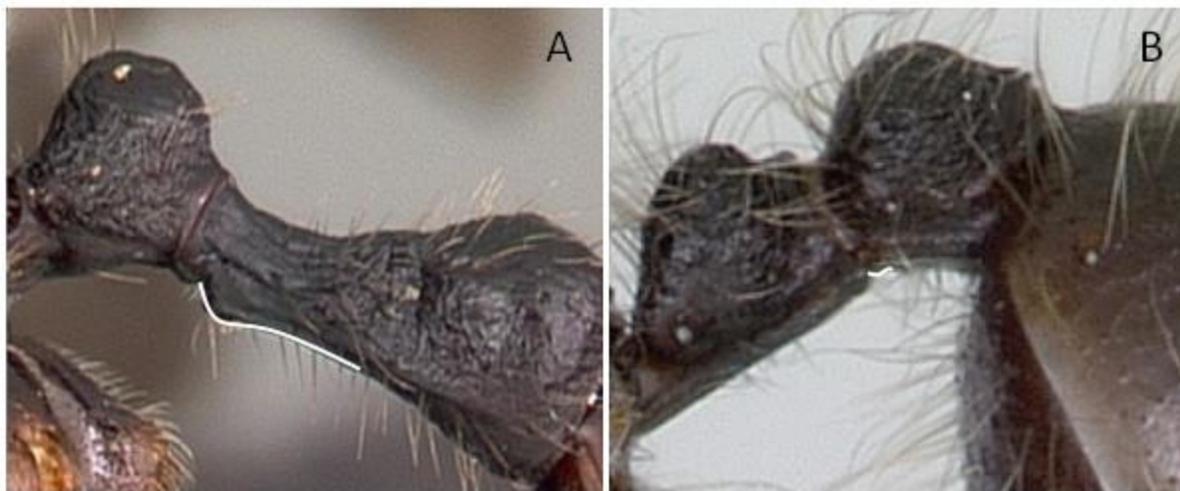
- 993
994 15 Abdominal segment III attached dorsally to abdominal segment IV (Fig. 45A). Scape, pedicel,
995 and flagellomeres same size (Fig. 45C)*Crematogaster*
996 – Abdominal segment III is broadly attaching to abdominal segment IV or abdominal segment III

997 anteriorly attached to abdominal segment IV (Fig. 43B). Scape, pedicel, and flagellomeres size different
998 (Fig. 45D)16



999 **Figure 45.** Abdominal segment III attaches to abdominal segment IV. **A** *Crematogaster maina* (CASENT0132785) **B** *Piloetrochus*
1000 *besmerus* (CASENT0083498). **C** *Crematogaster agnetis* (CASENT0101760) **D** *Carebara jajoby* (CASENT0494540).
1001 Photographers Estella Ortega (45A), April Nobile (45B-45D).
1002
1003

1004 16 Peduncle of abdominal segment III distinctly longer than that of abdominal segment II (Fig. 46A)
1005*Eutetramorium*
1006 – Peduncle of abdominal segment III absent or shorter than that of abdominal segment II (Fig.
1007 46B).....17



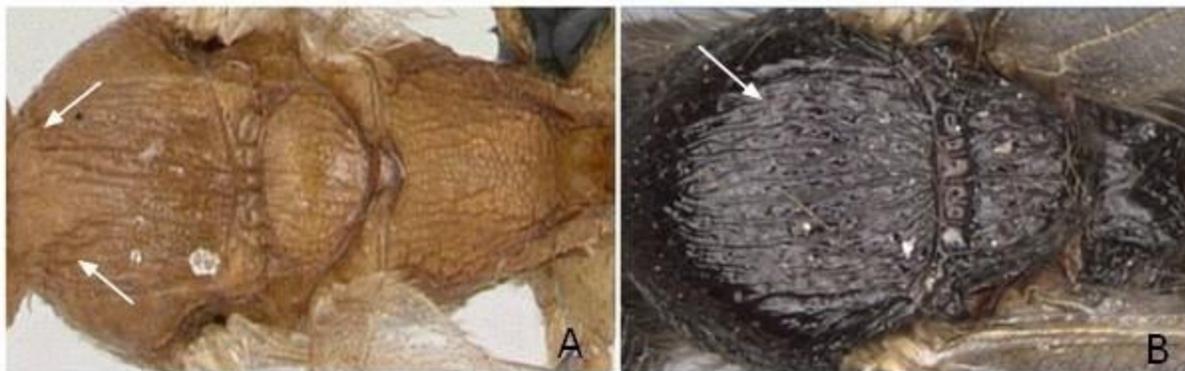
1008
1009 **Figure 46.** Abdominal segment II and III in lateral view showing the peduncular length. **A** *Eutetramorium mocquersyi*
1010 (CASENT0495192) **B** *Meranoplus mayri* (CASENT0062813). Photographer April Nobile.
1011

- 1012 17 First basal flagellar segment distinctly more elongated than the remaining segments: its length
1013 nearly or more than twice as long as that of the second flagellar segment (Fig. 47A)18
1014 – First basal flagellar segment not elongated than the rest; even if it is elongated, its length
1015 distinctly less than twice as long as that of the second flagellar segment (Fig. 47B)19



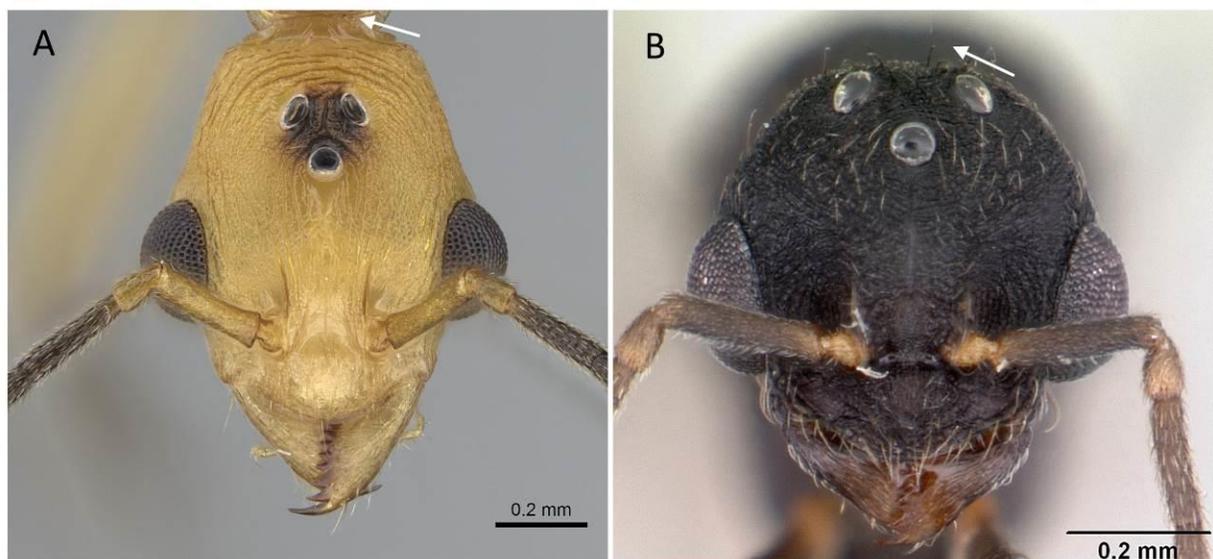
1016
1017 **Figure 47.** Antennae in lateral view showing the first basal flagellar length. **A** *Tetramorium mars* (CASENT0134555) **B**
1018 *Pilotrochus besmerus* (CASENT0057183). Photographers Dimby Raharinjanahary (47A), Michele Esposito (47B).
1019

- 1020 18 Notauli present (Fig. 48A)*Tetramorium*
1021 – Notauli absent (Fig. 48B)*Dicroaspis*



1022
1023 **Figure 48.** Promesonotum in dorsal view **A** *Tetramorium kelleri* (CASENT0133425). **B** *Dicroaspis* indet (CASENT0389458).
1024 Photographers Erin Prado (48A), Michele Esposito (48B).
1025

- 1026 19 With the head in full-face view, occipital carina visible (Fig. 49A)*Malagidris*
1027 – With the head in full-face view, occipital carina not visible (Fig. 49B)20



1028
1029 **Figure 49.** Head in full-face view, showing occipital carina **A** *Malagidris alperti* (CASENT0248385) **B** *Calyptomyrmex* km01
1030 (CASENT0136409). Photographers Michele Esposito (49A), April Nobile (49B).
1031

- 1032 20 Antennal scrobe clearly present (Fig. 50A)*Metapone*
1033 – Antennal scrobe reduced to absent (Fig. 50B)21



Figure 50. Head in full-face view showing antennal scrobes. **A** *Metapone emersoni* (CASENT0113799) **B** *Nesomyrmex angulatus* (CASENT0147245). Photographers Michele Esposito (50A), Erin Prado (50B).

1034
1035
1036
1037

- 1038 21 Antennae 12-segmented22
- 1039 – Antennae 13-segmented23

- 1040 22 Vein 1m-Cu present. Propodeum armed with a weakly developed angular tooth (Fig. 51A)
- 1041*Calyptomyrmex*
- 1042 – Vein 1m-Cu absent. Propodeum unarmed and round (Fig. 51B)*Pristomyrmex*

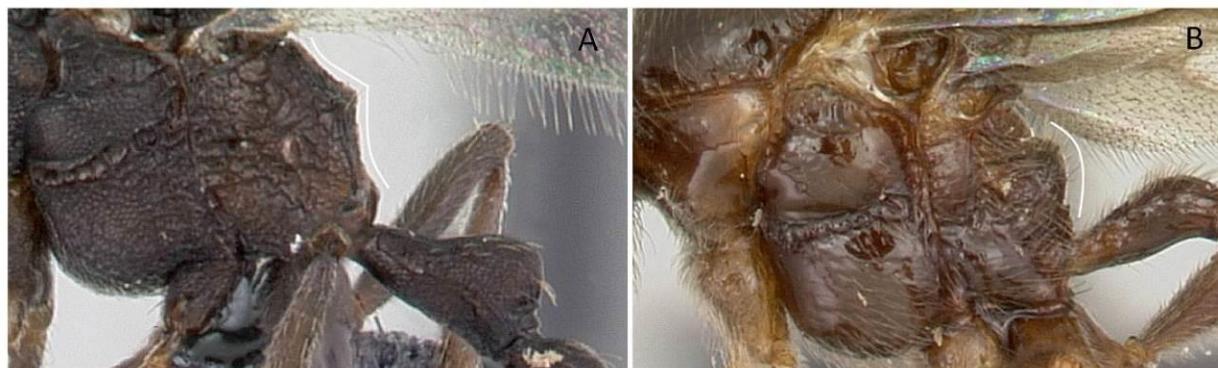


Figure 51. Mesopropodeum in lateral view. **A** *Calyptomyrmex* km01 (CASENT0136409) **B** *Pristomyrmex bispinosus* (CASENT0055726). Photographer April Nobile .

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1044
1045
1046

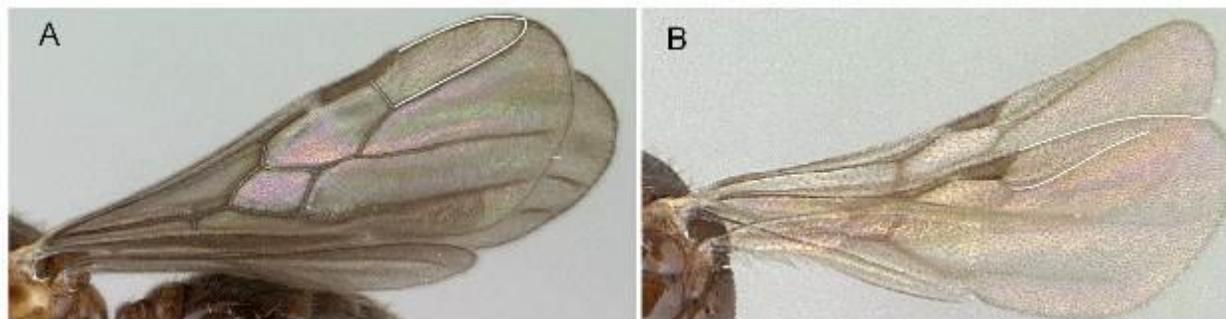
- 1047 23 Propodeal spines are distinctly present (Fig. 52A)*Cardiocondyla*
- 1048 – Propodeal spines are absent (Fig. 52B)24



1049
1050 **Figure 52.** Propodeal spines in lateral view. **A** *Cardiocondyla emeryi* (CASENT0082706) **B** *Vollenhovia piroskae*
1051 (CASENT0101658). Photographers Michele Esposito (52A), April Nobile (52B).
1052

1053 24 Radial sector on the forewing is curved toward the costal margin distal to the wing stigma and
1054 often reaches the costal margin (Fig. 53A). Vertex is clearly divided from the occiput by the distinct
1055 occipital carina25

1056 – Radial sector on the forewing is downcurved and never reaches the costal margin (Fig. 53B).
1057 Occipital carina is unclear or very weakly present, the vertex slopes to the occiput gently and gradually
1058 and not divided by a carina27



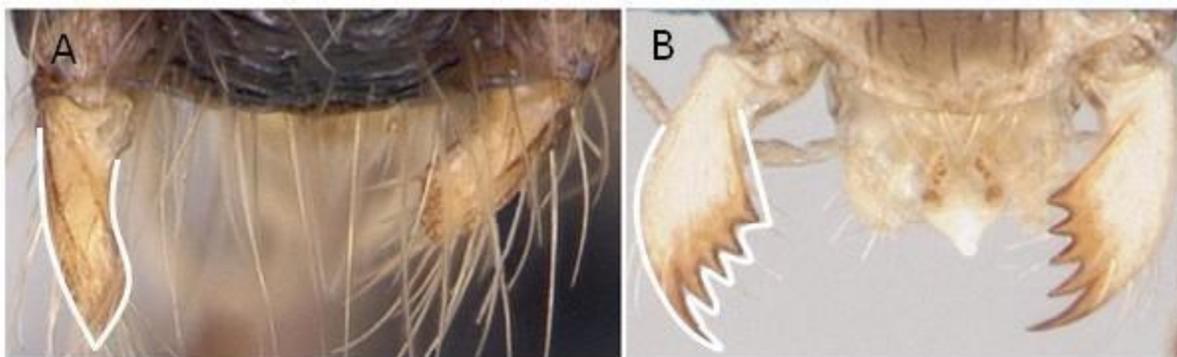
1059
1060 **Figure 53.** Forewing showing Rs reaching the costal margin. **A** *Carebara drm03* (CASENT0143975) **B** *Monomorium exiguum*
1061 (CASENT0135614). Photographer Dimby Raharinjanahary.
1062

1063 25 Abdominal segment III broadly attaches to abdominal segment IV (Fig. 54A)*Carebara*
1064 – Abdominal segment III narrowly attaches to abdominal segment IV (Fig. 54B)26



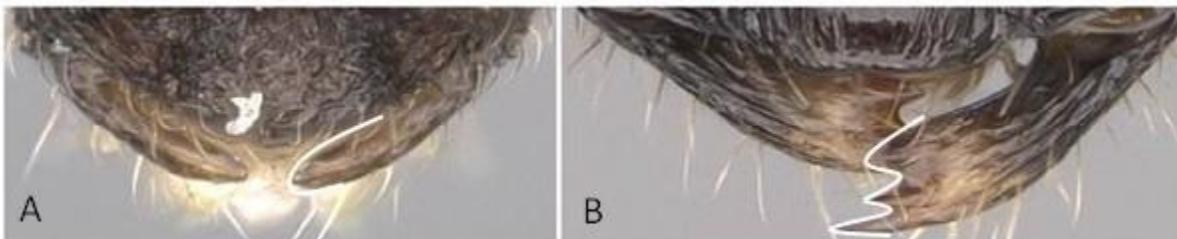
1065
1066 **Figure 54.** Abdomen in lateral view showing the attachment of abdominal segment III. **A** *Carebara jajoby* (CASENT0494540) **B**
1067 *Nesomyrmex hafahafa* (CASENT0053313). Photographer April Nobile.
1068

- 1069 26 Mandible edentate (Fig. 55A)*Meranoplus*
1070 – Mandible with 3–5 teeth which decrease in size from apex to base (Fig. 55B)*Nesomyrmex*



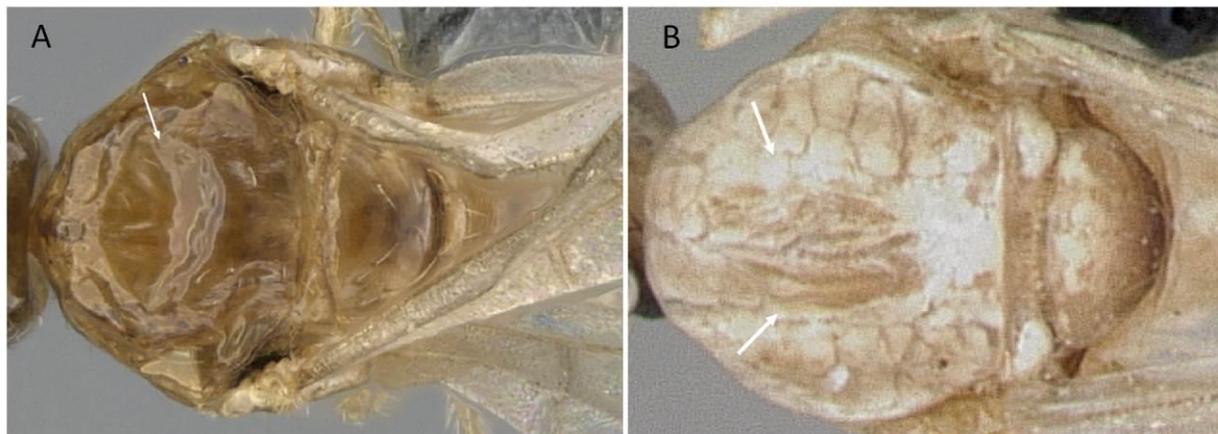
1071
1072 **Figure 55.** Mandible in full-face view. **A** *Meranoplus mayri* (CASENT0062813) **B** *Nesomyrmex tamatavensis*
1073 (CASENT0496295). Photographers April Nobile (55A), Erin Prado (55B).
1074

- 1075 27 Mandible edentate (Fig. 56A)*Vollenhovia*
1076 – Mandible distinctly toothed (Fig. 56B)28



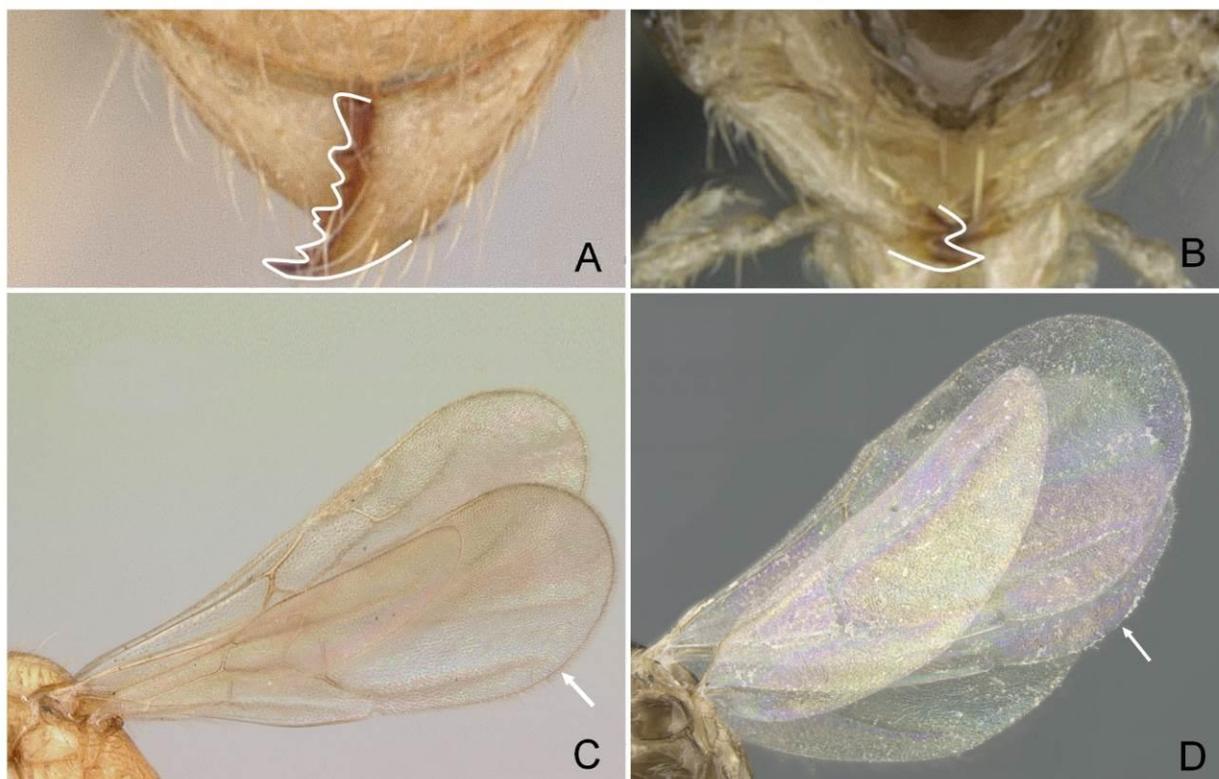
1077
1078 **Figure 56.** Mandible in full-face view. **A** *Vollenhovia piroskae* (CASENT0159914). **B** *Monomorium madecassum*
1079 (CASENT0209350). Photographer Michele Esposito.
1080

- 1081 28 Notauli absent (Fig. 57A)*Trichomyrmex*
1082 – Notauli present (Fig. 57B)29



1083
1084 **Figure 57.** Promesonotum in dorsal view. **A** *Trichomyrmex destructor* (CASENT0787666) **B** *Royidris notorthotenes*
1085 (CASENT0002249) Photographers Michele Esposito (57A), April Nobile (57B).
1086

- 1087 29 Masticatory margin with 5–7 teeth (Fig. 58A), forewing with a dense fringe of long hairs along
1088 the margin (Fig. 58C) *Vitsika*
1089 – Masticatory margin with 2–3 teeth (Fig. 58B), forewing lacking long hairs on the edges.(Fig.
1090 58D) *Royidris*



1091
1092 **Figure 58.** Mandible in full-face view and forewing in profile view **A, C** *Vitsika crebra* (CASENT0050262) **B, D** *Royidris*
1093 *peregrina* (CASENT0206165). Photographers April Nobile (58A, 58C), Estella Ortega (58B, 58D).
1094

1095 *Adelomyrmex* Emery, 1897

1096 Mandible edentate. Palp formula unknown. Antennal scrobe absent. Antenna consisting of 13 segments.
1097 First funicular segment not globular, shorter than the scape. Scape very long, extending to margin of the
1098 head. Length of the first funicular segment is equal to the second segment. In full-face view, eye located
1099 above of base of clypeus. Ocelli placed well below occipital margin in front view. Occipital carina
1100 invisible. With the head full-face view, its width excluding eyes is not distinctly narrowed anteriorly from
1101 level of posterior margin of the eyes: the width at the level of the posterior edge of the eyes is not twice as
1102 wide as that at the level of the mandibular insertions. Mesoscutum in profile strongly overhangs the
1103 pronotum, the latter not visible in dorsal view. Notauli absent. With mesopleuron in lateral view, its
1104 anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate tibial spur.
1105 Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum unarmed and round.
1106 Petiole with a long anterior peduncle. Abdominal segment III narrowly attaches to abdominal segment IV.
1107 Paramere small. Pygostyle absent. Pubescence short, dense over most of body. On the forewing,
1108 pterostigma reduced in size. Costal vein (C) present. Media between Rs+M and 2r-rs completely absent.
1109 Media (M) never reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-
1110 rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu
1111 absent. Rs+M absent. R absent. Cross-vein cu-a located far from junction between media and cubitus. Cu
1112 absent. Free section of the cubitus absent.

1113 *Aphaenogaster* Mayr, 1853

1114 Mandible with 3–6 teeth which decrease in size from apex to base. Palp formula 3,2. Antennal scrobe
1115 absent. Antenna consisting of 13 segments. First funicular segment not globular, shorter than the scape.
1116 Scape short not, reaching the lower edge of the margin of lateral ocelli. Eyes large, at or in front of the
1117 midlength of the sides. Ocelli placed well below occipital margin in front view. Occipital carina strongly
1118 developed, forming a nuchal collar. With the head full-face view, its width excluding eyes is not
1119 distinctly narrowed anteriorly from level of posterior margin of the eyes: the width at the level of the
1120 posterior edge of the eyes is not twice as wide as that at the level of the mandibular insertions.
1121 Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in dorsal view. Notauli
1122 present. With mesopleuron in lateral view, its anterodorsal portion lower than the highest point of the
1123 wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur
1124 simple. Aroliae small. Propodeum unarmed, sometimes with short teeth/denticles. Petiole with a long
1125 anterior peduncle, the spiracle located at the apex of the peduncle. Abdominal segment III narrowly
1126 attaches to abdominal segment IV. Paramere large. Pygostyle present. Pilosity simple throughout the
1127 body. On the forewing, pterostigma well-developed. Costal vein (C) present. Media (M) fused with
1128 Rs+M. Media (M) never reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-
1129 vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-
1130 cu present. Fusion of Rs+M extended distally so that 1m-cu arises from Rs+M not from M. R present.
1131 Cross-vein cu-a located far from junction between media and cubitus. Cu present. Free section of the
1132 cubitus present.

1133 *Calyptomymex* Emery, 1887

1134 Mandible triangular and distinctly dentate, with 5–6 teeth which decrease in size from apex to base. Palp
1135 formula 2,2. Antennal scrobe reduced. Antenna consisting of 12 segments. First funicular segment not
1136 globular, shorter than scape. Scape short, not reaching the lower edge of the margin of lateral ocelli. Eyes

1137 large, at or in front of the midlength of the sides. Ocelli placed near occipital margin in front view.
 1138 Occipital carina invisible. With the head full-face view, its width excluding eyes is not distinctly
 1139 narrowed anteriorly from level of posterior margin of the eyes: the width at the level of the posterior edge
 1140 of the eyes is not twice as wide as that at the level of the mandibular insertions. Mesoscutum punctate.
 1141 Notauli absent with a longitudinal median carina that is narrowly bifurcated anteriorly. With mesopleuron
 1142 in lateral view, its anterodorsal portion lower than the highest point of the wing process. Front leg with
 1143 pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum
 1144 armed, projects at a low angle. Petiole with a long anterior peduncle, the spiracle located at the apex of
 1145 the peduncle. Abdominal segment III narrowly attaches to abdominal segment IV. Paramere small.
 1146 Pygostyle absent. Pilosity simple throughout the body. On the forewing, pterostigma well developed.
 1147 Costal vein (C) present. Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial
 1148 sector (Rs) never reaching costal margin. Cross-vein 2r-rs connected with radial sector posterior to
 1149 pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so
 1150 that 1m-cu arises from Rs+M, not from M. R absent. Cross-vein cu-a located far from junction between
 1151 media and cubitus. Cu present. Free section of the cubitus absent.

1152 *Cardiocondyla* Emery, 1869

1153 Ergatoid males of *Cardiocondyla* are easily distinguished by having: (1) mandibles very effective: long,
 1154 toothless and saber-shaped mandibles for *Cardiocondyla wroughtonii* and worker-like mandibles have
 1155 been observed in *Cardiocondyla emeryi* and *Cardiocondyla shuckardi*; and (2) reduce black
 1156 pigmentation (leading to a light-yellowish-brown overall colouration), decrease eye size, and reduce the
 1157 ocelli partially or completely (Seifert 2003).

1158 In winged males, mandible reduced, short and narrow, with only 5 teeth. Palp formula 2,2. Antennal
 1159 scrobe reduced. Antenna consists of 12 segments. First funicular segment not globular, shorter than the
 1160 scape. Scape short, not reaching the lower edge of the margin of lateral ocelli. In full-face view, eye
 1161 located above base of clypeus. Ocelli placed well below occipital margin in front view. Occipital carina
 1162 invisible. With the head full-face view, its width excluding eyes is not distinctly narrowed anteriorly from
 1163 level of posterior margin of the eyes: the width at the level of the posterior edge of the eyes is not twice as
 1164 wide as that at the level of the mandibular insertions. Mesoscutum punctate. Notauli absent. With
 1165 mesopleuron in lateral view, its anterodorsal portion lower than the highest point of the wing process.
 1166 Front leg with pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae
 1167 small. Propodeum armed. Petiole with a long anterior peduncle. Abdominal segment III narrowly attaches
 1168 to abdominal segment IV. Paramere small. Pygostyle absent. Pubescence short, dense over most of body.
 1169 On the forewing, pterostigma reduced in size. Costal vein (C) absent. Media between Rs+M and 2r-rs
 1170 completely absent. Media (M) never reaching costal margin. Radial sector (Rs) never reaching costal
 1171 margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent.
 1172 Cross-vein 1m-cu absent. Rs+M absent. R absent. Cross-vein cu-a absent. Cu absent. Free section of the
 1173 cubitus absent.

1174 *Carebara* Westwood, 1840

1175 Mandible reduced, with 3–4 teeth which decrease in size from apex to base. Palp formula 3,2. Antennal
 1176 scrobe absent. Antenna consists of 13 segments. First funicular segment not globular, shorter than the
 1177 scape. Scape shorter than second funicular segment. Eyes large, at or in front of the midlength of the

1178 sides. Ocelli placed near occipital margin in front view. Occipital carina invisible. With the head full-face
1179 view, its width excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the
1180 eyes: the width at the level of the posterior edge of the eyes is not twice as wide as that at the level of the
1181 mandibular insertions. Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in
1182 dorsal view. Notauli absent with a longitudinal median carina that is narrowly bifurcated anteriorly. With
1183 mesopleuron in lateral view, its anterodorsal portion lower than the highest point of the wing process.
1184 Front leg with pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae
1185 small. Propodeum unarmed and round. Petiole with a short, stout anterior peduncle and a short but
1186 relatively high node. Abdominal segment III is broadly attaching to abdominal segment IV. Paramere
1187 large. Pygostyle present. Pubescence short, dense over most of body. On the forewing, pterostigma well-
1188 developed. Costal vein (C) present. Media (M) fused with Rs+M. Media (M) reaches costal margin.
1189 Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to
1190 pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so
1191 that 1m-cu arises from Rs+M, not from M. R present. Cross-vein cu-a located far from junction between
1192 media and cubitus. Cu present. Free section of the cubitus present.

1193 *Cataulacus* Smith, 1853

1194 Mandible triangular with denticles which decrease in size from apex to base. Palp formula 4,2. Antennal
1195 scrobe running below the eyes. Antenna consists of 12 segments. Length of first funicular is equal to that
1196 of the second funicular segment + the third funicular segment. Scape short, not reaching the lower edge of
1197 the margin of lateral ocelli. In full-face view, eye located in front of midlength of head capsule. Ocelli
1198 placed well below occipital margin in front view. Occipital carina invisible. With the head full-face view,
1199 its width excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes:
1200 the width at the level of the posterior edge of the eyes is not twice as wide as that at the level of the
1201 mandibular insertions. Mesoscutum striate. Notauli present. With mesopleuron in lateral view, its
1202 anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate tibial spur.
1203 Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum unarmed. Petiole
1204 without a long anterior peduncle. Abdominal segment III narrowly attaches to abdominal segment IV.
1205 Paramere visible. Pygostyle absent. Pilosity simple throughout the body. On the forewing, pterostigma
1206 reduced in size. Costal vein (C) absent. Media between Rs+M and 2r-rs completely absent. Media (M)
1207 never reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs connected
1208 with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu absent. Rs+M
1209 merge with Rs. R absent. Cross-vein cu-a absent. Cu absent. Free section of the cubitus absent.

1210 *Crematogaster* Lund, 1831

1211 Mandible triangular and distinctly dentate, with 0–2 teeth. Palp formula 3,2; 5,3. Antennal scrobe is
1212 absent. Antenna consists of 11–12 segments. First funicular segment subglobular, shorter than the scape.
1213 Scape shorter than 2+3 funicular segment. Eyes large, at or in front of the midlength of the sides. Ocelli
1214 placed near occipital margin in front view. Occipital carina invisible. With the head full-face view, its
1215 width excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes: the
1216 width at the level of the posterior edge of the eyes is not twice as wide as that at the level of the
1217 mandibular insertions. Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in
1218 dorsal view. Notauli absent. With mesopleuron in lateral view, its anterodorsal portion lower than the

1219 highest point of the wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur absent.
1220 Metatibia tibial spur absent. Aroliae small. Propodeum unarmed and round. Petiole and postpetiole are
1221 equal in size. Abdominal segment III dorsally attaches to abdominal segment IV. Paramere large.
1222 Pygostyle present. Pilosity simple throughout the body. On the forewing, pterostigma well developed.
1223 Costal vein (C) present. Media (M) between Rs+M and 2rs-m and after 2rs-m completely present. Media
1224 (M) never reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs
1225 connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu present.
1226 Rs+M present but vestigial. R present. Cross-vein cu-a located far from junction between media and
1227 cubitus. Cu present. Free section of the cubitus absent.

1228 *Cyphomyrmex* Mayr, 1862

1229 Mandible triangular with 3 teeth. Palp formula 2,2. Antennal scrobe running above the eyes. Antenna
1230 consists of 13 segments. First funicular segment not globular, shorter than the scape. Eyes large, at or in
1231 front of the midlength of the sides Ocelli placed near occipital margin in front view. Occipital carina
1232 invisible. With head in full-face view, its width excluding eyes is distinctly narrowed anteriorly from
1233 level of posterior margin of the eyes: the width at the level of the posterior margin of the eyes is nearly
1234 twice as wide as that at the level of the mandible insertions. Pronotum anterodorsally sharply marginate,
1235 with sharp, dentate corners. Notauli present. With mesopleuron in lateral view, its anterodorsal portion
1236 lower than the highest point of the wing process. Front leg pectinate tibial spur. Mesotibia tibial spur
1237 absent. Metatibia tibial spur absent. Aroliae small. Propodeum armed or the angle projects as a low,
1238 obtuse tooth. Petiole with a short peduncle. Abdominal segment III is narrowly attaching to abdominal
1239 segment IV. Paramere visible. Pygostyle present. Pilosity simple throughout the body. On the forewing,
1240 pterostigma reduced in size. Costal vein (C) present. Media between Rs+M and 2r-rs completely absent.
1241 Media (M) never reaching costal margin. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs
1242 connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu absent.
1243 Rs+M merge with Rs. R present. Cross-vein cu-a absent. Cu absent. Free section of the cubitus absent.

1244 *Dicroaspis* Emery, 1908

1245 Mandible triangular with 7 teeth. Antennal scrobe running above the eyes. Antenna consisting of 10
1246 segments. First funicular segment not globular, shorter than the scape. Scape very long, extending to
1247 margin of the head. Eyes large, at or in front of the midlength of the sides. Ocelli placed well below
1248 occipital margin in front view. Occipital carina invisible. With the head full-face view, its width
1249 excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes: the width
1250 at the level of the posterior edge of the eyes is not twice as wide as that at the level of the mandibular
1251 insertions. Pronotum anterodorsally sharply marginate, with sharp, dentate corners. Notauli absent. With
1252 mesopleuron in lateral view, its anterodorsal portion lower than the highest point of the wing process.
1253 Front leg with pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae
1254 small. Propodeum unarmed and round. Petiole with a long peduncle. Abdominal segment III narrowly
1255 attaches to abdominal segment IV. Paramere visible. Pygostyle present. Pilosity simple throughout the
1256 body. On the forewing, pterostigma well developed. Costal vein (C) present. Media (M) fused with
1257 Rs+M. Media (M) never reaching costal margin. Radial sector (Rs) reaches costal margin. Cross-vein 2r-
1258 rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu

1259 absent. Rs+M merge with Rs. R absent. Cross-vein cu-a located far from junction between media and
1260 cubitus. Cu absent. Free section of the cubitus absent.

1261 *Erromyrma* Bolton and Fisher, 2016

1262 Mandible reduced, short and narrow, with only 4–5 teeth. Palp formula 5,3. Antennal scrobe absent.
1263 Antenna consists of 13 segments. First funicular segment subglobular, same size as the scape. Eyes large,
1264 at or in front of the midlength of the sides. Ocelli placed close to occipital margin in front view. Occipital
1265 carina invisible. With the head full-face view, its width excluding eyes is not distinctly narrowed
1266 anteriorly from level of posterior margin of the eyes: the width at the level of the posterior edge of the
1267 eyes is not twice as wide as that at the level of the mandibular insertions. Mesoscutum in profile strongly
1268 overhangs the pronotum, the latter not visible in dorsal view. Notauli absent. With mesopleuron in lateral
1269 view, its anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate
1270 tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum unarmed
1271 and round. Petiole with a short peduncle. Abdominal segment III narrowly attaches to abdominal
1272 segment IV. Paramere visible. Pygostyle present. Pilosity simple throughout the body. On the forewing,
1273 pterostigma well developed. Costal vein (C) absent. Media (M) fused with Rs+M. Media (M) never
1274 reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs connected with
1275 radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of
1276 Rs+M extended distally, so that 1m-cu arises from Rs+M, not from M. R present. Cross-vein cu-a located
1277 far from junction between media and cubitus. Cu present. Free section of the cubitus present.

1278 *Eurhopalothrix* Brown and Kempf, 1961

1279 Mandible triangular without teeth. Palp formula 2,2. Antennal scrobe running above the eyes. Antenna
1280 consists of 13 segments. First funicular segment not globular, shorter than the scape. Eyes large, at or in
1281 front of the midlength of the sides. Ocelli placed near occipital margin in front view. Occipital carina
1282 invisible. With head in full-face view, its width excluding eyes is distinctly narrowed anteriorly from the
1283 level of the posterior margin of the eyes: the width at the level of the posterior margin of the eyes is
1284 nearly twice as wide as that at the level of the mandible insertions. Mesoscutum punctate. Notauli absent.
1285 With mesopleuron in lateral view, its anterodorsal portion lower than the highest point of the wing
1286 process. Front leg pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae
1287 small. Propodeum angle projects as a low, obtuse tooth. Petiole with a long anterior peduncle. Abdominal
1288 segment III narrowly attaches to abdominal segment IV. Paramere small. Pygostyle present. Pilosity
1289 simple throughout the body. On the forewing, pterostigma reduced in size. Costal vein (C) absent. Media
1290 between Rs+M and 2r-rs completely absent. Media (M) never reaching costal margin. Radial sector (Rs)
1291 reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein
1292 2rs-m absent. Cross-vein 1m-cu absent. Rs+M merge with Rs. R present. Cross-vein cu-a absent. Cu
1293 absent. Free section of the cubitus absent.

1294 *Eutetramorium* Emery, 1899

1295 Mandible stoutly triangular, with 7 teeth. Palp formula 4,3. Antennal scrobe is absent. Antenna consists of
1296 13 segments. SI 31. First funicular segment long but not globular, about 25% longer than the length of the
1297 second funicular segment. In full-face view, eye located in front of midlength of head capsule. Ocelli
1298 placed well below occipital margin in front view. Occipital carina sharp but not forming a raised crest.

1299 With the head full-face view, its width excluding eyes is not distinctly narrowed anteriorly from level of
 1300 posterior margin of the eyes: the width at the level of the posterior edge of the eyes is not twice as wide as
 1301 that at the level of the mandibular insertions. Anterior mesoscutum, between the notauli arms, with a
 1302 longitudinal median carina that is narrowly bifurcated anteriorly. Notauli weakly present, the anterior
 1303 arms forming a V-shape. With mesopleuron in lateral view, its anterodorsal portion lower than the highest
 1304 point of the wing process. Front leg pectinate tibial spur. Mesotibia tibial spur simple. Metatibia tibial
 1305 spur simple. Aroliae small. Propodeum unarmed, the spiracle low on the side and in front of the
 1306 midlength of the sclerite; propodeal lobes conspicuous, rounded. Petiole with a short, stout anterior
 1307 peduncle and a short but relatively high node, the spiracle about level with the base of the anterior face of
 1308 the node. Postpetiole greatly elongated, in profile almost twice the length of the petiole. Abdominal
 1309 segment III narrowly attaches to abdominal segment IV. Paramere small. Pygostyle present. Denser
 1310 upright pilosity. On the forewing, pterostigma reduced in size. Costal vein (C) absent. Media (M) fused
 1311 with Rs+M. Media (M) never reaching costal margin. Radial sector (Rs) never reaching costal margin.
 1312 Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-
 1313 vein 1m-cu present. Fusion of Rs+M extended distally, so that 1m-cu arises from Rs+M, not from M. R
 1314 absent. Cross-vein cu-a located far from junction between media and cubitus. Cu present. Free section of
 1315 the cubitus present.

1316 *Malagidris* Bolton and Fisher, 2014

1317 Mandible triangular and strongly dentate, with 9 sharp teeth. Palp formula 3,2. Antennal scrobe is
 1318 reduced. Antenna consists of 13 segments. First funicular segment short, not globular, about one quarter
 1319 to one half the length of the second funicular segment. In full-face view, eye located in front of midlength
 1320 of head capsule. Ocelli placed near occipital margin in front view. Occipital carina sharp, forming a
 1321 distinct crest. With the head full-face view, its width excluding eyes is not distinctly narrowed anteriorly
 1322 from level of posterior margin of the eyes: the width at the level of the posterior edge of the eyes is not
 1323 twice as wide as that at the level of the mandibular insertions. Mesoscutum convex in profile, the
 1324 mesoscutum and mesoscutellum elevated, much higher than the propodeal dorsum, which is depressed
 1325 and slopes downward posteriorly. Notauli absent. With mesopleuron in lateral view, its anterodorsal
 1326 portion lower than the highest point of the wing process. Front leg pectinate tibial spur. Mesotibia tibial
 1327 spur simple. Metatibia tibial spur simple. Aroliae small. Propodeum unarmed, the spiracle high on the
 1328 side and at about the midlength, or slightly in front of the midlength, of the sclerite; propodeal lobes
 1329 conspicuous, rounded. Petiole with a long anterior peduncle and a low node, the spiracle at or behind the
 1330 midlength of the peduncle, but in front of the level of the node. Abdominal segment III narrowly attaches
 1331 to abdominal segment IV. Paramere large. Pygostyle present. Few pilosity. On the forewing, pterostigma
 1332 well-developed. Costal vein (C) present. Media (M) fused with Rs+M. Media (M) never reaching costal
 1333 margin. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior
 1334 to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so
 1335 that 1m-cu arises from Rs+M, not from M. R present. Cross-vein cu-a located far from junction between
 1336 media and cubitus. Cu present. Free section of the cubitus present.

1337 *Melissotarsus* Emery, 1877

1338 Mandible triangular and distinctly dentate, with 0–2 teeth. Palp formula 0,1. Antennal scrobe is reduced.
 1339 Antenna consists of 12 segments. First funicular segment short, not globular, about half the length of the

1340 second funicular segment. In full-face view, eye located in front of midlength of head capsule. Ocelli
1341 placed close to occipital margin in front view. Occipital carina invisible. With the head full-face view, its
1342 width excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes: the
1343 width at the level of the posterior edge of the eyes is not twice as wide as that at the level of the
1344 mandibular insertions. Mesoscutum convex in profile, the mesoscutum and mesoscutellum elevated,
1345 much higher than the propodeal dorsum, which is depressed and slopes downward posteriorly. Notauli
1346 absent. With mesopleuron in lateral view, its anterodorsal portion lower than the highest point of the wing
1347 process. Front leg without tibial spur. Mesotibia tibial spur simple. Metatibia tibial spur simple. Aroliae
1348 small. Propodeum unarmed and round. Petiole without a long anterior peduncle. Abdominal segment III
1349 narrowly attaches to abdominal segment IV. Paramere large. Pygostyle absent. Pilosity simple throughout
1350 the body. On the forewing, pterostigma reduced in size. Costal vein (C) absent. Media (M) fused with
1351 Rs+M. Media (M) vestigial. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with
1352 radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu absent. Rs+M present.
1353 R present. Cross-vein cu-a vestigial. Cu absent. Free section of the cubitus absent.

1354 *Meranoplus* Smith, 1853

1355 Mandible reduced, short and narrow, with only one tooth. Palp formula 5,3. Antennal scrobe absent.
1356 Antenna consists of 13 segments. First funicular segment short, not globular, about half the length of the
1357 second funicular segment. In full-face view, eye located in front of midlength of head capsule. Ocelli
1358 placed near occipital margin in front view. Occipital carina invisible. With the head full-face view, its
1359 width excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes: the
1360 width at the level of the posterior edge of the eyes is not twice as wide as that at the level of the
1361 mandibular insertions. Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in
1362 dorsal view. Notauli present. With mesopleuron in lateral view, its anterodorsal portion lower than the
1363 highest point of the wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur simple.
1364 Metatibia tibial spur simple. Aroliae small. Propodeum unarmed and round. Petiole without a long
1365 anterior peduncle. Abdominal segment III narrowly attaches to abdominal segment IV. Paramere visible.
1366 Pygostyle absent. Pilosity long throughout the body. On the forewing, pterostigma well-developed. Costal
1367 vein (C) present. Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial sector
1368 (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-
1369 vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so that 1m-cu arises
1370 from Rs+M, not from M. R present. Cross-vein cu-a located far from junction between media and cubitus.
1371 Cu absent. Free section of the cubitus absent.

1372 *Metapone* Forel, 1911

1373 Mandible triangular and distinctly dentate with 4 teeth. Palp formula 1,2. Antennal scrobe running above
1374 the eyes. Antenna consisting of 12 segments. First funicular segment short, not globular, about the same
1375 size as second funicular segment. In full-face view, eye located in front of midlength of head capsule.
1376 Ocelli placed well below occipital margin in front view. Occipital carina invisible. With the head full-face
1377 view, its width excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the
1378 eyes: the width at the level of the posterior edge of the eyes is not twice as wide as that at the level of the
1379 mandibular insertions. Mesoscutum striate. Notauli absent. With mesopleuron in lateral view, its
1380 anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate tibial spur.

1381 Mesotibia tibial spur absent. Metatibia tibial spur simple. Aroliae small. Propodeum unarmed. Petiole
1382 without peduncle. In profile, petiolar node rectangular nodiform; both waist segments strongly sculptured.
1383 Abdominal segment III narrowly attaches to abdominal segment IV. Paramere small. Pygostyle absent.
1384 Pilosity long, erect to suberect. On the forewing, pterostigma well-developed. Costal vein (C) present.
1385 Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial sector (Rs) never reaching
1386 costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m
1387 absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so that 1m-cu arises from Rs+M,
1388 not from M. R absent. Cross-vein cu-a located far from junction between media and cubitus. Cu present.
1389 Free section of the cubitus present.

1390 *Monomorium* Mayr, 1855

1391 Mandible triangular with 3–4 teeth. Palp formula 5,3. Antennal scrobe absent. Antenna consists of 13
1392 segments. First funicular segment short, not globular. In full-face view, eye located in front of midlength
1393 of head capsule. Ocelli placed well below occipital margin in front view. Occipital carina invisible. With
1394 the head full-face view, its width excluding eyes is not distinctly narrowed anteriorly from level of
1395 posterior margin of the eyes: the width at the level of the posterior edge of the eyes is not twice as wide as
1396 that at the level of the mandibular insertions. Mesoscutum in profile strongly overhangs the pronotum, the
1397 latter not visible in dorsal view. Notauli absent. With mesopleuron in lateral view, its anterodorsal portion
1398 lower than the highest point of the wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur
1399 absent. Metatibia tibial spur simple. Aroliae small. Propodeum unarmed and round. Petiole without
1400 peduncle. Abdominal segment III narrowly attaches to abdominal segment IV. Paramere small. Pygostyle
1401 present. Pilosity simple throughout the body. On the forewing, pterostigma well-developed. Costal vein
1402 (C) absent. Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial sector (Rs)
1403 never reaching costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma.
1404 Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Rs+M absent. R absent. Cross-vein cu-a located far
1405 from junction between media and cubitus. Cu present. Free section of the cubitus present.

1406 *Nesomyrmex* Wheeler, 1910

1407 Mandible triangular and distinctly dentate, with 5 teeth. Palp formula 5,3. Antennal scrobe reduced.
1408 Antenna consists of 13 segments. First funicular segment not globular, shorter than the scape. In full-face
1409 view, eye located in front of midlength of head capsule Ocelli placed well below occipital margin in front
1410 view. Occipital carina sharp but not forming a raised crest. With the head full-face view, its width
1411 excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes: the width
1412 at the level of the posterior edge of the eyes is not twice as wide as that at the level of the mandibular
1413 insertions. Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in dorsal view.
1414 Notauli present. With mesopleuron in lateral view, its anterodorsal portion lower than the highest point of
1415 the wing process. Front leg pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur absent.
1416 Aroliae small. Propodeum unarmed. Petiole with a long anterior peduncle and a low node, the spiracle at
1417 or behind the midlength of the peduncle, but in front of the level of the node. Abdominal segment III
1418 narrowly attaches to abdominal segment IV. Paramere large. Pygostyle absent. Sparse pilosity. On the
1419 forewing, pterostigma well developed. Costal vein (C) present. Media (M) fused with Rs+M. Media (M)
1420 never reaching costal margin. Radial sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with
1421 radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu absent. Rs+M merge

1422 with Rs. R present. Cross-vein cu-a located far from junction between media and cubitus. Cu absent. Free
1423 section of the cubitus absent.

1424 *Pheidole* Westwood, 1839

1425 Mandible with 4–7 teeth which decrease in size from apex to base. Palp formula 5,3. Antennal scrobe is
1426 absent. Antenna consisting of 13 segments. First funicular segment globular, shorter than the scape. In
1427 full-face view, eye located in front of midlength of head capsule. Ocelli placed close to occipital margin
1428 in front view. Occipital carina invisible. With the head full-face view, its width excluding eyes is not
1429 distinctly narrowed anteriorly from level of posterior margin of the eyes: the width at the level of the
1430 posterior edge of the eyes is not twice as wide as that at the level of the mandibular insertions.
1431 Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in dorsal view. Notauli
1432 present. With mesopleuron in lateral view, its anterodorsal portion lower than the highest point of the
1433 wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur
1434 absent. Aroliae small. Propodeum unarmed. Petiole with a long anterior peduncle. Abdominal segment III
1435 narrowly attaches to abdominal segment IV. Paramere small. Pygostyle present. Sparse pilosity. On the
1436 forewing, pterostigma well developed. Costal vein (C) present. Media (M) fused with Rs+M. Media (M)
1437 never reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs connected
1438 with radial sector posterior to pterostigma. Cross-vein 2rs-m present. Cross-vein 1m-cu present. Fusion of
1439 Rs+M extended distally, so that 1m-cu arises from Rs+M, not from M. R absent. Cross-vein cu-a located
1440 far from junction between media and cubitus. Cu present. Free section of the cubitus present.

1441 *Pilotrochus* Brown, 1978

1442 Mandible with 4–7 teeth. Palp formula 5,3. Antennal scrobe is reduced. Antenna consisting of 13
1443 segments. First funicular segment globular, shorter than the scape. In full-face view, eye located in front
1444 of midlength of head capsule. Ocelli placed well below occipital margin in front view. Occipital carina
1445 invisible. With head in full-face view, its width excluding eyes is distinctly narrowed anteriorly from
1446 level of posterior margin of the eyes: the width at the level of the posterior margin of the eyes is nearly
1447 twice as wide as that at the level of the mandible insertions. Mesoscutum in profile strongly overhangs the
1448 pronotum, the latter not visible in dorsal view. Notauli present. With mesopleuron in lateral view, its
1449 anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate tibial spur.
1450 Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum unarmed. Petiole
1451 with a long anterior peduncle. Abdominal segment III narrowly attaches to abdominal segment IV.
1452 Paramere small. Pygostyle present. Sparse pilosity. On the forewing, pterostigma well developed. Costal
1453 vein (C) absent. Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial sector
1454 (Rs) never reaching costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma.
1455 Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so that 1m-cu
1456 arises from Rs+M, not from M. R absent. Cross-vein cu-a located far from junction between media and
1457 cubitus. Cu present. Free section of the cubitus present.

1458 *Pristomyrmex* Mayr, 1866

1459 Mandible edentate. Palp formula 2,2. Antennal scrobe reduced. Antenna consists of 12 segments. First
1460 funicular segment short, not globular, about a third the length of the second funicular segment. In full-
1461 face view, eye located above of base of clypeus. Ocelli placed close to occipital margin in front view.

1462 Occipital carina invisible. With the head full-face view, its width excluding eyes is not distinctly
1463 narrowed anteriorly from level of posterior margin of the eyes: the width at the level of the posterior edge
1464 of the eyes is not twice as wide as that at the level of the mandibular insertions. Mesoscutum in profile
1465 strongly overhangs the pronotum, the latter not visible in dorsal view. Notauli present. With mesopleuron
1466 in lateral view, its anterodorsal portion lower than the highest point of the wing process. Front leg with
1467 pectinate tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum
1468 unarmed. Petiole with a long anterior peduncle. Abdominal segment III narrowly attaches to abdominal
1469 segment IV. Paramere large. Pygostyle present. Pilosity simple throughout the body. On the forewing,
1470 pterostigma well developed. Costal vein (C) absent. Media (M) fused with Rs+M. Media (M) never
1471 reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs connected with
1472 radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu absent. Rs+M merges
1473 with Rs. R absent. Cross-vein cu-a located far from junction between media and cubitus. Cu absent. Free
1474 section of the cubitus absent.

1475 *Royidris* Bolton and Fisher, 2014

1476 Mandible triangular and distinctly dentate, with 2–3 teeth. Palp formula 4,3. Antennal scrobe absent.
1477 Antenna consists of 13 segments. SI 30–52. First funicular segment short and globular. Eyes large,
1478 located at or in front of the midlength of the sides. Ocelli placed close to occipital margin in front view.
1479 Occipital carina sharp but not forming a raised crest. With the head full-face view, its width excluding
1480 eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes: the width at the level
1481 of the posterior edge of the eyes is not twice as wide as that at the level of the mandibular insertions.
1482 Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in dorsal view. Notauli
1483 variably developed, from vestigial to having anterior arms present. With mesopleuron in lateral view, its
1484 anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate tibial spur.
1485 Mesotibia tibial spur simple. Metatibia tibial spur simple. Aroliae small. Propodeum usually unarmed and
1486 rounded, but in some the posterodorsal angle is reinforced by a carina, or the angle projects as a low,
1487 obtuse tooth; propodeal lobes rounded. Petiole with an anterior peduncle, the spiracle at, or slightly in
1488 front of, the midlength of the peduncle, well in front of the level of the low, rounded node. Petiole in
1489 profile slightly longer than postpetiole. Abdominal segment III narrowly attaches to abdominal segment
1490 IV. Paramere large. Pygostyle present. Pilosity simple throughout the body. On the forewing, pterostigma
1491 well developed. Costal vein (C) absent. Media (M) fused with Rs+M. Media (M) never reaching costal
1492 margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs connected with radial sector
1493 posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended
1494 distally, so that 1m-cu arises from Rs+M, not from M. R absent. Cross-vein cu-a located far from junction
1495 between media and cubitus. Cu present. Free section of the cubitus absent.

1496 *Solenopsis* Westwood, 1840

1497 Mandible with 2–3 teeth. Palp formula 5,3. Antennal scrobe is reduced. Antenna consists of 11 segments.
1498 First funicular segment globular, shorter than the scape. Eyes large, located at or in front of the midlength
1499 of the sides. Ocelli placed near occipital margin in front view. Occipital carina invisible. With the head
1500 full-face view, its width excluding eyes is not distinctly narrowed anteriorly from level of posterior
1501 margin of the eyes: the width at the level of the posterior edge of the eyes is not twice as wide as that at
1502 the level of the mandibular insertions. Mesoscutum in profile strongly overhangs the pronotum, the latter

1503 not visible in dorsal view. Notauli absent. With mesopleuron in lateral view, its anterodorsal portion
1504 lower than the highest point of the wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur
1505 absent. Metatibia tibial spur absent. Aroliae small. Propodeum unarmed. Petiole with a short peduncle.
1506 Abdominal segment III narrowly attaches to abdominal segment IV. Paramere small. Pygostyle present.
1507 Pilosity simple throughout the body. On the forewing, pterostigma well-developed. Costal vein (C)
1508 absent. Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial sector (Rs) never
1509 reaching costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein
1510 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so that 1m-cu arises from
1511 Rs+M, not from M. R absent. Cross-vein cu-a located far from junction between media and cubitus. Cu
1512 present. Free section of the cubitus present.

1513 *Strumigenys* Smith, 1860

1514 Mandible edentate. Palp formula 5,3. Antennal scrobe is absent. Antenna consisting of 13 segments. First
1515 funicular segment not subglobular, same size of the scape. Eyes large, located at or in front of the
1516 midlength of the sides. Ocelli placed near occipital margin in front view. Occipital carina invisible. With
1517 head in full-face view, its width excluding eyes is distinctly narrowed anteriorly from the level of the
1518 posterior margin of the eyes: the width at the level of the posterior margin of the eyes is nearly twice as
1519 wide as that at the level of the mandible insertions. Mesoscutum in profile strongly overhangs the
1520 pronotum, the latter not visible in dorsal view. Notauli absent. With mesopleuron in lateral view, its
1521 anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate tibial spur.
1522 Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum angle projects as a
1523 low, obtuse tooth. Petiole with a short peduncle. Abdominal segment III narrowly attaches to abdominal
1524 segment IV. Paramere small. Pygostyle present. Sparse pilosity. On the forewing, pterostigma well
1525 developed. Costal vein (C) absent. Media (M) absent. Media (M) absent. Radial sector (Rs) never
1526 reaching costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein
1527 2rs-m absent. Cross-vein 1m-cu absent. Rs+M absent. R absent. Cross-vein cu-a absent. Cu absent. Free
1528 section of the cubitus absent.

1529 *Syllophopsis* Santschi, 1915

1530 Mandible with 3 teeth. Palp formula 5,3. Antennal scrobe reduced. Antenna consists of 13 segments. First
1531 funicular segment short, not globular. Eyes large, located at or in front of the midlength of the sides.
1532 Ocelli placed near occipital margin in front view. Occipital carina invisible. With the head full-face view,
1533 its width excluding eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes:
1534 the width at the level of the posterior edge of the eyes is not twice as wide as that at the level of the
1535 mandibular insertions. Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in
1536 dorsal view. Notauli absent. With mesopleuron in lateral view, its anterodorsal portion lower than the
1537 highest point of the wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur absent.
1538 Metatibia tibial spur absent. Aroliae small. Propodeum unarmed. Petiole with a short peduncle.
1539 Abdominal segment III narrowly attaches to abdominal segment IV. Paramere large. Pygostyle present.
1540 Pilosity simple throughout the body. On the forewing, pterostigma well-developed. Costal vein (C)
1541 present. Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial sector (Rs) never
1542 reaching costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein
1543 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so that 1m-cu arises from

1544 Rs+M, not from M. R absent. Cross-vein cu-a located far from junction between media and cubitus. Cu
1545 present. Free section of the cubitus present.

1546 *Terataner* Emery, 1912

1547 Mandible triangular and distinctly dentate, with 5-6 teeth. Palp formula 4,3. Antennal scrobe absent.
1548 Antenna consisting of 13 segments. First funicular segment globular, shorter than the scape. Eyes large, at
1549 or in front of the midlength of the sides. Ocelli placed near occipital margin in front view. Occipital carina
1550 invisible. With the head full-face view, its width excluding eyes is not distinctly narrowed anteriorly from
1551 level of posterior margin of the eyes: the width at the level of the posterior edge of the eyes is not twice as
1552 wide as that at the level of the mandibular insertions. Pronotum anterodorsally sharply marginate, with
1553 sharp, dentate corners. Notauli absent. With mesopleuron in lateral view, its anterodorsal portion is higher
1554 than the highest point of the wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur
1555 absent. Metatibia tibial spur simple. Aroliae small. Propodeum unarmed. Petiole with a long anterior
1556 peduncle. Abdominal segment III narrowly attaches to abdominal segment IV. Paramere large. Pygostyle
1557 present. Pilosity long, erect to suberect. On the forewing, pterostigma well-developed. Costal vein (C)
1558 absent. Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial sector (Rs) reaches
1559 costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m
1560 absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so that 1m-cu arises from Rs+M,
1561 not from M. R present. Cross-vein cu-a located far from junction between media and cubitus. Cu present.
1562 Free section of the cubitus present.

1563 *Tetramorium* Mayr, 1855

1564 Mandible triangular and distinctly dentate, with 4–7 teeth. Palp formula 5,3. Antennal scrobe reduced.
1565 Antenna consists of 10–13 segments. First funicular segment is more distinctly elongated than the others:
1566 its length is nearly or more than twice as long as that of the second flagellar segment. Eyes large, at or in
1567 front of the midlength of the sides. Ocelli placed well below occipital margin in front view. Occipital
1568 carina invisible. With the head full-face view, its width excluding eyes is not distinctly narrowed
1569 anteriorly from level of posterior margin of the eyes: the width at the level of the posterior edge of the
1570 eyes is not twice as wide as that at the level of the mandibular insertions. Mesoscutum in profile strongly
1571 overhangs the pronotum, the latter not visible in dorsal view. Notauli present. With mesopleuron in lateral
1572 view, its anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate
1573 tibial spur. Mesotibia tibial spur absent. Metatibia tibial spur simple. Aroliae small. Propodeum armed or
1574 the angle projects as a low, obtuse tooth. Petiole with a short peduncle. Abdominal segment III narrowly
1575 attaches to abdominal segment IV. Paramere small. Pygostyle present. Pilosity long, erect to suberect. On
1576 the forewing, pterostigma well-developed. Costal vein (C) absent. Media (M) fused with Rs+M. Media
1577 (M) never reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs
1578 connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu present.
1579 Fusion of Rs+M extended distally, so that 1m-cu arises from Rs+M, not from M. R absent. Cross-vein cu-
1580 a located far from junction between media and cubitus. Cu present. Free section of the cubitus present.

1581 *Trichomyrmex* Mayr, 1865

1582 Mandible reduced, short and narrow, with only 2–3 teeth. Palp formula 5,3. Antennal scrobe absent.
1583 Antenna consists of 13 segments. First funicular segment subglobular. Eyes large, at or in front of the

1584 midlength of the sides. Ocelli placed well below occipital margin in front view. Occipital carina invisible.
1585 With the head full-face view, its width excluding eyes is not distinctly narrowed anteriorly from level of
1586 posterior margin of the eyes: the width at the level of the posterior edge of the eyes is not twice as wide as
1587 that at the level of the mandibular insertions. Mesoscutum in profile strongly overhangs the pronotum, the
1588 latter not visible in dorsal view. Notauli absent. With mesopleuron in lateral view, its anterodorsal portion
1589 lower than the highest point of the wing process. Front leg with pectinate tibial spur. Mesotibia tibial spur
1590 absent. Metatibia tibial spur absent. Aroliae small. Propodeum unarmed. Petiole with a short peduncle.
1591 Abdominal segment III narrowly attaches to abdominal segment IV. Paramere small. Pygostyle absent.
1592 Sparse pilosity. On the forewing, pterostigma well developed. Costal vein (C) absent. Media (M) fused
1593 with Rs+M. Media (M) never reaching costal margin. Radial sector (Rs) never reaching costal margin.
1594 Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-
1595 vein 1m-cu absent. Rs+M merge with Rs. R absent. Cross-vein cu-a located far from junction between
1596 media and cubitus. Cu present. Free section of the cubitus absent.

1597 *Vitsika* Bolton and Fisher, 2014

1598 Mandible triangular and distinctly dentate, with 5–7 teeth. Palp formula 4,3. Antennal scrobe reduced.
1599 Antenna consists of 13 segments. SI 30–52. First funicular segment short but not globular. Eyes large,
1600 located at or in front of the midlength of the sides. Ocelli placed near occipital margin in front view.
1601 Occipital carina sharp but not forming a raised crest. With the head full-face view, its width excluding
1602 eyes is not distinctly narrowed anteriorly from level of posterior margin of the eyes: the width at the level
1603 of the posterior edge of the eyes is not twice as wide as that at the level of the mandibular insertions.
1604 Mesoscutum in profile strongly overhangs the pronotum, the latter not visible in dorsal view. Notauli
1605 variably developed, from vestigial to having anterior arms present. With mesopleuron in lateral view, its
1606 anterodorsal portion lower than the highest point of the wing process. Front leg with pectinate tibial spur.
1607 Mesotibia tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum usually unarmed and
1608 rounded. Petiole with an anterior peduncle, the spiracle at, or slightly in front of, the midlength of the
1609 peduncle, well in front of the level of the low, rounded node. Abdominal segment III narrowly attaches to
1610 abdominal segment IV. Paramere large. Pygostyle present. Pilosity simple throughout the body. On the
1611 forewing, pterostigma well-developed. Costal vein (C) present. Media (M) fused with Rs+M. Media (M)
1612 never reaching costal margin. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs connected
1613 with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of
1614 Rs+M extended distally so that 1m-cu arises from Rs+M not from M. R absent. Cross-vein cu-a located
1615 far from junction between media and cubitus. Cu present. Free section of the cubitus present.

1616 *Vollenhovia* Mayr, 1865

1617 Mandible edentate. Palp formula 2,2. Antennal scrobe absent. Antenna consists of 13 segments. First
1618 funicular equal in size to scape, not globular. Ocelli placed well below occipital margin in front view.
1619 Occipital carina invisible. With the head full-face view, its width excluding eyes is not distinctly
1620 narrowed anteriorly from level of posterior margin of the eyes: the width at the level of the posterior edge
1621 of the eyes is not twice as wide as that at the level of the mandibular insertions. Mesoscutum in profile
1622 strongly overhangs the pronotum, the latter not visible in dorsal view. Notauli absent with a longitudinal
1623 median carina that is narrowly bifurcated anteriorly. With mesopleuron in lateral view, its anterodorsal
1624 portion lower than the highest point of the wing process. Front leg with pectinate tibial spur. Mesotibia

1625 tibial spur absent. Metatibia tibial spur absent. Aroliae small. Propodeum unarmed. Petiole without
 1626 peduncle, in profile petiolar node rectangular nodiform. Abdominal segment III narrowly attaches to
 1627 abdominal segment IV. Paramere large. Pygostyle absent. Pilosity long, erect to suberect. On the
 1628 forewing, pterostigma reduced in size. Costal vein (C) absent. Media between Rs+M and 2r-rs completely
 1629 absent. Media (M) absent. Radial sector (Rs) never reaching costal margin. Cross-vein 2r-rs present,
 1630 forming base of ‘free stigma vein’. Cross-vein 2rs-m absent. Cross-vein 1m-cu absent. Rs+M absent. R
 1631 absent. Cross-vein cu-a absent. Cu absent. Free section of the cubitus absent.

1632 **PONERINAE Lepeletier de Saint-Fargeau, 1835**

1633 Diagnosis of male ants of the subfamily Ponerinae in The Malagasy region

- 1634 – Antenna filiform, consisting of 13 segments.
- 1635 – Scape not reaching posterior margin of head.
- 1636 – Mesopleural oblique furrow reaching pronotum far away from pronotal posteroventral margin.
- 1637 – Scuto-scutellar suture usually longitudinally sculptured.
- 1638 – Dorsal constriction between the two segments is distinct and deep.
- 1639 – Abdominal segment III is nearly as large as abdominal segment IV.
- 1640 – Abdominal segment II is much smaller than segment III in lateral view.
- 1641 – Apical portion of abdominal sternum IX not bi-spinose.
- 1642 – Pygostyles well developed.
- 1643 – Metatibia with one or two spurs.

1644

1645 Remarks. Our key includes ten ponerinae genera recorded from the Malagasy region. Overall key
 1646 modified from Yoshimura and Fisher (2007) Males of *Parvaponera* are unknown were not included in
 1647 this genera key. *Mesoponera* is known to be paraphyletic (Schmidt and Shattuck 2014). The two species
 1648 in the Malagasy region, *Mesoponera ambigua* and *Mesoponera melanaria macra* do not group in the
 1649 same clade and are keyed out seperatly.

1650 **Male-based key to genera of the subfamily Ponerinae**

- 1651 1 Wings absent*Hypoponera punctatisima*
- 1652 – Wings present2
- 1653
- 1654 2 Mandibles stout and fully developed, masticatory margins overlap completely when mandibles
 1655 are fully closed (Fig. 59A). Antennal scrobe well defined and extends as long as length of antennal scape
 1656*Platythyrea*
- 1657 – Mandibles very reduced in size and lobate, the masticatory margins do not overlap completely
 1658 when mandibles are fully closed (Fig. 59B). Antennal scrobe absent; if weakly defined, then length
 1659 distinctly shorter than length of antennal scape3



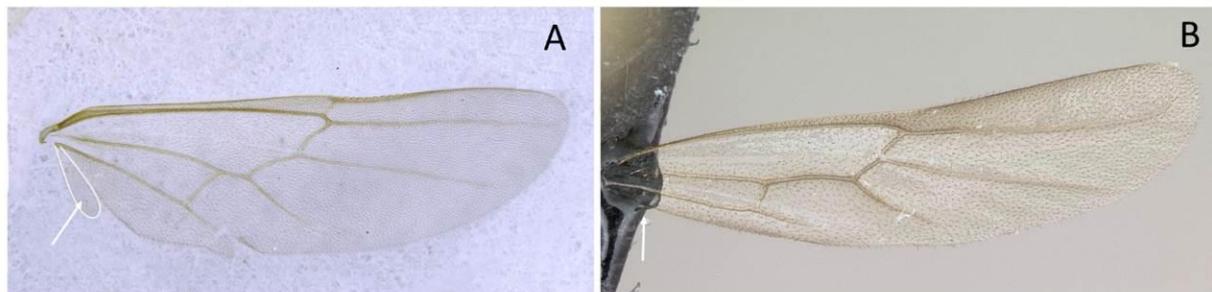
1660
1661 **Figure 59.** Mandible in full-face view. **A** *Platythyrea arthuri* (CASENT0442287) **B** *Mesoponera ambigua* (CASENT0052325).
1662 Photographer April Nobile.

- 1663
1664 3 Pretarsal claw multidentate to pectinate (Fig. 60A)*Leptogenys*
1665 – Pretarsal claw edentate or with at most two preapical teeth (Fig. 60B)4
1666



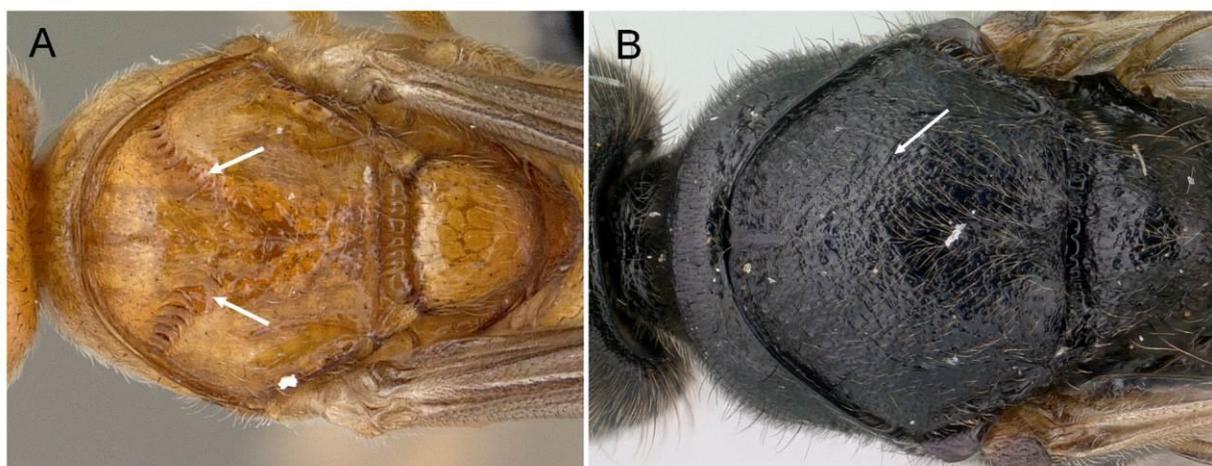
1667
1668 **Figure 60.** Pretarsal claw. **A** *Leptogenys mangabe* (CASENT0496777) **B** *Bothroponera cambouei* (CASENT0497079).
1669 Photographer April Nobile.

- 1670
1671 4 Hind wing with jugal lobe (Fig. 61A)5
1672 – Hind wing without jugal lobe (Fig. 61B)11



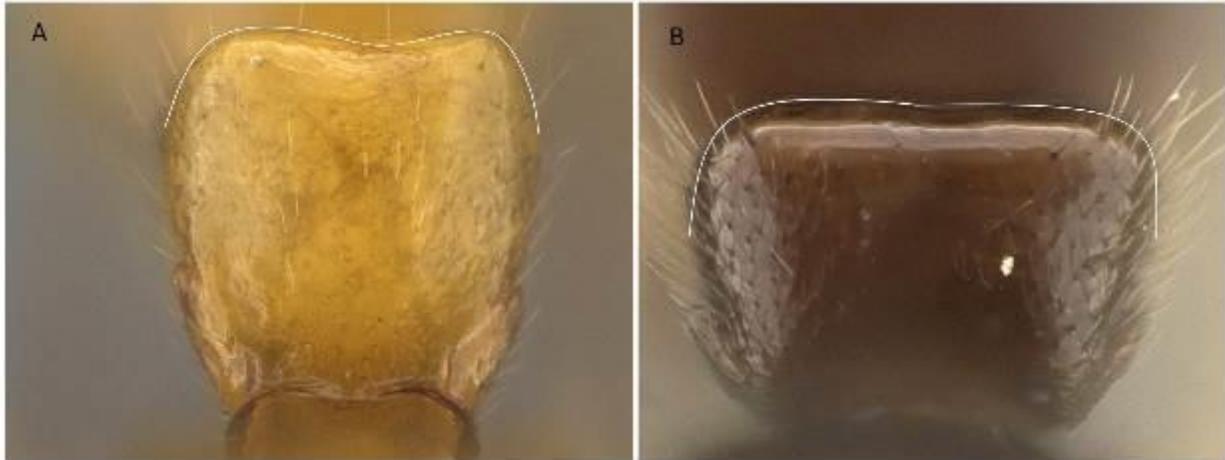
1673
1674 **Figure 61.** Hind wing. **A** *Odontomachus coquereli* (CASENT0740610) **B** *Leptogenys mangabe* (CASENT0496777).
1675 Photographers Isabella Muratore (61A) April Nobile (61B).
1676

- 1677 5 Notauli present on mesoscutum (Fig. 62A)6
1678 – Notauli absent on mesoscutum (Fig. 62B)8



1679
1680 **Figure 62.** Notauli on mesoscutum. **A** *Anochetus goodmani* (CASENT0147683). **B** *Bothroponera wasmannii*
1681 (CASENT0134532). Photographer Dimby Raharinjanahary.
1682

- 1683 6 Mesometapleural suture deep and sculptured, dorsal margin of petiole, in frontal view, usually
1684 showing two apices (Fig. 63A)*Anochetus goodmani*
1685 – Mesometapleural suture deep but not sculptured, dorsolateral corner of petiole in frontal view, not
1686 showing two apices (Fig. 63B)7



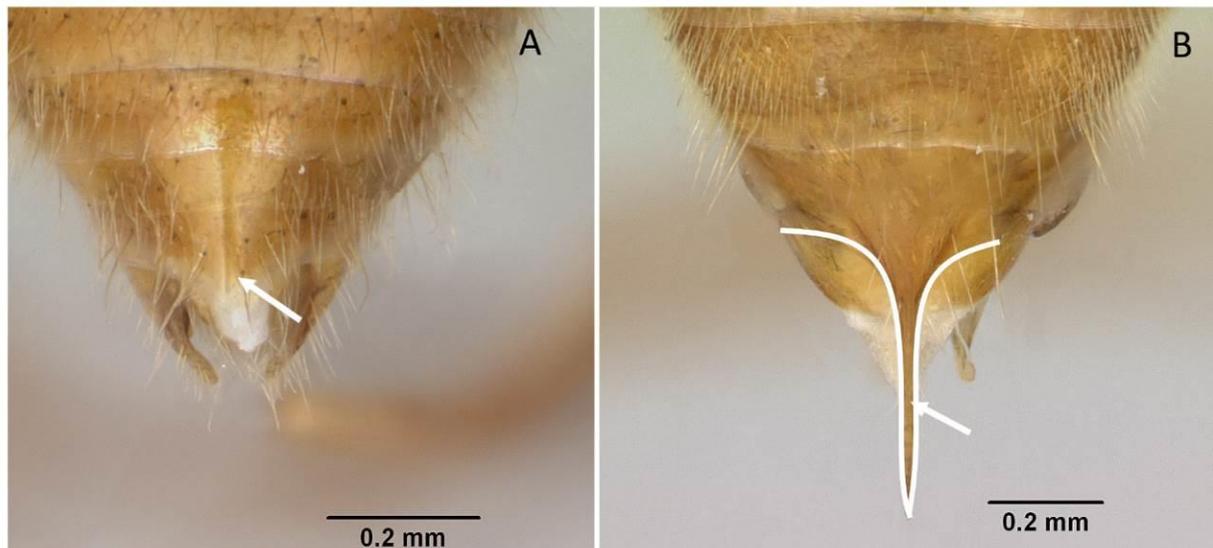
1687
1688 **Figure 63.** Dorsolateral corner of petiole in rear view. **A** *Anochetus goodmani* (CASENT0147683) **B** *Mesoponera ambigua*
1689 (CASENT0108325). Photographer Michele Esposito.

- 1690
1691 7 Subpetiolar process in profile view convexe ventrally (Fig. 64A). Apical portion of abdominal
1692 tergum VIII forming a distinct spine (Fig. 64C)*Mesoponera melanaria macra*
1693 – Subpetiolar process in profile view subtriangular (Fig. 64B). Apical portion of abdominal
1694 tergum VIII not forming a spine (Fig. 64D)*Mesoponera ambigua*
1695



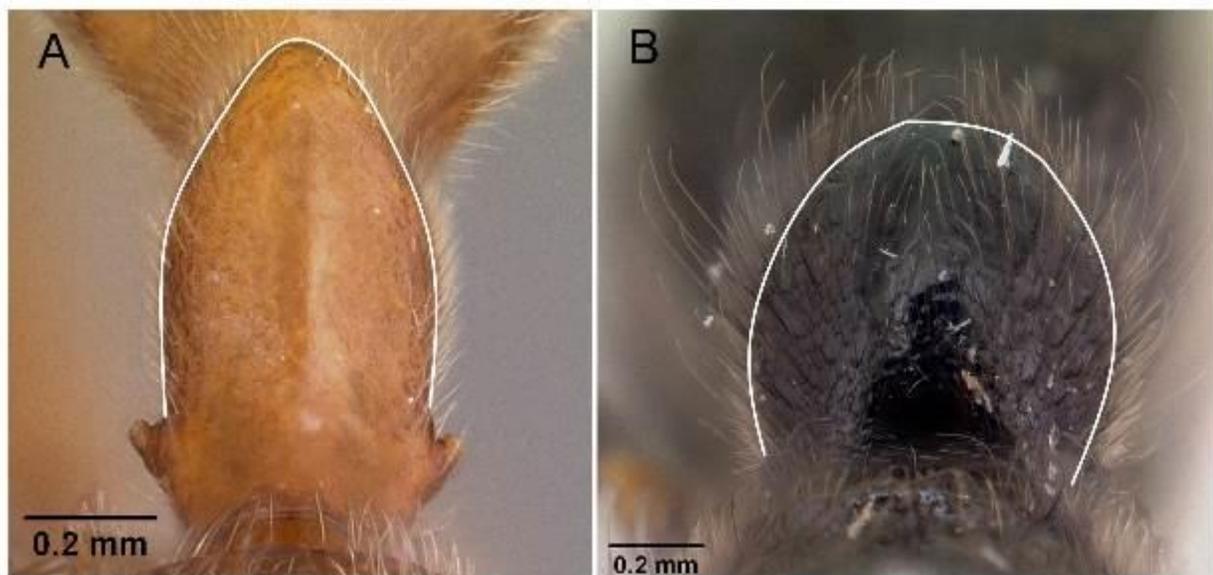
1696
1697 **Figure 64.** Petiole in profile view showing the subpetiolar process; apical portion of abdominal tergum VIII. **A, C** *Mesoponera*
1698 *melanaria macra* (CASENT0272313) **B, D** *Mesoponera ambigua* (CASENT0135592). Photographers Michele Esposito (64A,
1699 64C), Dimby Raharinjanahary (64B, 64D).
1700

- 1701 8 Apical portion of abdominal tergum VIII not forming a spine (Fig. 65A)*Anochetus*
1702 – Apical portion of abdominal tergum VIII forming a distinct spine (Fig. 65B)9



1703
1704 **Figure 65.** Apical portion of abdominal tergum VIII. **A** *Anochetus madagascarensis* (CASENT0442379) **B** *Odontomachus*
1705 *coquereli* (CASENT0049797). Photographer April Nobile.
1706

- 1707 9 Dorsal margin of petiole, in frontal view, with single sharp apex (Fig. 66A)
1708*Odontomachus*
1709 – Dorsal margin of petiole, in frontal view, without single sharp apex (Fig. 66B)10



1710
1711 **Figure 66.** Petiole in front view. **A** *Odontomachus coquereli* (CASENT0049797) **B** *Bothroponera cambouei*
1712 (CASENT0497079). Photographers Masashi Yoshimura (66A), April Nobile (66B).
1713

- 1714 10 In profile view, petiole surmounted by a thick node (Fig. 67A)*Bothroponera*
1715 – In profile view, petiolar node generally scale-like and thin (Fig. 67B)*Brachyponera*

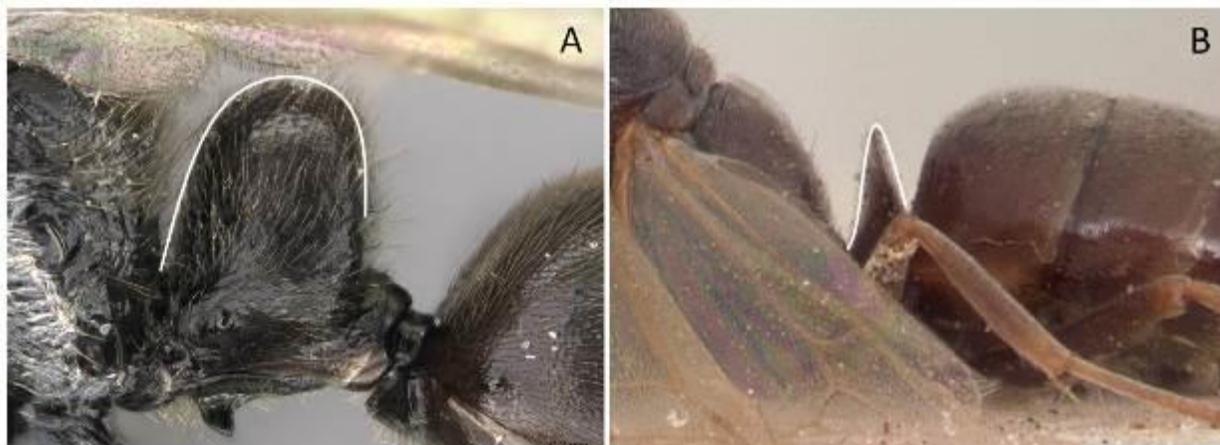


Figure 67. Petiole form. **A** *Bothroponera wasmannii* (CASENT0147642) **B** *Brachyponera sennaarensis* (SAM-HYM-C002312). Photographer Michele Esposito.

1716
1717
1718
1719

- 1720 11 Apical portion of abdominal tergum VIII without downcurved spine (Fig. 68A)
- 1721*Hypoponera*
- 1722 – Apical portion of abdominal tergum VIII with downcurved spine (Fig. 68B)12



Figure 68. Apical portion of abdominal tergum VIII. **A** *Hypoponera mg016* (CASENT0466110) **B** *Euponera vohitravo* (CASENT0740617). Photographer Michele Esposito.

1723
1724
1725
1726

- 1727 12 Ventral apex of meso- and metatibia, when viewed from the front with the femur at right angle to
- 1728 the body, with single spur, the spur large and pectinate (Fig. 69A)*Ponera*
- 1729 – Ventral apex of meso- and metatibia, when viewed from the front with the femur at right angle to
- 1730 the body, with two spur, consisting of a larger, pectinate spur and a smaller, simple spur (Fig. 69B)
- 1731*Euponera*



1732
1733 **Figure 69.** Tibial spur on metatibia. **A** *Hypoponera* mg057 (CASENT0430684) **B** *Euponera* vohitravo (CASENT0740617).
1734 Photographers April Nobile (69A), Michele Esposito (69B).
1735

1736 *Anochetus* Mayr, 1861

1737 All males winged. Antennal scrobe absent. Mandible reduced. Basal cavity of the mandible extending to
1738 its front face, visible in full-face view. Antenna 13. Notauli absent except for *Anochetus goodmani*.
1739 Mesepimeron with epimeral lobe. In most cases, each dorsolateral corner of petiole in anterior view with
1740 distinct projection. Dorsal margin of petiole, in anterior view, usually showing two apices. Apical margin
1741 of abdominal tergum VIII not projecting into sharp spine. Jugal lobe of hind wing present. Mesotibia and
1742 metatibia with two spurs. Claws simple, not multidentate or pectinate. On the forewing, pterostigma well-
1743 developed. Costal vein (C) present. Cross-vein 1m-cu present. Radial sector (Rs) complete between
1744 M+Rs and 2r-rs. Radial sector (Rs) reaches to costal margin. Cross-vein 2r-rs connected with radial sector
1745 posterior to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a located far from junction between
1746 media and cubitus. Media between Rs+M and 2rs-m completely present. On the hindwing, radius (R)
1747 absent. Rs present. Cross-vein 1rs-m absent. Media (M) usually present. M+Cu present. 1rs-m+M absent.
1748 Free section of the cubitus present. Cross-vein cu-a present.

1749 The presence of notauli is known for *Anochetus* in the Asian region, including in Vietnam *Anochetus*
1750 *mixtus*, *Anochetus princeps* and in Indonesia *Anochetus filicornis*, but only the species *goodmani* exhibits
1751 this feature in the Malagasy region.

1752 *Bothroponera* Mayr, 1862

1753 Males winged. Antennal scrobe absent. Mandible reduced in size. Basal cavity of mandible extending to
1754 its front face and visible in full-face view. Antenna consists of 13 segments. Notauli never impressed on

1755 mesoscutum. Mesepimeron with epimeral lobe. Dorsolateral corner of petiole in anterior view not
 1756 projecting. Dorsal margin of petiole, in frontal view, rounded and in profile view, petiole surmounted by a
 1757 thick node. Apical margin of abdominal tergum VIII projecting into sharp spine. Jugal lobe of hind wing
 1758 present. Mesotibia and metatibiae with two spurs. Claws simple, never multidentate or pectinate. On the
 1759 forewing, pterostigma well-developed. Costal vein (C) present. Cross-vein 1m-cu present. Radial sector
 1760 (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs) reaches to costal margin. Cross-vein 2r-
 1761 rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a located
 1762 far from junction between media and cubitus. Media between Rs+M and 2rs-m completely present. On
 1763 the hindwing, radius (R) absent. Rs vestigial. Cross-vein 1rs-m present. Media (M) absent. M+Cu present.
 1764 1rs-m+M present. Free section of the cubitus present. Cross-vein cu-a present.

1765 *Brachyponera* Emery, 1900

1766 Males winged. Antennal scrobe absent. Mandible reduced in size. Basal cavity of mandible extending to
 1767 its front face and visible in full-face view. Antenna consists of 13 segments. Notauli never impressed on
 1768 mesoscutum. Mesepimeron with epimeral lobe. Dorsolateral corner of petiole in anterior view not
 1769 projecting. Dorsal margin of petiole, in frontal view, rounded and in profile view, petiolar node generally
 1770 scale-like and thin. Apical margin of abdominal tergum VIII projecting into sharp spine. Jugal lobe of
 1771 hind wing present. Mesotibia and metatibiae with two spurs. Claws simple, never multidentate or
 1772 pectinate. On the forewing, pterostigma well developed. Costal vein (C) present. Cross-vein 1m-cu
 1773 present. Radial sector (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs) reaches to costal
 1774 margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m present.
 1775 Cross-vein cu-a located closed to junction between media and cubitus. Media between Rs+M and 2rs-m
 1776 completely present. On the hindwing, radius (R) absent. Rs absent. Cross-vein 1rs-m present. Media (M)
 1777 present. M+Cu present. 1rs-m+M present. Free section of the cubitus absent. Cross-vein cu-a present.

1778 *Euponera* Forel, 1891.

1779 Males winged. Antennal scrobe absent. Mandible reduced in size. Basal cavity of mandible extending to
 1780 its front face and visible in full-face view. Antenna consists of 13 segments. Notauli present or absent.
 1781 Mesepimeron with epimeral lobe. Dorsolateral corner of petiole in anterior view not projecting. Dorsal
 1782 margin of petiole, in frontal view, rounded. Apical margin of abdominal tergum VIII projecting into sharp
 1783 spine. Jugal lobe of hind wing absent. Mesotibia and metatibiae with two spurs. Claws simple, never
 1784 multidentate or pectinate. On the forewing, pterostigma well-developed. Costal vein (C) present. Cross-
 1785 vein 1m-cu present. Radial sector (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs)
 1786 reaches to costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-
 1787 vein 2rs-m present. Cross-vein cu-a located close to junction between media and cubitus. Media between
 1788 Rs+M and 2rs-m completely present. On the hindwing, radius (R) absent. Rs absent. Cross-vein 1rs-m
 1789 present. Media (M) present. M+Cu present. 1rs-m+M present. Free section of the cubitus absent. Cross-
 1790 vein cu-a present.

1791 *Hypoconera* Santschi, 1938

1792 Ergatoid males of ponerinae are easily distinguished by having: (1) abdominal segment III as large as
 1793 segment IV; and (2) a distinct constriction between abdominal segments III and IV.

1794 In winged males, antennal scrobe absent. Mandible reduced in size. Basal cavity of mandible extending to
1795 its front face and visible in full-face view. Antenna consists of 13 segments. Notauli never impressed on
1796 mesoscutum. Mesepimeron without epimeral lobe. Dorsolateral corner of petiole in anterior view lacking
1797 distinct projection. Dorsal margin of petiole, in anterior view, without a conical or pointed apex. Apical
1798 margin of abdominal tergum VIII without spine. Jugal lobe of hind wing absent. Mesotibia and metatibia
1799 with single spur. Claws simple, never multidentate or pectinate. On the forewing, pterostigma reduced in
1800 size. Costal vein (C) present. Cross-vein 1m-cu present. Radial sector (Rs) fully complete between M+Rs
1801 and 2r-rs. Radial sector (Rs) reaches to costal margin. Cross-vein 2r-rs connected with radial sector distal
1802 to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a located far from junction between media and
1803 cubitus. Media between Rs+M and 2rs-m completely present. On the hindwing, radius (R) absent. Rs
1804 absent. Cross-vein 1rs-m present. Media (M) present. M+Cu present. 1rs-m+M present. Free section of
1805 the cubitus absent. Cross-vein cu-a present.

1806 *Leptogenys* Roger, 1861

1807 Males winged. Antennal scrobe absent. Mandible reduced in size. Basal cavity of mandible extending to
1808 its front face and visible in full-face view. Antenna with 13 segments. Notauli impressed on mesoscutum
1809 in most species. Mesepimeron with epimeral lobe. Dorsolateral corner of petiole in anterior view without
1810 distinct projections. Dorsal margin of petiole in anterior view gently rounded, not forming a conical or
1811 pointed apex. Apical margin of abdominal tergum VIII occasionally featuring downcurved projection.
1812 Jugal lobe of hindwing absent in most species. Mesotibia and metatibia with two spurs. Pretarsal claw
1813 multidentate to pectinate. On the forewing, pterostigma well-developed. Costal vein (C) present. Cross-
1814 vein 1m-cu present. Radial sector (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs)
1815 reaches to costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-
1816 vein 2rs-m present. Cross-vein cu-a located far from junction between media and cubitus. Media between
1817 Rs+M and 2rs-m completely present. On the hindwing, radius (R) absent. Rs absent. Cross-vein 1rs-m
1818 present. Media (M) present. M+Cu present. 1rs-m+M present. Free section of the cubitus absent. Cross-
1819 vein cu-a present.

1820 *Mesoponera* Emery, 1900

1821 *Mesoponera ambigua* André, 1890. Males winged. Antennal scrobe absent. Mandible reduced in size.
1822 Basal cavity of mandible extending to its front face and visible in full-face view. Antenna consists of 13
1823 segments. Notauli impressed on mesoscutum. Mesepimeron with epimeral lobe. Dorsolateral corner of
1824 petiole in anterior view not projecting. Dorsal margin of petiole, in frontal view, rounded. Subpetiolar
1825 process in profile view subtriangular. Apical portion of abdominal tergum VIII without downcurved
1826 spine. Jugal lobe of hind wing present. Mesotibia and metatibiae with two spurs. Claws simple, never
1827 multidentate or pectinate. On the forewing, pterostigma well developed. Costal vein (C) present. Cross-
1828 vein 1m-cu present. Radial sector (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs)
1829 reaches to costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-
1830 vein 2rs-m present. Cross-vein cu-a located at the junction between media and cubitus. Media between
1831 Rs+M and 2rs-m completely present. On the hindwing, radius (R) absent. Rs present. Cross-vein 1rs-m
1832 present. Media (M) present. M+Cu present. Free section of the cubitus present. Cross-vein cu-a present.

1833 *Mesoponera melanaria macra* Emery, 1894. Males winged. Antennal scrobe absent. Mandible reduced in
1834 size. Basal cavity of mandible extending to its front face and visible in full-face view. Antenna consists of

1835 13 segments. Notauli impressed on mesoscutum. Mesepimeron with epimeral lobe. Dorsolateral corner of
1836 petiole in anterior view not projecting. Dorsal margin of petiole, in frontal view, rounded. Subpetiolar
1837 process in profile view convex ventrally. Apical portion of abdominal tergum VIII with downcurved
1838 spine. Jugal lobe of hind wing present. Mesotibia and metatibiae with two spurs. Claws simple, never
1839 multidentate or pectinate. On the forewing, pterostigma well developed. Costal vein (C) present. Cross-
1840 vein 1m-cu present. Radial sector (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs)
1841 reaches to costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-
1842 vein 2rs-m present. Cross-vein cu-a located far from junction between media and cubitus. Media between
1843 Rs+M and 2rs-m completely present. On the hindwing, radius (R) present. Rs present. Cross-vein 1rs-m
1844 present. Media (M) present. M+Cu present. Free section of the cubitus present. Cross-vein cu-a present.

1845 *Odontomachus* Latreille, 1804.

1846 Males winged. Antennal scrobe absent. Mandible reduced. Basal cavity of mandible extending to its front
1847 face and visible in full-face view. Antenna consists of 13 segments. Notauli never impressed on
1848 mesoscutum. Mesepimeron with epimeral lobe. Dorsolateral corner of petiole in anterior view not
1849 projecting. Dorsal margin of petiole in anterior view more or less conical, with a narrowly rounded or
1850 pointed apex. Apical margin of abdominal tergum VIII projecting into a sharp spine. Jugal lobe of hind
1851 wing present. Mesotibia and metatibia with two spurs. Claws simple, never multidentate to pectinate. On
1852 the forewing, pterostigma well developed. Costal vein (C) present. Cross-vein 1m-cu present. Radial
1853 sector (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs) reaches to costal margin. Cross-
1854 vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a
1855 located far from junction between media and cubitus. Media between Rs+M and 2rs-m completely
1856 present. On the hindwing, radius (R) absent. Rs absent. Cross-vein 1rs-m present. Media (M) present.
1857 M+Cu present. 1rs-m+M present. Free section of the cubitus absent. Cross-vein cu-a present.

1858 *Parvaponera* Schmidt and Shattuck, 2014.

1859 While the male of this species remains unknown worldwide, the analysis of wing venation and
1860 morphological characteristics based on the gyne might be helpful to identify the male of this species in
1861 the future.

1862 Queen: Antenna 13. Mesotibia and metatibia with two spurs. Claws simple, never multidentate to
1863 pectinate. On the forewing (Fig. 70), pterostigma well developed. Costal vein (C) present. Cross-vein 1m-
1864 cu present. Radial sector (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs) reaches to
1865 costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m
1866 present. Cross-vein cu-a located past from junction between media and cubitus. Media between Rs+M
1867 and 2rs-m completely present.



1868
1869 **Figure 70.** Forewing venation in queen caste. *Parvaponera darwini madecassa* (CASENT0410199). Photographer Cerise Chen.
1870

1871 *Platythyrea* Roger, 1863

1872 Males winged. Antennal scrobe distinct. Mandible large, stout, triangular, with many teeth on its
1873 masticatory margin, and masticatory margins completely overlap when mandibles are fully closed. Basal
1874 cavity of mandible invisible in full-face view. Antenna consists of 13 segments. Notauli impressed on
1875 mesoscutum. Mesepimeron with epimeral lobe. Dorsolateral corner of petiole in anterior view lacking
1876 distinct projection. Dorsal margin of petiole, in anterior view, broadly or narrowly rounded. Apical
1877 margin of abdominal tergum VIII does not project strongly into sharp spine. Jugal lobe of hind wing may
1878 or may not be present. Mesotibia and metatibiae with two spurs. Claws simple, never multidentate or
1879 pectinate. Body surface sparsely punctate. On the forewing, pterostigma well-developed. Costal vein (C)
1880 present. Cross-vein 1m-cu present. Radial sector (Rs) fully complete between M+Rs and 2r-rs. Radial
1881 sector (Rs) reaches to costal margin. Cross-vein 2r-rs connected with radial sector posterior to
1882 pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a located close to junction between media and
1883 cubitus. Media between Rs+M and 2rs-m completely present. On the hindwing, radius (R) absent. Rs
1884 absent. Cross-vein 1rs-m present. Media (M) present. M+Cu present. 1rs-m+M present. Free section of
1885 the cubitus absent. Cross-vein cu-a present.

1886 *Ponera* Latreille, 1804

1887 Males winged. Antennal scrobe absent. Mandible reduced in size. Basal cavity of mandible extending to
 1888 its front face, visible in full-face view. Antenna consists of 13 segments. Notauli never impressed on
 1889 mesoscutum. Mesepimeron without epimeral lobe. Dorsolateral corner of petiole in anterior view lacking
 1890 distinct projection. Dorsal margin petiole, in anterior view, without narrowly rounded or pointed apex.
 1891 Apical margin of abdominal tergum VIII strongly projecting into a sharp spine. Jugal lobe of hind wing
 1892 absent. Mesotibia and metatibiae with single spur. Claws simple, never multidentate or pectinate. On the
 1893 forewing, pterostigma well-developed. Costal vein (C) present. Cross-vein 1m-cu present. Radial sector
 1894 (Rs) fully complete between M+Rs and 2r-rs. Radial sector (Rs) reaches to costal margin. Cross-vein 2r-
 1895 rs connected with radial sector posterior to pterostigma. Cross-vein 2rs-m present. Cross-vein cu-a located
 1896 far from junction between media and cubitus. Media between Rs+M and 2rs-m completely present. On
 1897 the hindwing, radius (R) absent. Rs absent. Cross-vein 1rs-m present. Media (M) present. M+Cu present.
 1898 1rs-m+M present. Free section of the cubitus absent. Cross-vein cu-a present.

1899 **PROCERATIINAE Emery, 1895**

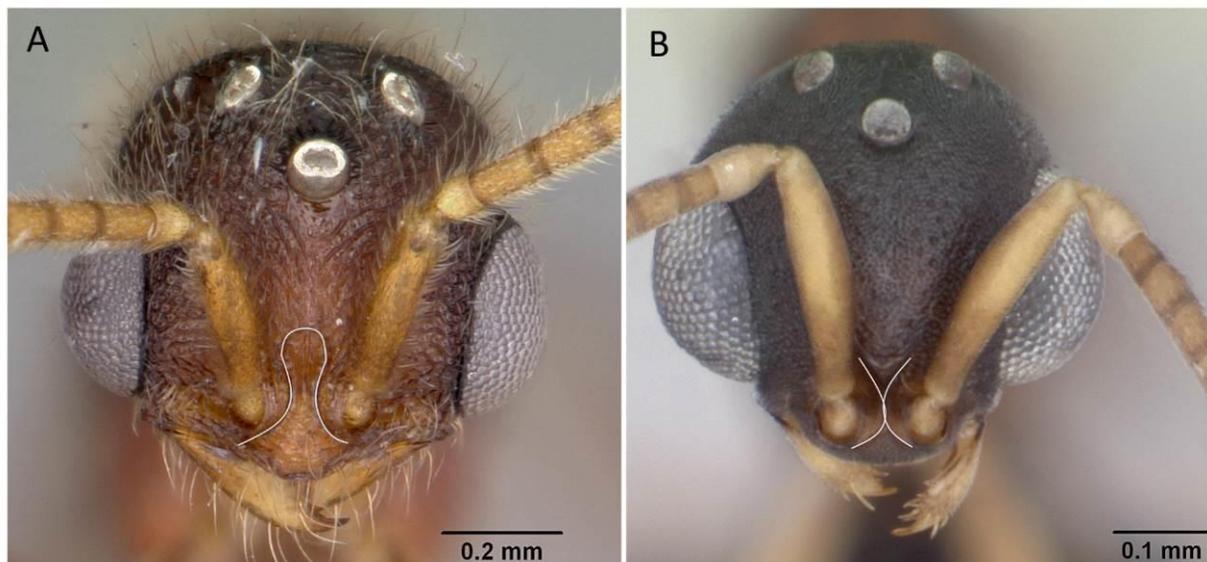
1900 Diagnosis of male ants of the subfamily Proceratiinae in the Malagasy region

- 1901 – Antenna filiform, consisting of 13 segments.
- 1902 – Scape not reaching posterior margin of head.
- 1903 – Mesopleural oblique furrow reaching pronotum close to pronotal posteroventral margin.
- 1904 – Scuto-scutellar suture usually longitudinally sculptured.
- 1905 – Petiole attached to abdominal segment III ventrally, so that dorsal constriction between the two
 1906 segments is distinct and deep.
- 1907 – Abdominal segment II much smaller than segment III in lateral view.
- 1908 – Petiole (abdominal segment II) broadly and dorsally attached to abdominal segment III.
- 1909 – Apical portion of abdominal sternum IX not bi-spinose.
- 1910 – Pygostyles absent or present.
- 1911 – Metatibia with one spur.

1912 Remarks. Our key includes three proceratiinae genera recorded from the Malagasy region. Key modified
 1913 from Yoshimura and Fisher (2009).

1914 **Male-based key to genera of the subfamily Proceratiinae**

- 1915 1 Frontal carinae diverging posteriorly or subparallel, but never merged into single carina (Fig.
 1916 71A). Cubitus (Cu) in hindwing present, rarely reduced but with short branch*Proceratium*
- 1917 – Frontal carinae merged into single median carina between antennal sockets (Fig. 71B). Cubitus
 1918 (Cu) in hindwing absent2

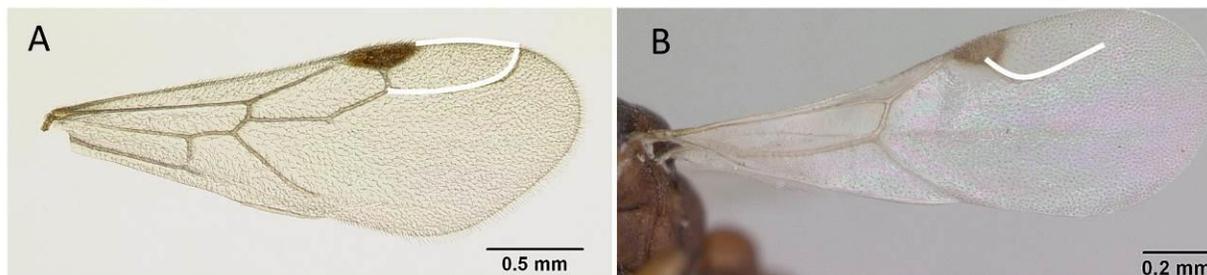


1919
1920 **Figure 71.** Head in full face view showing the frontal carinae. **A** *Proceratium* mgm09 (CASENT0081854) **B** *Probolomyrmex*
1921 mgm01 (CASENT0080551). Photographer April Nobile.
1922

1923 2 Stigmal vein absent: radial sector (Rs) fully present in forewing, joining radius (R) at apical costal
1924 margin (Fig. 72A). Pygostyles present*Discothyrea*

1925 – Stigmal vein present: radial sector (Rs) absent in medial section of forewing and not reaching
1926 costal margin; radius (R) absent on the costal margin (Fig. 72B). Pygostyles absent

1927*Probolomyrmex*



1928
1929 **Figure 72.** Forewing venation. **A** *Discothyrea* mgm01 (CASENT0083649). **B** *Probolomyrmex curculiformis*
1930 (CASENT0050214). Photographers Erin Prado (72A), April Nobile (72B).
1931

1932 *Discothyrea* Roger, 1863

1933 Mandible smaller than in conspecific worker, but also triangular to subtriangular. Frontoclypeal region
1934 projecting dorsally. Frontal carinae merged into a single median carina. Antennal sockets opening
1935 posteriorly. Antenna consists of 13 segments. Labrum bilobed apically. Second segment of the maxillary
1936 palp not hammer-shaped. Pro-, meso-, and metatibia with a single spur. Pygostyles present. On the
1937 forewing, pterostigma well-developed. Costal vein (C) present. Cross-vein 1m-cu absent. Radial sector
1938 (Rs) fused to M+Rs. Radial sector (Rs) reaches to costal margin. Cross-vein 2r-rs connected with radial
1939 sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein cu-a located far from junction
1940 between media and cubitus. media between Rs+M and 2rs-m completely absent. On the hindwing, radius

1941 (R) absent. Rs present. Cross-vein 1rs-m absent. Media (M) absent. M+Cu absent. 1rs-m+M absent. Free
1942 section of the cubitus absent. Cross-vein cu-a absent.

1943 *Probolomyrmex* Mayr, 1901

1944 Mandible smaller than in conspecific worker, but also triangular to subtriangular. Frontoclypeal region
1945 projecting dorsally. Frontal carinae merged into single median carina. Antennal socket opening
1946 posteriorly. Antenna consists of 13 segments. Labrum bilobed apically. Second segment of maxillary palp
1947 hammer-shaped. Pro-, meso-, and metatibia with a single spur. Pygostyles absent. On the forewing,
1948 pterostigma well-developed. Costal vein (C) present. Cross-vein 1m-cu absent. Radial sector (Rs) absent
1949 between M+Rs and 2r-rs. Radial sector (Rs) fails to reach to costal margin. Cross-vein 2r-rs present,
1950 forming base of 'free stigma vein. Cross-vein 2rs-m absent. Cross-vein cu-a located far from junction
1951 between media and cubitus. Media between Rs+M and 2rs-m completely absent. On the hindwing, radius
1952 (R) absent. Rs present. Cross-vein 1rs-m absent. Media (M) absent. M+Cu absent. 1rs-m+M absent. Free
1953 section of the cubitus absent. Cross-vein cu-a absent.

1954 *Proceratium* Roger, 1863

1955 Mandible smaller than in conspecific worker, but also triangular to subtriangular. Frontoclypeal region
1956 not projecting dorsally. Frontal carinae separated, not merged into single median carina. Antennal sockets
1957 opening dorsally. Antenna consists of 13 segments. Labrum bilobed apically. Second segment of the
1958 maxillary palp hammer-shaped. Pro-, meso-, and metatibia with a single spur. Pygostyles absent. On the
1959 forewing, pterostigma well-developed. Costal vein (C) present. Cross-vein 1m-cu absent. Radial sector
1960 (Rs) absent between M+Rs and 2r-rs. Radial sector (Rs) fails to reach to costal margin. Cross-vein 2r-rs
1961 connected with radial sector posterior to pterostigma. Cross-vein 2rs-m absent. Cross-vein cu-a located
1962 far from junction between media and cubitus. Media between Rs+M and 2rs-m completely present. On
1963 the hindwing, radius (R) absent. Rs present. Cross-vein 1rs-m present. Media (M) usually present. M+Cu
1964 present. 1rs-m+M present. Free section of the cubitus present. Cross-vein cu-a present.

1965 **PSEUDOMYRMICINAE Smith, 1952**

1966 Diagnosis of male ants of the subfamily Pseudomyrmicinae in the Malagasy region

- 1967 – Antenna filiform, consisting of 12 segments.
- 1968 – Abdominal segment II nearly as large as segment III in lateral view.
- 1969 – Mesopleural oblique furrow reaching pronotum far away from pronotal posteroventral margin.
- 1970 – Apical portion of abdominal sternum IX not bi-spinose.
- 1971 – Pygostyles present.
- 1972 – Protibia with one spur.
- 1973 – Mesotibia with two spur.
- 1974 – Metatibia with two spurs.

1975 Mandible triangular and distinctly dentate. Masticatory margin with 2–6 teeth. Anterior margin of clypeus
1976 straight to broadly convex, rarely emarginate. Palp formula 6,4. Antennal scrobe absent. Antenna consists
1977 of 12 segments. First funicular segment short and globular. Eyes large, located at or in front of the
1978 midlength of the sides. Ocelli conspicuous. Occipital carina sharp but not forming a raised crest.

1979 Promesonotal suture visible in profile or dorsally. Notauli absent. Protibia with pectinate tibial spur.
1980 Meso- and metatibiae with two tibial spurs. Aroliae small. Propodeum usually unarmed and rounded.
1981 Propodeal spiracle rounded. Abdominal segment III narrowly attaches to abdominal segment IV.
1982 Paramere large. Pygostyle present. On the forewing, pterostigma well-developed but not pigmented.
1983 Costal vein (C) absent. Media (M) fused with Rs+M. Media (M) never reaching costal margin. Radial
1984 sector (Rs) reaches costal margin. Cross-vein 2r-rs connected with radial sector posterior to pterostigma.
1985 Cross-vein 2rs-m absent. Cross-vein 1m-cu present. Fusion of Rs+M extended distally, so that 1m-cu
1986 arises from Rs+M, not from M. R present. Cu-a located far from junction between media and cubitus. Cu
1987 present. Free section of the cubitus present. On the hindwing, radius (R) absent. Rs present. Cross-vein
1988 1rs-m present. Media (M) vestigial. M+Cu absent. 1rs-m+M vestigial. Free section of the cubitus absent.
1989 Cross-vein cu-a absent.

1990

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- 2040
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2047 **Figure caption**

2048

2049 **Figure 1.** Black light. Photographer Brian Fisher

2050 **Figure 2.** Yellow pan and Malaise trap. Photographer Brian Fisher

2051 **Figure 3.** Portion of abdominal sternum IX. **A** *Lioponera* indet (CASENT0001042) **B** *Technomyrmex*
2052 mg08 (CASENT0049527). Photographer Masashi Yoshimura.

2053 **Figure 4.** Abdominal segment II and III in lateral view. **A** *Tetraponera longula* (CASENT0138661) **B**
2054 *Probolomyrmex curculiformis* (CASENT0050214). Photographers Dimby Raharinjanahary (4A), April
2055 Nobile (4B).

2056 **Figure 5.** Metatibial spur. **A** *Tetraponera* psw094 (CASENT0053316) **B** *Aphaenogaster swammerdami*
2057 (CASENT0000990). Photographers April Nobile (5A), Masashi Yoshimura (5B).

2058 **Figure 6.** Gaster in dorsal view, the cinctus at abdominal segment IV level. **A** *Euponera sikorae*
2059 (CASENT0065480) **B** *Technomyrmex albipes* (CASENT0055727). Photographer Michele Esposito.

2060 **Figure 7.** Hindwings of male ants. **A** *Discothyrea* mgm01 (CASENT0083649) **B** *Odontomachus*
2061 *coquereli* (CASENT0049797). Mesosoma in lateral view, showing the oblique mesopleural furrow **C**
2062 *Proceratium* dr01 (CASENT0145100) **D** *Acropyga goeldii* (CASENT0903184). Photographers Erin
2063 Prado (7A, 7B), Dimby Raharinjanahary (7C), Z. Lieberman (7D).

2064 **Figure 8.** Attachment of petiole (abdominal segment II) to abdominal segment III. **A** *Stigmatomma*
2065 mgm04 (CASENT0063981) **B** *Bothroponera perroti* (CASENT0135783). Photographers Erin Prado
2066 (8A), Dimby Raharinjanahary (8B).

2067 **Figure 9.** Mandible in full face view. **A** *Technomyrmex albipes* (CASENT0055727) **B** *Anoplolepis*
2068 *gracilipes* (CASENT0158950). Photographers April Nobile (9A), Michele Esposito (9B).

2069 **Figure 10.** Tibial spur on metatibia. **A** *Prionopelta subtilis* (CASENT0049809) **B** *Mystrium* mirror
2070 (CASENT0492154). Photographer Masashi Yoshimura.

2071 **Figure 11.** Venation of forewing. **A** *Adetomyrma* mgm01 (CASENT0218013) **B** *Stigmatomma* mg01
2072 (CASENT0083104). Photographer Masashi Yoshimura.

2073 **Figure 12.** Posterior portion of the abdomen in oblique view. **A** *Stigmatomma* mgm01
2074 (CASENT0007139) **B** *Xymmer* drm01 (CASENT0135825). Photographers April Nobile (10A), Dimby
2075 Raharinjanahary (10B).

2076 **Figure 13.** Venation of forewing. **A** *Mystrium barrybressleri* (CASENT0078803) **B** *Xymmer* mgm04
2077 (CASENT0113147). Photographer Masashi Yoshimura.

2078 **Figure 14.** Mandible in full face view. **A** *Technomyrmex difficilis* (CASENT0049968) **B** *Ravavy miafina*
2079 (CASENT0474633). Photographer April Nobile.

- 2080 **Figure 15.** Apical portion of abdominal sternum IX **A** *Technomyrmex* mg08 (CASENT0049527) **B**
2081 *Tapinoma* mg07 (CASENT0137327). Photographers Masashi Yoshimura (15A), Erin Prado (15B).
- 2082 **Figure 16.** Head in full face view showing the comparison of the scape length. **A** *Aptinoma mangabe*
2083 (CASENT0173594). **B** *Tapinoma* mg12 (CASENT0115678). Photographer April Nobile.
- 2084 **Figure 17.** Mandible. **A** *Ravavy miafina* (CASENT0179530). **B** *Ochetellus glaber* (CASENT0179489).
2085 Photographer Masashi Yoshimura.
- 2086 **Figure 18.** Maxillary palps. **A** *Tanipone zona* (CASENT0168822) **B** *Lividopone* mg10
2087 (CASENT0027622). Photographer Michele Esposito.
- 2088 **Figure 19.** Forewing showing the cross vein 2rs-m. **A** *Chrysapace sauteri* (CASENT0179567) **B**
2089 *Eburopone* dr03 (CASENT0138666). Photographer Erin Prado (19A) Michele Esposito (19B).
- 2090 **Figure 20.** Tibial spurs on the middle leg. **A** *Simopone silens* (CASENT0740895) **B** *Lividopone* mg10
2091 (CASENT0496142). Photographer Michele Esposito.
- 2092 **Figure 21.** Forewing in lateral view showing the costal vein (C). **A** *Eburopone* dr03 (CASENT0138666)
2093 **B** *Lioponera* mg06 (CASENT0138558). Photographer Michele Esposito.
- 2094 **Figure 22.** Abdominal segment II and III in lateral view showing the helcium circumference. **A**
2095 *Lividopone* dr02 (CASENT0135633) **B** *Eburopone* dr03 (CASENT0138666). Photographer Michele
2096 Esposito.
- 2097 **Figure 23.** Forewing showing the Rs vein. **A** *Lioponera* dr02 (CASENT0144823) **B** *Parasyscia*
2098 *imerinensis* (CASENT0117837). Photographer Michele Esposito.
- 2099 **Figure 24.** Maxillary palp **A** *Brachymyrmex cordemoyi* (CASENT0740909) **B** *Tapinolepis*
2100 mg01(CASENT0763590). Photographer Veronica M. Sinotte.
- 2101 **Figure 25.** Mandible, showing the number of teeth on the masticatory margin of mandible **A** *Anoplolepis*
2102 *gracilipes* (CASENT0158950) **B** *Nylanderia amblyops* (CASENT0740913). Photographer Veronica M.
2103 Sinotte.
- 2104 **Figure 26.** Body in lateral view, showing the comparaisn between flagellum and mesosoma length. **A**
2105 *Tapinolepis* mg01 (CASENT0763590) **B** *Plagiolepis* mg02 (CASENT0179486). Photographers
2106 Veronica M. Sinotte (26A), Erin Prado (26B).
- 2107 **Figure 27.** Head in lateral view, showing the size of the malar space **A** *Lepisiota capensis*
2108 (CASENT0861517) **B** *Plagiolepis alluaudi* (CASENT0495472). Photographers Michele Esposito (27A),
2109 Erin Prado (27B).
- 2110 **Figure 28.** Head in full-face view, showing the setae disposition of the frons **A** *Camponotus alamaina*
2111 (CASENT0481800) **B** *Nylanderia amblyops* (CASENT0066704). Photographers Erin Prado (28A),
2112 Michele Esposito (28B).

- 2113 **Figure 29.** In full-face view, scape **A** *Nylanderia jsl-galo* (CASENT0370667) **B** *Paratrechina*
2114 *longicornis* (CASENT0137341). Photographers Michele Esposito (29A), April Nobile (29B).
- 2115 **Figure 30.** Antennae in lateral view showing the comparison between the length of the pedicel and first
2116 basal funiculus. **A** *Nylanderia bourbonica* (CASENT0160276) **B** *Paratrechina ankarana*
2117 (CASENT0701215). Photographer Michele Esposito.
- 2118 **Figure 31.** Head in full face view, showing the comparison of scape and head length. **A**
2119 *Parapatrechina glabra* (CASENT0497708) **B** *Paratrechina longicornis* (CASENT0244951).
2120 Photographers April Nobile (31A), Michele Esposito (31B).
- 2121 **Figure 32.** In profile view showing occipital carina **A, C** *Aphaenogaster bressleri* (CASENT0495103). In
2122 dorsal view from mesoscutellum **B, D** *Cyphomyrmex minutus* (CASENT0264488). Photographers April
2123 Nobile (32A, 32C), Michele Esposito (32B, 32D)
- 2124 **Figure 33.** Head in profile view **A** *Strumigenys chilo* (CASENT0145240) **B** *Tetramorium silvicola*
2125 (CASENT0494732). Photographers Dimby Raharinjanahary (33A), Erin Prado (33B).
- 2126 **Figure 34.** Scape length in profile view **A** *Cyphomyrmex minutus* (CASENT0264488) **B** *Eurhopalothrix*
2127 km01 (CASENT0146071). Photographers Michele Esposito (34A), Erin Prado (34B).
- 2128 **Figure 35.** Forewing in lateral view showing the radial sector **A** *Eurhopalothrix* km01
2129 (CASENT0146071) **B** *Strumigenys dicomas* (CASENT0135118). Photographer Erin Prado
- 2130 **Figure 36.** Forewing in lateral view showing the cross vein 2rs-m. **A** *Pheidole mgs006*
2131 (CASENT0135889) **B** *Carebara drm03* (CASENT0143975). Photographer Dimby Raharinjanahary.
- 2132 **Figure 37.** Mandible in full face view. **A** *Pilotrochus besmerus* (CASENT0083498) **B** *Malagidris sofina*
2133 (CASENT0906626). Photographers Michele Esposito (37A), Estella Ortega (37B).
- 2134 **Figure 38.** Head and mesosoma in profile view. **A** *Monomorium termitobium* (CASENT0460162) **B**
2135 *Meranoplus mayri* (CASENT0062813) **C** *Crematogaster hazolava* (CASENT0317643). Photographers
2136 Dimby Raharinjanahary (38A), April Nobile (38B), Estella Ortega (38C).
- 2137 **Figure 39.** Head in full-face view showing the pedicel, mandible, postero-median margin of clypeus. **A**
2138 *Erromyrmex latinodis* (CASENT0788835) **B** *Syllophopsis modesta* (CASENT0143818). Photographers
2139 Michele Esposito (39A), Dimby Raharinjanahary (39B).
- 2140 **Figure 40.** Forewing, petiole and post petiole in lateral view showing the 1m-cu cross-vein and the
2141 peduncular length. **A, C** *Syllophopsis modesta* (CASENT0135642) **B** *Monomorium termitobium*
2142 (CASENT0135673) **D** *Monomorium termitobium* (CASENT0135952). Photographer Dimby
2143 Raharinjanahary.
- 2144 **Figure 41.** Head in full-face view showing the form of the mandible and scape length. **A** *Monomorium*
2145 *exiguum* (CASENT0209350) **B** *Adelomyrmex* sc01 (CASENT0160764). Photographers Dimby
2146 Raharinjanahary (41A), Michele Esposito (41B).

- 2147 **Figure 42.** Head in lateral view showing the position of the antennal scrobe. **A** *Cataulacus oberthueri*
2148 (CASENT0435930) **B** *Metapone emersoni* (CASENT0113799). Photographers April Nobile (42A),
2149 Michele Esposito (42B).
- 2150 **Figure 43.** Protibia in ventral view. **A** *Melissotarsus insularis* (CASENT0804569) **B** *Terataner fhg22*
2151 (CASENT0429745). Photographer Michele Esposito.
- 2152 **Figure 44.** Mesosoma in lateral view showing the position of mesonotal suture relative to the point of the
2153 wing process. **A** *Terataner alluaudi* (CASENT0496102) **B** *Malagidris dulcis* (CASENT0135071).
2154 Photographers Erin Prado (44A), Estella Ortega (44B).
- 2155 **Figure 45.** Abdominal segment III attaches to abdominal segment IV. **A** *Crematogaster maina*
2156 (CASENT0132785) **B** *Pilotrochus besmerus* (CASENT0083498). **C** *Crematogaster agnetis*
2157 (CASENT0101760) **D** *Carebara jajoby* (CASENT0494540). Photographers Estella Ortega (45A), April
2158 Nobile (45B-45D).
- 2159 **Figure 46.** Abdominal segment II and III in lateral view showing the peduncular length. **A**
2160 *Eutetramorium mocquerysi* (CASENT0495192) **B** *Meranoplus mayri* (CASENT0062813). Photographer
2161 April Nobile.
- 2162 **Figure 47.** Antennae in lateral view showing the first basal flagellar length. **A** *Tetramorium mars*
2163 (CASENT0134555) **B** *Pilotrochus besmerus* (CASENT0057183). Photographers Dimby Raharinjanahary
2164 (47A), Michele Esposito (47B).
- 2165 **Figure 48.** Promesonotum in dorsal view **A** *Tetramorium kelleri* (CASENT0133425). **B** *Dicroaspis* indet
2166 (CASENT0389458). Photographers Erin Prado (48A), Michele Esposito (48B).
- 2167 **Figure 49.** Head in full-face view, showing occipital carina **A** *Malagidris alperti* (CASENT0248385) **B**
2168 *Calyptomyrmex* km01 (CASENT0136409). Photographers Michele Esposito (49A), April Nobile (49B).
- 2169 **Figure 50.** Head in full-face view showing antennal scrobe. **A** *Metapone emersoni* (CASENT0113799) **B**
2170 *Nesomyrmex angulatus* (CASENT0147245). Photographers Michele Esposito (50A), Erin Prado (50B).
- 2171 **Figure 51.** Mesopropodeum in lateral view. **A** *Calyptomyrmex* km01 (CASENT0136409) **B**
2172 *Pristomyrmex bispinosus* (CASENT0055726). Photographer April Nobile .
- 2173 **Figure 52.** Propodeal spines in lateral view. **A** *Cardiocondyla emeryi* (CASENT0082706) **B** *Vollenhovia*
2174 *piroskae* (CASENT0101658). Photographers Michele Esposito (52A), April Nobile (52B).
- 2175 **Figure 53.** Forewing showing Rs reaching the costal margin. **A** *Carebara drm03* (CASENT0143975) **B**
2176 *Monomorium exiguum* (CASENT0135614). Photographer Dimby Raharinjanahary.
- 2177 **Figure 54.** Abdomen in lateral view showing the attachment of abdominal segment III. **A** *Carebara*
2178 *jajoby* (CASENT0494540) **B** *Nesomyrmex hafahafa* (CASENT0053313). Photographer April Nobile.

- 2179 **Figure 55.** Mandible in full-face view. **A** *Meranoplus mayri* (CASENT0062813) **B** *Nesomyrmex*
2180 *tamatavensis* (CASENT0496295). Photographers April Nobile (55A), Erin Prado (55B).
- 2181 **Figure 56.** Mandible in full-face view. **A** *Vollenhovia piroskae* (CASENT0159914). **B** *Monomorium*
2182 *madecassum* (CASENT0209350). Photographer Michele Esposito.
- 2183 **Figure 57.** Promesonotum in dorsal view. **A** *Trichomyrmex destructor* (CASENT0787666) **B** *Royidris*
2184 *notorthotenes* (CASENT0002249) Photographers Michele Esposito (57A). April Nobile (57B).
- 2185 **Figure 58.** Mandible in full-face view and forewing in profile view **A, C** *Vitsika crebra*
2186 (CASENT0050262) **B, D** *Royidris peregrina* (CASENT0206165). Photographers April Nobile (58A,
2187 58C), Estella Ortega (58B, 58D).
- 2188 **Figure 59.** Mandible in full-face view. **A** *Platythyrea arthuri* (CASENT0442287) **B** *Mesoponera*
2189 *ambigua* (CASENT0052325). Photographer April Nobile.
- 2190 **Figure 60.** Pretarsal claw. **A** *Leptogenys mangabe* (CASENT0496777) **B** *Bothroponera cambouei*
2191 (CASENT0497079). Photographer April Nobile.
- 2192 **Figure 61.** Hind wing. **A** *Odontomachus coquereli* (CASENT0740610) **B** *Leptogenys mangabe*
2193 (CASENT0496777). Photographers Isabella Muratore (61A) April Nobile (61B).
- 2194 **Figure 62.** Notauli on mesoscutum. **A** *Anochetus goodmani* (CASENT0147683). **B** *Bothroponera*
2195 *wasmannii* (CASENT0134532). Photographer Dimby Raharinjanahary.
- 2196 **Figure 63.** Dorsolateral corner of petiole in rear view. **A** *Anochetus goodmani* (CASENT0147683) **B**
2197 *Mesoponera ambigua* (CASENT0108325). Photographer Michele Esposito.
- 2198 **Figure 64.** Petiole in profile view showing the subpetiolar process; apical portion of abdominal tergum
2199 VIII. **A, C** *Mesoponera melanaria macra* (CASENT0272313) **B, D** *Mesoponera ambigua*
2200 (CASENT0135592). Photographers Michele Esposito (64A, 64C), Dimby Raharinjanahary (64B, 64D).
- 2201 **Figure 65.** Apical portion of abdominal tergum VIII. **A** *Anochetus madagascarensis* (CASENT0442379)
2202 **B** *Odontomachus coquereli* (CASENT0049797). Photographer April Nobile.
- 2203 **Figure 66.** Petiole in front view. **A** *Odontomachus coquereli* (CASENT0049797) **B** *Bothroponera*
2204 *cambouei* (CASENT0497079). Photographers Masashi Yoshimura (66A), April Nobile (66B).
- 2205 **Figure 67.** Petiole form. **A** *Bothroponera wasmannii* (CASENT0147642) **B** *Brachyponera sennaarensis*
2206 (SAM-HYM-C002312). Photographer Michele Esposito.
- 2207 **Figure 68.** Apical portion of abdominal tergum VIII. **A** *Hypoconera mg016* (CASENT0466110) **B**
2208 *Euponera vohitravo* (CASENT0740617). Photographer Michele Esposito.
- 2209 **Figure 69.** Tibial spur on metatibia. **A** *Hypoconera mg057* (CASENT0430684) **B** *Euponera vohitravo*
2210 (CASENT0740617). Photographers April Nobile (69A), Michele Esposito (69B).

2211 **Figure 70.** Forewing venation in queen caste. *Parvaponera darwinii madecassa* (CASENT0410199).
2212 Photographer Cerise Chen.

2213 **Figure 71.** Head in full face view showing the frontal carinae. **A** *Proceratium* mgm09
2214 (CASENT0081854) **B** *Probolomyrmex* mgm01 (CASENT0080551). Photographer April Nobile.

2215 **Figure 72.** Forewing venation **A** *Discothyrea* mgm01 (CASENT0083649). **B** *Probolomyrmex*
2216 *curculiformis* (CASENT0050214). Photographers Erin Prado (72A), April Nobile (72B).