

A Guide to the Ants of Western Australia. Part I: Systematics

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ABSTRACT – This volume, comprising two parts, continues the review of the Ants of Western Australia which commenced with ‘A Guide to the Ants of South-western Australia’ by the author (2009). Here, however, coverage of the entire state is attempted. All named species recorded for the state in the major Australian repositories are included, as well as unnamed species listed on the World Wide Web. The author has also inspected accessional and type specimens in the Australian National Insect Collection (ANIC), Canberra, ACT, and accessional material in the Tropical Ecosystems Research Centre (TERC), Darwin, NT, in a further effort at comprehensiveness. In this work, the author recognises 11 subfamilies, 76 confirmed genera and at least 832 species (including 200 to which a name cannot be given). Three species (*Rhytidoponera castanea* Crawley, *R. quadriceps* Clark, and *Melophorus marius* Forel), are resurrected from synonymy, three nominal subspecies (*Camponotus claripes inverallensis* Forel, *Crematogaster laeviceps clarior* Forel and *Crematogaster queenslandica bipartita* Forel) are raised to species status and 32 taxa (21 species and 11 subspecies) are reduced to synonymy as follows: *Rhytidoponera rufonigra* Clark under *R. punctata* (F. Smith); *Rhytidoponera carinata* Clark under *R. castanea* Crawley; *Camponotus walkeri* Forel under *C. claripes* Mayr; *Camponotus churchetti* McArthur under *C. inverallensis* Forel; *Camponotus discors angustinodus* Emery under *C. consector* (F. Smith); *Camponotus christmasensis* McArthur under *C. darlingtoni* Wheeler; *Camponotus minimus* Crawley under *C. insipidus* Forel; *Camponotus samueli* McArthur under *C. scratius* Forel; *Camponotus walkeri bardus* Forel under *C. michaelsoni* Forel; *Camponotus spenceri* Clark and *C. nigroaeneus xuthus* Emery under *C. fieldae* Forel; *Melophorus castanopus* Heterick, Castalanelli & Shattuck under *M. biroi* Forel; *Plagiolepis clarki impasta* Wheeler under *P. clarki* Wheeler; *Prolasius reticulatus* McAreavey under *P. wheeleri* McAreavey; *Stigmacros aciculata* McAreavey, *S. brooksi* McAreavey, *S. clarki* McAreavey, *S. extreminigra* McAreavey, *S. ferruginea* McAreavey, *S. glauerti* McAreavey and *S. sordida* McAreavey under *S. clivispina* (Forel); *Stigmacros armstrongi* McAreavey under *S. occidentalis* (Crawley); *Stigmacros minor* McAreavey under *S. pusilla* McAreavey; *Crematogaster frivola sculpticeps* Forel under *C. frivola* Forel; *Crematogaster laeviceps broomensis* Forel and *C. laeviceps chasei* Forel under *C. laeviceps* F. Smith; *Crematogaster pythia* Forel under *C. clarior* Forel; *Crematogaster dispar* Forel and *C. rufotestacea dentinasis* Santschi under *C. rufotestacea* Mayr; *Pheidole variabilis latigena* Forel under *P. ampla* Forel; *P. ampla perthensis* Crawley and *P. pyriformis* Clark under *P. bos* Forel; *P. proxima bombalensis* Forel under *P. rugosula* Forel and *Pheidole variabilis rugociput* Forel under *P. variabilis* Mayr. The junior synonyms *Monomorium laeve nigrius* Forel and *Monomorium fraterculus* Santschi are removed from synonymy under *M. fieldi* Forel and placed under *M. antipodum* Forel, and *Tetramorium viehmeyeri venustus* Wheeler is removed from synonymy under *T. viehmeyeri* and placed under *T. impressum* (Viehmeyer). *Camponotus scratius nuntius* Forel becomes a species inquirenda. Taxonomic keys to the ant subfamilies, genera and species found in Western Australia are provided, as are several new interpretations of sub-generic categories including those for the large genera *Camponotus*, *Meranoplus* and *Stigmacros*. A list of taxa treated as monophyletic in this volume, but which may contain hidden species complexes, is included as an appendix to this paper.

KEYWORDS: Western Australia, ants, Formicidae, checklist, taxonomic keys, taxonomic notes

INTRODUCTION

This work is intended as a successor to my previous volume *A Guide to the Ants of South-western Australia*, which was published in 2009. This monograph goes beyond its predecessor in attempting to itemise nearly all the ant taxa found in Western Australia and provides not only a key to ant workers but online weblinks to what is known about Western Australian ants. Since the original and more limited publication there has been enormous progress in ant taxonomy and myrmecology generally. Much of the impetus for this progress has been driven by the advent of a highly sophisticated ant database, *AntWeb*, and its companion, *AntWiki*, which incorporate virtually all the information known on the ants of the world. Automontaged photographs of nearly all extant primary types and/or paratypes has resulted in rapid and reliable means of identifying specimens in hand through comparing them with mostly excellent images in three orientations (namely, head, profile and dorsal view) along with original type labels. In addition to types, this database includes other accessional material held in museum and similar institutional repositories around the world. The nomenclatural history at all taxonomic levels is also available, as is most of the taxonomic literature (in .pdf format). There are other digital benefits now available to researchers: e.g. free online translators enable an interested party to readily translate taxonomic texts in most of the commonly used languages.

The advent of such new tools has led to a dramatic increase in our ability to name very many ant taxa found in this state. Prior to *AntWeb*, I assumed that perhaps as much as half of the state's ant fauna was undescribed. Now, I think this highly unlikely. Based on their morphology, only between one in four and one in five WA ants appear to be unnamed. Certainly, integrated taxonomic revisionary work is needed to confirm a number of these identifications. However, while molecular phylogenetic methods may indicate that taxa previously assumed to be single species are in fact species complexes, such research (at least in Australian ants) has often also produced synonymies, with only a small net gain in number of species in the clade being studied. The key in this paper recognises 832 nominal species based on the workers. Appendix 1 indicates existing species that may actually prove to be species complexes on closer examination.

This, the first of two papers, provides a checklist, synonymies, a taxonomic key to workers (and a couple of intercastes in the genus *Lioponera*) and a bibliography. The second paper contains maps

of known distributions of all species mentioned here, and ecological and other data pertaining to WA taxa and a second bibliography. Note: the geographic coverage of the taxa discussed in this and the companion paper (Part II) includes only those ants found on the Western Australian mainland and nearshore islands, and not Australian external territories such as Christmas Island or Cocos Island. The Christmas Island ant fauna has been documented by Framenau and Thomas (2008).

An online definition of terminology used in this paper and also Part II, can be found on AntWiki (https://www.antwiki.org/wiki/Morphological_Terms), which contains definitions of many morphological terms related to ants as well as several helpful diagrams and images.

CHECKLIST OF ANT SPECIES OCCURRING IN WESTERN AUSTRALIA

Species marked with an asterisk (*) cannot be identified to species or are undescribed.

AMBLYOPONINAE

Amblyoponinae is here understood to include just three WA genera. *Prionopelta robynmae* (Shattuck 2008b) supposedly occurs in the south-west of the state, based on a single record from Jarrahdale. The specimen, collected by Tony Postle, is a winged male (now headless) in the ANIC. This author has inspected this specimen. Neither the wing venation nor the setation of the wing agrees with other males from this northern and eastern Australian species, and it is likely the sample is the male of what is here referred to as *Fulakora punctulata*. The latter name and the true identity of the male ant in question need confirmation.

Note: since this monograph went to press, a winged male ant collected in 2007 on Barrow Island has been identified in AntWeb as *Mystrium camillae*. This specimen was formerly determined as '*Amblyopone* sp.'. It is possible that the specimen was transported to Barrow Island from interstate (the species is also found in the NT and QLD) or overseas, but most likely it has come from an existing colony on the Island or the nearby mainland. If the latter is true this would make the ant genus total for the state 77.

Genus *Amblyopone* Erichson 1842

Amblyopone aberrans Wheeler 1927a

Amblyopone australis Erichson 1842

Amblyopone clarki Wheeler 1927a

Amblyopone longidens Forel 1910

Amblyopone michaelsoni Forel 1907b

Genus *Fulakora* Mann 1919*Fulakora punctulata* (Clark 1934b)* *Fulakora* sp. JDM 1020**Genus *Onychomyrmex* Emery 1895***Onychomyrmex glauerti* (Clark 1928a)* *Onychomyrmex* AU04 (ANIC)**DOLICHODERINAE****Genus *Anonychomyrma* Donisthorpe 1947a***Anonychomyrma fornicata* (Emery 1914a)*Anonychomyrma itinerans perthensis* (Forel 1902)*Anonychomyrma nitidiceps* (André 1896)**Genus *Arnoldius* Dubovikoff 2005***Arnoldius flavus* (Crawley 1922b)* *Arnoldius scissor* (Crawley)
(= *Arnoldius* sp. JDM 433?)**Genus *Doleromyrma* Forel 1907a***Doleromyrma darwiniana fida* (Forel 1907b)*Doleromyrma rotnnestensis* (Wheeler 1934)* *Doleromyrma* sp. JDM 1154**Genus *Dolichoderus* Lund 1831*****Dolichoderus australis* species-group***Dolichoderus goudiei* Clark 1930b*Dolichoderus parvus* Clark 1930b***Dolichoderus scabridus* species-group***Dolichoderus angusticornis* Clark 1930b*Dolichoderus niger* Crawley 1922b*Dolichoderus rufotibialis* Clark 1930b*Dolichoderus ypsilon* Forel 1902***Dolichoderus scrobiculatus* species-group***Dolichoderus albamaculus*
Shattuck & Marsden 2013*Dolichoderus clusor* Forel 1907b*Dolichoderus formosus* Clark 1930b*Dolichoderus nigricornis* Clark 1930b*Dolichoderus omicron* Shattuck & Marsden 2013*Dolichoderus reflexus* Clark 1930b*Dolichoderus semiorbis* Shattuck & Marsden 2013**Genus *Froggattella* Forel 1902***Froggattella kirbii* (Lowne 1865b)*Froggattella latispina* Wheeler 1936a**Genus *Iridomyrmex* Mayr 1862***Iridomyrmex agilis* Forel 1907b*Iridomyrmex anceps* (Roger 1863)*Iridomyrmex angusticeps* Forel 1901a*Iridomyrmex anteroinclinus* Shattuck 1993b*Iridomyrmex azureus* Viehmeyer 1914*Iridomyrmex bicknelli* Emery 1898*Iridomyrmex bigi* Shattuck 1993a*Iridomyrmex brennani* Heterick & Shattuck 2011*Iridomyrmex brunneus* Forel 1902*Iridomyrmex calvus* Emery 1914b*Iridomyrmex cappoinclinus* Shattuck 1993b*Iridomyrmex cephaloinclinus* Shattuck 1993b*Iridomyrmex chasei* Forel 1902*Iridomyrmex coeruleus* Heterick & Shattuck 2011*Iridomyrmex conifer* Forel 1902*Iridomyrmex continentis* Forel 1907b*Iridomyrmex cuneiceps* Heterick & Shattuck 2011*Iridomyrmex cyaneus* Wheeler 1915*Iridomyrmex difficilis* Heterick & Shattuck 2011*Iridomyrmex discors* Forel 1902*Iridomyrmex dromus* Clark 1938*Iridomyrmex elongatus* Heterick & Shattuck 2011*Iridomyrmex exsanguis* Forel 1907b*Iridomyrmex gibbus* Heterick & Shattuck 2011*Iridomyrmex hartmeyer* Forel 1907b*Iridomyrmex hertogi* Heterick & Shattuck 2011*Iridomyrmex hesperus* Shattuck 1993b*Iridomyrmex innocens* Forel 1907b*Iridomyrmex lividus* Shattuck 1993a*Iridomyrmex longisoma* Heterick & Shattuck 2011*Iridomyrmex luteoclypeatus*
Heterick & Shattuck 2011*Iridomyrmex macrops* Heterick & Shattuck 2011*Iridomyrmex meridianus* Heterick & Shattuck 2011*Iridomyrmex minor* Forel 1915*Iridomyrmex mirabilis* Heterick & Shattuck 2011*Iridomyrmex mjobergi* Forel 1915*Iridomyrmex nudipes* Heterick & Shattuck 2011*Iridomyrmex omalonotus* Heterick & Shattuck 2011*Iridomyrmex pallidus* Forel 1901a*Iridomyrmex prismatis* Shattuck 1993b*Iridomyrmex purpureus* (F. Smith 1858)*Iridomyrmex reburrus* Shattuck 1993a

Iridomyrmex roseatus Heterick & Shattuck 2011
Iridomyrmex rufoinclinus Shattuck 1993b
Iridomyrmex rufoniger (Lowne 1865a)
Iridomyrmex sanguineus Forel 1910
Iridomyrmex setoconus Shattuck & McMillan 1998
Iridomyrmex splendens Forel 1907b
Iridomyrmex spurcus Wheeler 1915
Iridomyrmex suchieri Forel 1907b
Iridomyrmex suchieroides Heterick & Shattuck 2011
Iridomyrmex tenuiceps Heterick & Shattuck 2011
Iridomyrmex trigonoceps Heterick & Shattuck 2011
Iridomyrmex turbineus Shattuck & McMillan 1998
Iridomyrmex viridiaeneus Viehmeyer 1914
Iridomyrmex xanthocoxa Heterick & Shattuck 2011

Genus *Linepithema* Mayr 1866a

Linepithema humile (Mayr 1868)

Genus *Nebothriomyrmex* Dubovikoff 2004

Nebothriomyrmex majeri Dubovikoff 2004

Genus *Ochetellus* Shattuck 1992

Ochetellus flavipes (Kirby 1896)
Ochetellus glaber (Mayr 1862)
Ochetellus punctatissimus (Emery 1887a)
 * *Ochetellus* sp. JDM 527
 * *Ochetellus* sp. JDM 851

Genus *Papyrius* Shattuck 1992

Papyrius nitidus (Mayr 1862)
 * *Papyrius* sp. JDM 666

Genus *Tapinoma* Foerster 1850

Tapinoma melanocephalum (Fabricius 1793)
Tapinoma minutum broomense Forel 1915
 * *Tapinoma* sp. JDM 981

Genus *Technomyrmex* Mayr 1872

Technomyrmex jocosus Forel 1910

DORYLINAE

Genus *Aenictus* Shuckard 1840

Aenictus acerbus Shattuck 2008c
Aenictus turneri Forel 1900

Genus *Lioponera* Mayr 1879

[*Lioponera angustata* (Clark 1924)]
 — probable ergatoid; possibly of *L. inconspicua*
Lioponera bicolor (Clark 1924)
Lioponera brevicollis (Clark 1924)

Lioponera brevis (Clark 1924)
Lioponera clara (Clark 1930c)
Lioponera clarki (Crawley 1922a)
 [*Lioponera constricta* (Clark 1924)]
 — ergatoid; probably of *L. greavesi*
Lioponera elegans (Wheeler 1918a)
Lioponera fervida (Wheeler 1918a)
Lioponera flammea (Clark 1930c)
Lioponera gilesi (Clark 1924)
Lioponera greavesi (Clark 1934b)
Lioponera inconspicua (Clark 1924)
Lioponera iovis (Forel 1915)
Lioponera longitarsus Mayr 1879
Lioponera mjobergi (Forel 1915)
Lioponera nigriventris (Clark 1924)
Lioponera picipes (Clark 1924)
Lioponera punctatissima (Clark 1924)
Lioponera reticulata (Clark 1926)
Lioponera ruficornis (Clark 1924)
Lioponera simmonsae (Clark 1924)
Lioponera sjostedti (Forel 1915)
Lioponera varians (Clark 1924)
 * *Lioponera* sp. JDM 574
 * *Lioponera* sp. JDM 741
 * *Lioponera* sp. JDM 745
 * *Lioponera* sp. JDM 746
 * *Lioponera* sp. JDM 941
 * *Lioponera* sp. JDM 942
 * *Lioponera* sp. JDM 1087

Genus *Ooceraea* Roger 1862

Ooceraea australis (Forel 1900)

Genus *Zasphinctus* Wheeler 1918a

Zasphinctus duchaussoyi (André 1905)
Zasphinctus emeryi (Forel 1893)
Zasphinctus imbecilis (Forel 1907b)
Zasphinctus occidentalis (Clark 1924)
 * *Zasphinctus* sp. JDM 1262
 * *Zasphinctus* sp. JDM 1263

ECTATOMMINAE

Genus *Heteroponera* Mayr 1887

Heteroponera imbellis (Emery 1895)
Heteroponera majeri Taylor 2011
 * *Heteroponera* sp. JDM 732

Genus *Rhytidoponera* Mayr 1862***Rhytidoponera aciculata* species-group**

- Rhytidoponera flavicornis* Clark 1936
Rhytidoponera foveolata Crawley 1925b
Rhytidoponera levior Crawley 1925b
Rhytidoponera mayri (Emery 1883)
Rhytidoponera micans Clark 1936
Rhytidoponera mirabilis Clark 1936
Rhytidoponera punctata (F. Smith 1858)
 = *R. rufonigra* Clark 1936 syn. nov.
Rhytidoponera punctigera Crawley 1925b
Rhytidoponera quadriceps Clark 1936 stat. rev.
 * *Rhytidoponera micans* complex sp. JDM 986
 * *Rhytidoponera punctata* complex sp. JDM 253
 * *Rhytidoponera* sp. JDM 1022

***Rhytidoponera anceps* species-group**

- Rhytidoponera anceps* Emery 1898
 * *Rhytidoponera anceps* group sp. 44 ANIC

***Rhytidoponera aurata* species-group**

- Rhytidoponera aurata* (Roger 1861)
Rhytidoponera cerastes Crawley 1925b
Rhytidoponera taurus (Forel 1910)

***Rhytidoponera convexa* species-group**

- Rhytidoponera castanea* Crawley 1925b stat. rev.
 = *R. carinata* Clark 1936 syn. nov.
 * *Rhytidoponera convexa* group sp. JDM 1129
 * *Rhytidoponera convexa* group sp. JDM 1366
 * *Rhytidoponera convexa* group sp. JDM 1370
Rhytidoponera violacea (Forel 1907b)

***Rhytidoponera dubia* species-group**

- Rhytidoponera tyloxys* Brown & Douglas 1958
 * *Rhytidoponera dubia* group sp. JDM 904

***Rhytidoponera metallica* species-group**

- Rhytidoponera borealis* Crawley 1918
Rhytidoponera inornata Crawley 1922a
Rhytidoponera metallica (F. Smith 1858)
 * *Rhytidoponera metallica* group sp. JDM 1023
 (*R. flavipes*?)
 * *Rhytidoponera metallica* group sp. JDM 1098

***Rhytidoponera reticulata* species-group**

- Rhytidoponera* cf. *crassinodis* (Forel 1907b)

Rhytidoponera reticulata (Forel 1893)

- * *Rhytidoponera* sp. JDM 576
 * *Rhytidoponera* sp. JDM 1056

***Rhytidoponera tenuis* species-group**

Rhytidoponera tenuis (Forel 1900)

Unplaced

- * *Rhytidoponera* sp. JDM 736 (sp. 26 ANIC)
 * *Rhytidoponera* sp. JDM 985
 * *Rhytidoponera* sp. JDM 1372

FORMICINAE

The genus *Pseudolasius* was reported from the Mitchell Plateau in the Kimberley district by Andersen & Brault 2010. Those specimens (in the TERC Collection) have been inspected by this author and found to be *Nylanderia* sp. JDM 1123. *Pseudolasius* is reliably identified from the NT and QLD, but probably does not occur in WA.

Genus *Acropyga* Roger 1862***Acropyga myops* species-group**

Acropyga myops Forel 1910

***Acropyga pallida* species-group**

Acropyga pallida (Donisthorpe 1938)

Genus *Calomyrmex* Mayr 1861

- Calomyrmex glauerti* Clark 1930a
Calomyrmex purpureus smaragdinus Emery 1898
Calomyrmex splendidus viridiventrtris Forel 1915
 * *Calomyrmex* sp. JDM 751

Genus *Camponotus* Mayr 1861***Camponotus aeneopilosus* species-group**

- Camponotus chalceus* Crawley 1915
Camponotus cinereus amperei Forel 1913
Camponotus hartogi Forel 1902
Camponotus inflatus Lubbock 1880
Camponotus pitjantjatarae McArthur 2003
Camponotus scotti McArthur 2003
 * *Camponotus aeneopilosus* group sp. JDM 430
 * *Camponotus aeneopilosus* group sp. JDM 1031
 * *Camponotus aeneopilosus* group sp. JDM 1108
 * *Camponotus aeneopilosus* group sp. JDM 1374

***Camponotus arcuatus* species-group**

- Camponotus arcuatus aesopus* Forel 1907b
Camponotus cf. *cameratus* Viehmeyer 1925b
 * *Camponotus arcuatus* group sp. JDM 996

Camponotus claripes* species-group**C. claripes* complex**

- Camponotus claripes* Mayr 1876
 = *C. walkeri* Forel 1893 syn. nov.
Camponotus inverallensis Forel 1910 stat. nov.
 = *C. churchetti* McArthur 2008 syn. nov.
Camponotus elegans Forel 1902
Camponotus marcens Forel 1907b
Camponotus peseshus Bolton 1995
 * *Camponotus claripes* complex sp. JDM 63
 * *Camponotus claripes* complex sp. JDM 288
 * *Camponotus claripes* complex sp. JDM 767
 * *Camponotus claripes* complex sp. JDM 779
 * *Camponotus claripes* complex sp. JDM 939
 * *Camponotus claripes* complex sp. JDM 1345

***C. discors* complex**

- Camponotus consecrator* (F. Smith 1858)
 = *C. discors angustinodus* Emery 1925 syn. nov.
Camponotus discors Forel 1902
Camponotus gibbinotus Forel 1902
 * *Camponotus discors* complex sp. JDM 599
 * *Camponotus discors* complex sp. JDM 772
 * *Camponotus discors* complex sp. JDM 1104

***C. claripes* species-group complex A**

- * *Camponotus claripes* group complex A sp. JDM 448
 * *Camponotus claripes* group complex A sp. JDM 1243

***Camponotus ephippium* species-group**

- Camponotus bigenus* Santschi 1919
Camponotus capito Mayr 1876
Camponotus capito ebeninithorax Forel 1915
Camponotus cinereus notterae Forel 1907b
Camponotus dromas Santschi 1919
Camponotus ephippium (F. Smith 1858)
Camponotus ephippium narses Forel 1915
Camponotus fieldellus Forel 1910
Camponotus longifacies McArthur 2003
Camponotus pawseyi McArthur 2003
Camponotus pellax Santschi 1919
Camponotus perjurus Shattuck & McArthur 2002
Camponotus sponsorum Forel 1910
 * *Camponotus ephippium* group sp. JDM 775
 * *Camponotus ephippium* group sp. JDM 777
 * *Camponotus ephippium* group sp. JDM 1280

***Camponotus insipidus* species-group**

- Camponotus darlingtoni* Wheeler 1934
 = *C. christmasensis* McArthur 2008 syn. nov.
Camponotus insipidus Forel 1893
 = *C. minimus* Crawley 1922b syn. nov.
Camponotus scrutius Forel 1907b
 = *C. samueli* McArthur 2008 syn. nov.
 * *Camponotus insipidus* group sp. JDM 1256

***Camponotus intrepidus* species-group**

- Camponotus johnclarki* Taylor 1992
Camponotus molossus Forel 1907b

***Camponotus leae* species-group**

- Camponotus leae* Wheeler 1915
Camponotus whitei Wheeler 1915
 * *Camponotus leae* group sp. JDM 764

***Camponotus michaelsoni* species-group**

- Camponotus michaelsoni* Forel 1907b
 = *C. walkeri bardus* Forel 1910 syn. nov.
Camponotus oetkeri Forel 1910
Camponotus rudis McArthur 2003
Camponotus tristis Clark 1930a
Camponotus tumidus Crawley 1922b
 * *Camponotus michaelsoni* group sp. JDM 229
 * *Camponotus michaelsoni* group sp. JDM 1080

***Camponotus nigriceps* species-group**

- Camponotus clarior* Forel 1902
Camponotus dryandrae McArthur & Adams 1996
Camponotus longideclivis McArthur & Adams 1996
Camponotus nigriceps (F. Smith 1858)
Camponotus prostans Forel 1910

***Camponotus novaehollandiae* species-group**

- Camponotus crozieri* McArthur & Leys 2006
Camponotus extensus Mayr 1876
Camponotus fieldeae Forel 1902
 = *C. nigroaeneus xuthus* Emery 1925 syn. nov.
 = *C. spenceri* Clark 1930c syn. nov.
Camponotus humilior Forel 1902
Camponotus novaehollandiae Mayr 1870

***Camponotus reticulatus* species-group**

- Camponotus andrewsi* Donisthorpe 1936

***Camponotus rubiginosus* species-group**

- Camponotus andyyoungi* McArthur 2008
Camponotus armstrongi McAreavey 1949

- Camponotus evae zeuxis* Forel 1915
Camponotus lownei Forel 1895a
Camponotus macareaveyi Taylor 1992
Camponotus rubiginosus Mayr 1876
Camponotus simpsoni McArthur 2003
Camponotus woodroffeensis McArthur 2008
* *Camponotus rubiginosus* group sp. JDM 296
* *Camponotus rubiginosus* group sp. JDM 695
* *Camponotus rubiginosus* group sp. JDM 771
* *Camponotus rubiginosus* group sp. JDM 1038
* *Camponotus rubiginosus* group sp. JDM 1158
* *Camponotus rubiginosus* group sp. JDM 1219
* *Camponotus rubiginosus* group sp. JDM 1224

***Camponotus subnitidus* species-group**

- Camponotus rufus* Crawley 1925b
Camponotus subnitidus Mayr 1876
Camponotus tricoloratus Clark 1941

***Camponotus wiederkehri* species-group**

- Camponotus arenatus* Shattuck & McArthur 2002
Camponotus aurocinctus (F. Smith 1858)
Camponotus ceriseipes Clark 1938
Camponotus donnellani Shattuck & McArthur 2002
Camponotus gouldianus Forel 1922
Camponotus postcornutus Clark 1930a
Camponotus prosseri Shattuck & McArthur 2002
Camponotus setosus Shattuck & McArthur 2002
Camponotus terebrans (Lowne 1865a)
Camponotus versicolor Clark 1930a
Camponotus wiederkehri Forel 1894b
* *Camponotus ceriseipes* complex sp. JDM 105
* *Camponotus ceriseipes* complex sp. JDM 774
* *Camponotus* cf. *terebrans* (light-coloured morph)
* *Camponotus wiederkehri* group sp. JDM 924
* *Camponotus wiederkehri* group sp. JDM 925

***Camponotus* species-group A**

- * *Camponotus* group A sp. JDM 26

Unplaced

- * *Camponotus* unassigned sp. JDM 693

***Camponotus* species inquirenda**

- Camponotus scratius nuntius* Forel 1907b

Genus *Colobopsis* Mayr 1861

- Colobopsis gasserii* Forel 1894b
* *Colobopsis* sp. JDM 927

Genus *Lepisiota* Santschi 1926

- Lepisiota frauenfeldii* (Mayr 1855)

Genus *Melophorus* Lubbock 1883***Melophorus aeneovirens* species-group*****M. aeneovirens* complex**

- Melophorus aeneovirens* (Lowne 1865a)
Melophorus attenuipes
Heterick, Castalanelli & Shattuck 2017
Melophorus canus
Heterick, Castalanelli & Shattuck 2017
Melophorus castaneus
Heterick, Castalanelli & Shattuck 2017
Melophorus clypeatus
Heterick, Castalanelli & Shattuck 2017
Melophorus curtus Forel 1902
Melophorus gibbosus
Heterick, Castalanelli & Shattuck 2017
Melophorus griseus
Heterick, Castalanelli & Shattuck 2017
Melophorus kuklos
Heterick, Castalanelli & Shattuck 2017
Melophorus mullewaensis
Heterick, Castalanelli & Shattuck 2017
Melophorus platyceps
Heterick, Castalanelli & Shattuck 2017
Melophorus praesens
Heterick, Castalanelli & Shattuck 2017
Melophorus rufoniger
Heterick, Castalanelli & Shattuck 2017
Melophorus sulconotus
Heterick, Castalanelli & Shattuck 2017
Melophorus tenuis
Heterick, Castalanelli & Shattuck 2017
Melophorus teretnotus
Heterick, Castalanelli & Shattuck 2017

***M. bagoti* complex**

- Melophorus bagoti* Lubbock 1883
Melophorus gracilipes
Heterick, Castalanelli & Shattuck 2017

***M. nemophilus* complex**

- Melophorus nemophilus*
Heterick, Castalanelli & Shattuck 2017

***Melophorus anderseni* species-group**

- Melophorus andersenioides*
Heterick, Castalanelli & Shattuck 2017
Melophorus chrysus
Heterick, Castalanelli & Shattuck 2017
Melophorus subulipalpus
Heterick, Castalanelli & Shattuck 2017

Melophorus biroi species-group**M. biroi complex**

- Melophorus argus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus biroi* Forel 1907a
= *M. castanopus* Heterick, Castalanelli
& Shattuck 2017 syn. nov.
- Melophorus cuneatus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus dicyrtos*
Heterick, Castalanelli & Shattuck 2017
- Melophorus graciliceps*
Heterick, Castalanelli & Shattuck 2017
- Melophorus gracilis*
Heterick, Castalanelli & Shattuck 2017
- Melophorus latinitus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus lissotriches*
Heterick, Castalanelli & Shattuck 2017
- Melophorus marius* Forel 1910 stat. rev.
- Melophorus microreticulatus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus minimus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus mjobergi* Forel 1915
- Melophorus postlei*
Heterick, Castalanelli & Shattuck 2017
- Melophorus propebiroi*
Heterick, Castalanelli & Shattuck 2017

M. brevignathus complex

- Melophorus marmar*
Heterick, Castalanelli & Shattuck 2017

M. fieldi complex

- Melophorus ankylochaetes*
Heterick, Castalanelli & Shattuck 2017
- Melophorus bruneus* McAreevey 1949
- Melophorus eumorphus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus fieldi* Forel 1910
- Melophorus fulvidus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus hirsutipes*
Heterick, Castalanelli & Shattuck 2017
- Melophorus incisus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus inconspicuus*
Heterick, Castalanelli & Shattuck 2017

- Melophorus isaiah*
Heterick, Castalanelli & Shattuck 2017
- Melophorus lanuginosus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus longipes*
Heterick, Castalanelli & Shattuck 2017
- Melophorus major* Forel 1915
- Melophorus microtriches*
Heterick, Castalanelli & Shattuck 2017
- Melophorus orthonotus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus paramorphomenus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus perthensis* Wheeler 1934
- Melophorus sericothrix*
Heterick, Castalanelli & Shattuck 2017
- Melophorus setosus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus solitudinis*
Heterick, Castalanelli & Shattuck 2017
- Melophorus sulla* Forel 1910 (including cf. *sulla*)
- Melophorus turneri* Forel 1910
- Melophorus vitreus*
Heterick, Castalanelli & Shattuck 2017

M. oblongiceps complex

- Melophorus oblongiceps*
Heterick, Castalanelli & Shattuck 2017

M. wheeleri complex

- Melophorus caeruleoviolaceus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus chauliodon*
Heterick, Castalanelli & Shattuck 2017
- Melophorus laticeps* Wheeler 1915
- Melophorus parvimolaris*
Heterick, Castalanelli & Shattuck 2017
- Melophorus pelorocephalus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus prominens*
Heterick, Castalanelli & Shattuck 2017
- Melophorus purpureus*
Heterick, Castalanelli & Shattuck 2017
- Melophorus wheeleri* Forel 1910
- Melophorus xouthos*
Heterick, Castalanelli & Shattuck 2017
- * *Melophorus* 'Group K' sp. 1 (TERC)

Melophorus fulvihirtus species-group

- Melophorus barbellulatus*
Heterick, Castalanelli & Shattuck 2017

Genus *Melophorus luidius* species-group***M. luidius* complex***Melophorus luidius* Forel 1902*Melophorus pusillus*

Heterick, Castalanelli & Shattuck 2017

Melophorus translucens

Heterick, Castalanelli & Shattuck 2017

Genus *Melophorus majeri* species-group*Melophorus majeri* Agosti 1998**Genus *Melophorus potteri* species-group***Melophorus macroschismus*

Heterick, Castalanelli & Shattuck 2017

Melophorus pelecynathus

Heterick, Castalanelli & Shattuck 2017

Melophorus potteri McAreavey 1947**Genus *Myrmecorhynchus* André 1896***Myrmecorhynchus emeryi* André 1896**Genus *Notoncus* Emery 1895***Notoncus capitatus* Forel 1915*Notoncus enormis* Szabó 1910*Notoncus gilberti* Forel 1895b*Notoncus hickmani* Clark 1930a* *Notoncus* sp. JDM 487**Genus *Nylanderia* Emery 1906***Nylanderia glabrior* (Forel 1902)*Nylanderia* cf. *obscura* (Mayr 1862)*Nylanderia rosae* (Forel 1902)* *Nylanderia* sp. JDM 1123* *Nylanderia* sp. JDM 1163**Genus *Oecophylla* F. Smith 1860a***Oecophylla smaragdina* (Fabricius 1775)**Genus *Opisthopsis* Dalla Torre 1893***Opisthopsis diademata* Wheeler 1918b*Opisthopsis haddoni* Emery 1893*Opisthopsis haddoni rufonigra* Forel 1910*Opisthopsis rufithorax* Emery 1895* *Opisthopsis* sp. JDM 1162**Genus *Paraparatrechina* Donisthorpe 1947b***Paraparatrechina minutula* (Forel 1901a)* *Paraparatrechina minutula* group sp. JDM 916* *Paraparatrechina minutula* group sp. JDM 1250**Genus *Paratrechina* Motschoulsky 1863***Paratrechina longicornis* (Latreille 1802)**Genus *Plagiolepis* Mayr 1861***Plagiolepis clarki* Wheeler 1934= *P. clarki impasta* Wheeler 1934 syn. nov.*Plagiolepis lucidula* Wheeler 1934*Plagiolepis squamulosa* Wheeler 1934* *Plagiolepis* sp. JDM 189* *Plagiolepis* sp. JDM 489**Genus *Polyrhachis* F. Smith 1857****Subgenus '*Campomyrma*'*****Polyrhachis femorata* species-group***Polyrhachis femorata* F. Smith 1858***Polyrhachis gravis* species-group***Polyrhachis capillata* Kohout 2013a*Polyrhachis curtospinosa* Kohout 2013a*Polyrhachis gravis* Clark 1930c*Polyrhachis hespera* Kohout 2013a*Polyrhachis opacita* Kohout 2013a*Polyrhachis palmerae* Kohout 2013a*Polyrhachis pseudothrinax* Hung 1967*Polyrhachis unicornis* Kohout 2013a***Polyrhachis macropus* species-group***Polyrhachis macropus* Wheeler 1916a*Polyrhachis pyrrhus* Forel 1910*Polyrhachis zimmerae* Clark 1941* *Polyrhachis* ('*Campomyrma*') sp. JDM 1189***Polyrhachis micans* species-group*****P. micans* complex***Polyrhachis prometheus* Santschi 1920***P. schwiedlandi* complex***Polyrhachis inconspicua* Emery 1887a*Polyrhachis io* Forel 1915*Polyrhachis schwiedlandi* Forel 1902* *Polyrhachis* ('*Campomyrma*') sp. JDM 670* *Polyrhachis* ('*Campomyrma*') sp. JDM 805* *Polyrhachis* ('*Campomyrma*') sp. JDM 1009* *Polyrhachis* ('*Campomyrma*') sp. JDM 1010* *Polyrhachis* ('*Campomyrma*') sp. JDM 1011* *Polyrhachis* ('*Campomyrma*') sp. JDM 1012* *Polyrhachis* ('*Campomyrma*') sp. JDM 1086* *Polyrhachis* ('*Campomyrma*') sp. JDM 1200* *Polyrhachis* ('*Campomyrma*') sp. JDM 1201

***P. sidnica* complex**

- Polyrhachis hirsuta* Mayr 1876
Polyrhachis ops Forel 1907a
Polyrhachis phryne Forel 1907b
Polyrhachis sidnica Mayr 1866b
 * *Polyrhachis* ('*Campomyrma*') sp. JDM 118
 * *Polyrhachis* ('*Campomyrma*') sp. JDM 390
 * *Polyrhachis* ('*Campomyrma*') sp. JDM 703
 * *Polyrhachis* ('*Campomyrma*') sp. JDM 802
 * *Polyrhachis* ('*Campomyrma*') sp. JDM 804
 * *Polyrhachis* ('*Campomyrma*') sp. JDM 1384

Subgenus '*Chariomyrma*'

- Polyrhachis cyrus* Forel 1901a
Polyrhachis gab Forel 1879
Polyrhachis lata Emery 1895
Polyrhachis senilis Forel 1902
Polyrhachis sokolova Forel 1902
 * *Polyrhachis* (*Chariomyrma*) sp. JDM 807
 * *Polyrhachis* (*Chariomyrma*) sp. JDM 808
 * *Polyrhachis* (*Chariomyrma*) sp. JDM 1204
 * *Polyrhachis* (*Chariomyrma*) sp. JDM 1273
 * *Polyrhachis* (*Chariomyrma*) sp. JDM 1274

Subgenus '*Hagiomyrma*'***Polyrhachis ammon* species-group**

- Polyrhachis ammonoeides* Roger 1863
Polyrhachis cracenta Kohout 2013b
 * *Polyrhachis* (*Hagiomyrma*) sp. JDM 1275

***Polyrhachis penelope* species-group**

- Polyrhachis anderseni* Kohout 2013b
Polyrhachis clarki Kohout 2013b
Polyrhachis crawleyi Forel 1916
Polyrhachis melanura Kohout 2013b
Polyrhachis pilbara Kohout 2013b
Polyrhachis seducta Kohout 2013b
Polyrhachis tanami Kohout 2013b
Polyrhachis weiri Kohout 2013b

***Polyrhachis schenckii* species-group**

- Polyrhachis bohemia* Kohout 2013b
Polyrhachis schenckii Forel 1886
 * *Polyrhachis* (*Hagiomyrma*) sp. JDM 1344

Subgenus '*Hedomyrma*'

- Polyrhachis consimilis* F. Smith 1858
Polyrhachis terpsichore Forel 1893

Genus *Prolasius* Forel 1892

- Prolasius antennatus* McAreevey 1947
Prolasius flavicornis Clark 1934c
Prolasius hemiflavus Clark 1934c
Prolasius wheeleri McAreevey 1947
 = *P. reticulatus* McAreevey 1947 syn. nov.
 * *Prolasius* sp. JDM 109
 * *Prolasius* sp. JDM 551
 * *Prolasius* sp. JDM 1120

Genus *Stigmatocros* Forel 1905**'*Campostigmatocros*' species-group
(former subgenus)**

- Stigmatocros aemula* (Forel 1907b)
Stigmatocros anthracina McAreevey 1957
Stigmatocros brachytera McAreevey 1957
Stigmatocros elegans McAreevey 1949
Stigmatocros epinotalis McAreevey 1957
Stigmatocros pilosella (Viehmeyer 1925a)
Stigmatocros spinosa McAreevey 1957
 * *Stigmatocros* sp. JDM 622
 * *Stigmatocros* sp. JDM 827
 * *Stigmatocros* sp. JDM 831
 * *Stigmatocros* sp. JDM 1045

**'*Chariostigmatocros*' species-group
(former subgenus)**

- Stigmatocros hirsuta* McAreevey 1957
 * *Stigmatocros* sp. JDM 833

**'*Cyrtostigmatocros*' species-group
(former subgenus)**

- Stigmatocros barretti* Santschi 1928
Stigmatocros clivispina (Forel 1902)
 = *S. aciculata* McAreevey 1957 syn. nov.
 = *S. brooksi* McAreevey 1957 syn. nov.
 = *S. clarki* McAreevey 1957 syn. nov.
 = *S. extreminigra* McAreevey 1957 syn. nov.
 = *S. ferruginea* McAreevey 1957 syn. nov.
 = *S. glauerti* McAreevey 1957 syn. nov.
 = *S. sordida* McAreevey 1957 syn. nov.
Stigmatocros flava McAreevey 1957
Stigmatocros froggatti Forel 1902
Stigmatocros inermis McAreevey 1957
Stigmatocros occidentalis (Crawley 1922b)
 = *S. armstrongi* McAreevey 1957 syn. nov.
Stigmatocros punctatissima McAreevey 1957

Stigmacros pusilla McAreavey 1957
= *S. minor* McAreavey 1957 syn. nov.

Stigmacros rectangularis McAreavey 1957

Stigmacros reticulata Clark 1930a

Stigmacros termitoxena Wheeler 1936b

* *Stigmacros* sp. JDM 115

* *Stigmacros* sp. JDM 396

* *Stigmacros* sp. JDM 832

* *Stigmacros* sp. JDM 1001

* *Stigmacros* sp. JDM 1046

* *Stigmacros* sp. JDM 1067

* *Stigmacros* sp. JDM 1091

* *Stigmacros* sp. JDM 1135

* *Stigmacros* sp. JDM 1237

* *Stigmacros* sp. JDM 1367

***Stigmacros* species-group A**

* *Stigmacros* sp. JDM 341

LEPTANILLINAE

Genus *Leptanilla* Emery 1870

Leptanilla swani Wheeler 1932

MYRMECIINAE

Genus *Myrmecia* Fabricius 1804

***Myrmecia cephalotes* species-group**

Myrmecia callima (Clark 1943)

Myrmecia cephalotes (Clark 1943)

Myrmecia hilli (Clark 1943)

***Myrmecia gulosa* species-group**

Myrmecia analis Mayr 1862

Myrmecia arnoldi Clark 1951

Myrmecia desertorum Wheeler 1915

Myrmecia erecta Ogata & Taylor 1991

Myrmecia forceps Roger 1861

Myrmecia fulgida Clark 1951

Myrmecia fuscipes Clark 1951

Myrmecia gratiosa Clark 1951

Myrmecia inquilina Douglas & Brown 1959

Myrmecia nigriscapa Roger 1861

Myrmecia nigriceps Mayr 1862

Myrmecia pavidata Clark 1951

Myrmecia picticeps Clark 1951

Myrmecia regularis Crawley 1925b

Myrmecia rubripes Clark 1951

Myrmecia rufinodis F. Smith 1858

Myrmecia vindex F. Smith 1858

***Myrmecia picta* species-group**

Myrmecia fucosa Clark 1934a

Myrmecia picta F. Smith 1858

***Myrmecia mandibularis* species-group**

Myrmecia mandibularis F. Smith 1858

***Myrmecia pilosula* species-group**

Myrmecia chasei Forel 1894b

Myrmecia dispar (Clark 1951)

Myrmecia elegans (Clark 1943)

Myrmecia imaii Taylor 2015

Myrmecia ludlowi Crawley 1922a

Myrmecia occidentalis (Clark 1943)

Myrmecia rugosa Wheeler 1933

Myrmecia michaelsoni Forel 1907b

Myrmecia varians Mayr 1876

***Myrmecia tepperi* species-group**

Myrmecia acuta Ogata & Taylor 1991

Myrmecia clarki Crawley 1922a

Myrmecia swalei Crawley 1922a

Myrmecia tepperi Emery 1898

Myrmecia testaceipes (Clark 1943)

***Myrmecia urens* species-group**

Myrmecia exigua (Clark 1943)

Myrmecia infima Forel 1900

Myrmecia urens Lowne 1865b

* *Myrmecia urens* group sp. JDM 71

Genus *Nothomyrmecia* Clark 1934

Nothomyrmecia macrops Clark 1934a

MYRMICINAE

Genus *Adlerzia* Forel 1902

Adlerzia froggatti (Forel 1902)

Genus *Aphaenogaster* Mayr 1853

Aphaenogaster barbigula Wheeler 1916b

Aphaenogaster kimberleyensis Shattuck 2008a

Aphaenogaster mediterrae Shattuck 2008a

Aphaenogaster poultoni Crawley 1922

Genus *Austromorium* Shattuck 2009*Austromorium flavigaster* (Clark 1938)*Austromorium hetericki* Shattuck 2009**Genus *Cardiocondyla*** Emery 1869***Cardiocondyla nuda* species-group***Cardiocondyla atalanta* Forel 1915*Cardiocondyla nuda* (Mayr 1866a)*Cardiocondyla paranuda* Seifert 2003***Cardiocondyla wroughtonii* species-group***Cardiocondyla wroughtonii* (Forel 1890)**Genus *Carebara*** Westwood 1840*Carebara affinis* (Jerdon 1851)*Carebara cornigera* (Forel 1902)* *Carebara* sp. JDM 440* *Carebara* sp. JDM 1131**Genus *Chelaner*** Emery, 1914***Chelaner falcatus* species-group***Chelaner decuria* (Heterick 2001)*Chelaner elegantulus* (Heterick 2001)***Chelaner insolescens* species-group***Chelaner insolescens* (Wheeler 1934)* *Chelaner insolescens* group sp. JDM 1174* *Chelaner insolescens* group sp. JDM 1381* *Chelaner insolescens* group sp. JDM 1382***Chelaner kilianii* species-group***Chelaner crinitus* (Heterick 2001)***Chelaner longinodis* species-group***Chelaner bifidus* (Heterick 2001)*Chelaner capito* (Heterick 2001)*Chelaner flavonigrus* (Heterick 2001)*Chelaner longinodis* (Heterick 2001)***Chelaner rubriceps* species-group*****C. leae* complex***Chelaner bihamatus* (Heterick 2001)*Chelaner brachythrix* (Heterick 2001)*Chelaner centralis* (Forel 1910)*Chelaner durokoppinensis* (Heterick 2001)*Chelaner euryodon* (Heterick 2001)*Chelaner lacunosus* (Heterick 2001)*Chelaner leae* (Forel 1913)*Chelaner longiceps* (Wheeler 1934)*Chelaner legulus* (Heterick 2001)*Chelaner punctulatus* (Heterick 2003)*Chelaner sublamellatus* (Heterick 2003)*Chelaner xantheklemma* (Heterick 2001)* *Chelaner rubriceps* group sp. JDM 1175***Chelaner whitei* species-group***Chelaner anthracinus* (Heterick 2001)*Chelaner bicornis* (Forel 1907b)*Chelaner majeri* (Heterick 2001)*Chelaner pubescens* (Heterick 2001)*Chelaner rufoniger* (Heterick 2001)*Chelaner striatifrons* (Heterick 2001)*Chelaner whitei* (Wheeler 1915)* *Chelaner whitei* group sp. JDM 1178**Genus *Colobostruma*** Wheeler 1927b*Colobostruma australis* Brown 1959*Colobostruma cerornata* Brown 1959*Colobostruma elliotti* (Clark 1928b)*Colobostruma froggatti* (Forel 1913)*Colobostruma mellea* Shattuck 2000*Colobostruma nancyae* Brown 1965b*Colobostruma papulata* Brown 1965a**Genus *Crematogaster*** Lund 1831**Subgenus '*Crematogaster*'***Crematogaster australis* Mayr 1876*Crematogaster eurydice* Forel 1915

(♀ so not included in key)

Crematogaster frivola Forel 1902= *C. frivola sculpticeps* Forel 1907 syn. nov.*Crematogaster laeviceps* F. Smith 1858= *C. laeviceps chasei* Forel 1902 syn. nov.= *C. laeviceps broomensis* Forel 1915 syn. n.*Crematogaster clarior* Forel 1902 stat. nov.= *C. pythia* Forel 1915 syn. nov.*Crematogaster longicephala curticeps* Wheeler 1915*Crematogaster mjobergi* Forel 1915*Crematogaster whitei* Wheeler 1915* *Crematogaster (Crematogaster)* sp. JDM 1368**Subgenus '*Orthocrema*'***Crematogaster bipartita* Emery 1922 stat. nov.*Crematogaster queenslandica* Forel 1902*Crematogaster queenslandica froggatti* Forel 1902

Crematogaster queenslandica gilberti Emery 1922

Crematogaster queenslandica rogans Forel 1902

Crematogaster rufotestacea Mayr 1876

= *C. dispar* Forel 1902 syn. nov.

= *C. rufotestacea dentinasis*

Santschi 1929 syn. nov.

Crematogaster xerophila Wheeler 1915

Genus *Epopostruma* Forel 1895b

Epopostruma frosti (Brown 1948)

Epopostruma inornata Shattuck 2007

Epopostruma kangarooensis Shattuck 2000

Epopostruma lattini Shattuck 2000

Epopostruma mercurii Shattuck 2000

Epopostruma monstrosa Viehmeyer 1925a

Epopostruma natalae Shattuck 2000

Epopostruma quadrispinosa (Forel 1895b)

Epopostruma sowestensis Shattuck 2000

Genus *Mayriella* Forel 1902

Mayriella occidua Shattuck 2007

Genus *Meranoplus* F. Smith 1853

***Meranoplus dimidiatus* species-group**

***M. dimidiatus* complex**

Meranoplus dimidiatus F. Smith 1867

* *Meranoplus dimidiatus* complex sp. JDM 423

* *Meranoplus dimidiatus* complex sp. JDM 491

* *Meranoplus dimidiatus* complex sp. JDM 627

* *Meranoplus dimidiatus* complex sp. JDM 1071

* *Meranoplus dimidiatus* complex sp. JDM 1144

* *Meranoplus dimidiatus* complex sp. 1 (TERC)

* *Meranoplus dimidiatus* complex sp. 2 (TERC)

***M. froggatti* complex**

Meranoplus rugosus Crawley 1922a

* *Meranoplus froggatti* complex sp. JDM 677

* *Meranoplus froggatti* complex sp. JDM 922

* *Meranoplus froggatti* complex sp. JDM 1101

***M. minimus* complex**

Meranoplus minimus Crawley 1922a

***M. puryi* complex**

Meranoplus aureolus Crawley 1921

Meranoplus curvispina Forel 1910

Meranoplus liniae Santschi 1928

* *Meranoplus puryi* complex sp. JDM 673

* *Meranoplus puryi* complex sp. JDM 674

* *Meranoplus puryi* complex sp. JDM 865

* *Meranoplus puryi* complex sp. JDM 889

* *Meranoplus puryi* complex sp. JDM 931

* *Meranoplus puryi* complex sp. JDM 967

* *Meranoplus puryi* complex sp. JDM 988

* *Meranoplus puryi* complex sp. JDM 1025

* *Meranoplus puryi* complex sp. JDM 1107

* *Meranoplus puryi* complex sp. JDM 1133

* *Meranoplus puryi* complex sp. JDM 1145

* *Meranoplus puryi* complex sp. JDM 1146

* *Meranoplus puryi* complex sp. JDM 1276

* *Meranoplus puryi* complex sp. JDM 1377

* *Meranoplus puryi* complex sp. JDM 1378

* *Meranoplus puryi* complex sp. 3 (TERC)

Meranoplus similis Viehmeyer 1922

***M. dimidiatus* group complex A**

* *Meranoplus dimidiatus* group complex A sp. JDM 867

***M. dimidiatus* group complex B**

* *Meranoplus dimidiatus* group complex B sp. JDM 955

***M. dimidiatus* group complex C**

* *Meranoplus dimidiatus* group complex C sp. JDM 1255

Placement uncertain within

***M. dimidiatus* species-group**

* *Meranoplus* sp. 4 (TERC)

***Meranoplus diversus* species-group**

Meranoplus ajax Forel 1915

Meranoplus arcuatus Schödl 2007

Meranoplus berrimah Schödl 2007

Meranoplus crassispina Schödl 2007

Meranoplus deserticola Schödl 2007

Meranoplus diversus F. Smith 1867

Meranoplus duyfkeni Forel 1915

Meranoplus mcarthuri Schödl 2007

Meranoplus occidentalis Schödl 2007

Meranoplus oxleyi Forel 1915

Meranoplus snellingi (?) Schödl 2007

Meranoplus taurus Schödl 2007

Meranoplus unicolor Forel 1902

Meranoplus fenestratus species-group

- Meranoplus fenestratus* F. Smith 1867
Meranoplus ferrugineus Crawley 1922a
Meranoplus mjobergi Forel 1915
Meranoplus oceanicus F. Smith 1862
Meranoplus pubescens (F. Smith 1863)
Meranoplus testudineus McAreavey 1956
* *Meranoplus fenestratus* group sp. JDM 267
* *Meranoplus fenestratus* group sp. JDM 424
* *Meranoplus fenestratus* group sp. JDM 866
* *Meranoplus fenestratus* group sp. JDM 1268

Genus Mesostruma Brown 1948

- Mesostruma eccentrica* Taylor 1973
Mesostruma inornata Shattuck 2000
Mesostruma laevigata Brown 1952
Mesostruma loweryi Taylor 1973
Mesostruma spinosa Shattuck 2007

Genus Monomorium Mayr 1855**M. laeve species-group****M. antipodum complex**

- Monomorium antipodum* Forel 1901b
= *M. laeve nigrius* Forel 1915 comb. nov.
= *M. fraterculus* Santschi 1919 comb. nov.
Monomorium disetigerum Heterick 2001
Monomorium orientale Mayr 1879
* *Monomorium antipodum* complex sp. JDM 103
* *Monomorium antipodum* complex sp. JDM 717
* *Monomorium antipodum* complex sp. JDM 1369

M. laeve complex

- Monomorium anderseni* Heterick 2001
Monomorium fieldi Forel 1910
Monomorium laeve Mayr 1876
Monomorium silaceum Heterick 2001

M. rothsteini complex

- Monomorium megalops* Heterick 2001
Monomorium rothsteini Forel 1902
Monomorium sordidum Forel 1902

M. sydneyense complex

- Monomorium aithoderum* Heterick 2001
Monomorium carinatum Heterick 2001
Monomorium micula Heterick 2001
Monomorium nanum Heterick 2001

Monomorium stictonotum Heterick 2001

Monomorium sydneyense Forel 1902

* *Monomorium sydneyense* complex sp. JDM 101

M. monomorium species-group

Monomorium floricola (Jerdon 1851)

M. salomonis species-group

Monomorium pharaonis (Linnaeus 1758)

Unplaced

Monomorium arenarium Heterick 2001

Monomorium eremophilum Heterick 2001

Genus Orectognathus F. Smith 1853

Orectognathus clarki Brown 1953

Genus Pheidole Westwood 1839

Pheidole ampla Forel 1893

= *P. variabilis latigena* Forel 1907 syn. nov.

Pheidole antipodum (F. Smith 1858)

Pheidole bos Forel 1893

= *P. ampla perthensis* Crawley 1922 syn. nov.

= *P. pyriformis* Clark 1938 syn. nov.

* *Pheidole bos* complex sp. JDM 871

Pheidole deserticola foveifrons Viehmeyer 1924

Pheidole dispar (Forel 1895b)

Pheidole hartmeyeri Forel 1907b

Pheidole hospes F. Smith 1865

* *Pheidole incurvata* complex sp. JDM 164

* *Pheidole incurvata* complex sp. JDM 306

* *Pheidole incurvata* complex sp. JDM 429

Pheidole indica Mayr 1879

Pheidole longiceps doddi Forel 1910

Pheidole megacephala (Fabricius 1793)

Pheidole mjobergi Forel 1915

* *Pheidole mjobergi* complex sp. JDM 1176

Pheidole proxima Mayr 1876

Pheidole rugosula Forel 1902

= *P. proxima bombalensis* Forel 1910 syn. nov.

* *Pheidole rugosula* complex sp. JDM 337

Pheidole turneri Forel 1902

Pheidole variabilis Mayr 1876

= *P. variabilis rugociput* Forel 1902 syn. nov.

Pheidole vigilans (F. Smith 1858)

* *Pheidole* sp. JDM 280

* *Pheidole* sp. JDM 684

* *Pheidole* sp. JDM 933

* *Pheidole* sp. JDM 934

* *Pheidole* sp. JDM 1332

Genus *Podomyrma* F. Smith 1859

Podomyrma adelaidae (F. Smith 1858)

Podomyrma basalis F. Smith 1859

Podomyrma chasei Forel 1901c

Podomyrma christae (Forel 1907b)

Podomyrma clarki (Crawley 1925a)

Podomyrma elongata Forel 1895b

Podomyrma ferruginea (Clark 1934b)

Podomyrma gastralis Emery 1897

Podomyrma libra (Forel 1907a)

Podomyrma macrophthalma Viehmeyer 1925a

Podomyrma nitida (Clark)

* *Podomyrma* sp. JDM 512

* *Podomyrma* sp. JDM 1395

Genus *Solenopsis* Westwood 1840

Solenopsis belisarius Forel 1907b

Solenopsis clarki Crawley 1922b

Genus *Stereomyrmex* Emery 1901

Stereomyrmex anderseni (Taylor 1991)

Genus *Strumigenys* F. Smith 1860b

Strumigenys emmae (Emery 1890)

Strumigenys perplexa (F. Smith 1876)

Strumigenys quinquedentata Crawley 1923

Strumigenys radix Bolton 2000

Genus *Syllophopsis* Santschi 1915

* *Syllophopsis* sp. JDM 438

Genus *Tetramorium* Mayr 1865

***Tetramorium bicarinatum* species-group**

Tetramorium bicarinatum (Nylander 1846)

***Tetramorium obesum* species-group**

Tetramorium lanuginosum Mayr 1870

***Tetramorium simillimum* species-group**

Tetramorium caldarium (Roger 1857)

Tetramorium simillimum (F. Smith 1851)

***Tetramorium striolatum* species-group**

***T. laticephalum* complex**

* *Tetramorium laticephalum* complex sp.
JDM 1117

***T. striolatum* complex**

Tetramorium impressum (Viehmeyer 1925a)
= *Xiphomyrmex viehmeyeri venustus*
Wheeler 1934 comb. nov.

Tetramorium megalops Bolton 1977

Tetramorium sjostedti Forel 1915

Tetramorium spininode Bolton 1977

Tetramorium viehmeyeri Forel 1907b

Tetramorium striolatum Viehmeyer 1914
(sensu lato)

* *Tetramorium* sp. JDM 141

* *Tetramorium* sp. JDM 347

* *Tetramorium* sp. JDM 515

* *Tetramorium* sp. JDM 522

* *Tetramorium* sp. JDM 884

***Tetramorium* species-group A**

* *Tetramorium* group A sp. JDM 707

* *Tetramorium* group A sp. JDM 886

* *Tetramorium* group A sp. JDM 1007

* *Tetramorium* group A sp. JDM 1177

Genus *Trichomyrmex* Mayr 1865

Trichomyrmex destructor (Jerdon 1851)

PONERINAE

Genus *Anochetus* Mayr 1861

Anochetus avius Shattuck & Slipinska 2012

Anochetus graeffei Mayr 1870

Anochetus rectangularis Mayr 1876

Anochetus renatae Shattuck & Slipinska 2012

Anochetus veronicae Shattuck & Slipinska 2012

Genus *Austroponera* Schmidt & Shattuck 2014

Austroponera rufonigra (Clark 1934b)

Genus *Brachyponera* Emery 1900

Brachyponera lutea (Mayr 1862)

Genus *Hypoconera* Santschi 1938

Hypoconera congrua (Wheeler 1934)

Hypoconera eduardi (Forel 1894a)

* *Hypoconera* sp. JDM 1376

Genus *Leptogenys* Roger 1861

Leptogenys centralis Wheeler 1915

Leptogenys clarki Wheeler 1933

Leptogenys darlingtoni Wheeler 1933

Leptogenys exigua Crawley 1921

Leptogenys fallax (Mayr 1876)

Leptogenys neutralis Forel 1907b

Leptogenys tricososa Taylor 1969

* *Leptogenys* sp. JDM 1128

Genus *Myopias* Roger 1861

Myopias tasmaniensis Wheeler 1923

Genus *Odontomachus* Latreille 1804

Odontomachus ruficeps F. Smith 1858

Odontomachus turneri Forel 1900

Genus *Platythyrea* Roger 1863

Platythyrea brunnipes (Clark 1938)

Platythyrea dentinodis (Clark 1930c)

Platythyrea micans (Clark 1930c)

Platythyrea parallela (F. Smith 1859)

* *Platythyrea parallela* group sp. JDM 1171

Platythyrea turneri Forel 1895b

Genus *Ponera* Latreille 1804

Ponera leae Forel 1913

* *Ponera* sp. JDM 1122

Genus *Pseudoneoponera* Donisthorpe 1943

Pseudoneoponera denticulata (Kirby 1896)

Pseudoneoponera piliventris regularis (Forel 1907b)

Pseudoneoponera porcata (Emery 1897b)

Pseudoneoponera sublaevis (Emery 1887b)

* *Pseudoneoponera* sp. JDM 984

PROCERATIINAE

Genus *Discothyrea* Roger 1863

Discothyrea bidens Clark 1928a

Discothyrea clavicornis Emery 1897a

Discothyrea crassicornis Clark 1926

Discothyrea turtoni Clark 1934c

Genus *Probolomyrmex* Mayr 1901

Probolomyrmex latalongus Shattuck
Gunawardene & Heterick 2012

PSEUDOMYRMECINAE

Genus *Tetraoponera* F. Smith 1852

Tetraoponera nigra species-group

Tetraoponera nitida (F. Smith 1860b)

Tetraoponera punctulata F. Smith 1877

LIST OF INSTITUTIONAL ABBREVIATIONS

ANIC Australian National Insect Collection,
Canberra, ACT, Australia

BMNH The Natural History Museum, London,
United Kingdom

JDM Curtin Ant Collection (now amalgamated
under WAM — see below)

MCZ Museum of Comparative Zoology,
Harvard University, Cambridge,
Massachusetts, USA

TERC Tropical Ecosystems Research
Collaborative, Berrimah, Northern
Territory, Australia

WAM Western Australian Museum, Perth,
Western Australia, Australia

Note: the prefix 'CASENT' refers to
a unique specimen code as used by
the California Academy of Sciences in
San Francisco. This prefix is assigned
to specimens from many different
institutions.

**TAXONOMIC NOTES ON SELECT TAXA,
INCLUDING SYNONYMIES**

ECTATOMMINAE

Rhytidoponera

In Western Australia, the only genera in this subfamily are *Heteroponera* and *Rhytidoponera*. The *Rhytidoponera* species-groups listed above are based on those recognised by Reichel (2003)

Rhytidoponera rufonigra: Reichel (2003) conceded that synonymisation of *R. rufonigra* under *R. punctata* seemed justified but hesitated to commit herself to this action on the grounds that *R. punctata* (*sensu lato*) might contain cryptic species. However, the syntypes of the two putative species are identical (based on the AntWeb type images), and, since the *R. punctata* syntypes were only collected from Port Lincoln, South Australia, the likelihood of that type series containing more than one species is very remote. Admittedly, Clark (1936) considered the two species distinct, but the characters that supposedly separate them in his key to the Australian *Rhytidoponera* do not hold up when the images are carefully examined. In fact, *R. rufonigra* has a southern distribution that stretches across the entire state of WA and undoubtedly extends well into South Australia. I am therefore synonymising the two species under *R. punctata*, the senior name.

Rhytidoponera carinata: Reichel (2003) removes *R. castanea* from synonym under *R. rufiventris* Forel, and I agree this is justified; hence *R. castanea* is given revived status in this work. However, I can also see no clear distinction between *R. castanea*

and *R. carinata*. Colour alone seems to be the reason the two taxa are separated and unless some other character can be found, or molecular evidence proves otherwise these seem very feeble grounds to posit two distinct species. The morphometrics supplied by Reichel all overlap considerably for both putative species, and colour variation among specimens in the WAM, ANIC and JDM collections is huge across a continuous spectrum — from a pin of light yellow-orange specimens identified by P. S. Ward as '*R. carinata*' to dark reddish-black workers. Most are bicoloured (fitting *castanea*), while others are concolourous. *Rhytidoponera carinata* is therefore treated as a junior synonym in this work.

FORMICINAE

Camponotus

The *Camponotus* species-groups suggested here work well for both minor and major worker subcastes and seem to this author to reflect genuine evolutionary relationships, but this needs to be confirmed by more intensive integrated taxonomic work including molecular analysis. In large part, these species-groups also follow the informal groups represented in the defunct Ant database 'Ants Down Under' compiled by Steve Shattuck. One novelty introduced in this work is the *C. insipidus* species-group, whose members have traditionally been associated with *C. claripes* and its allies. However, both sets of taxa differ in several significant characters, and the superficial resemblance between them may be due to convergence.

Camponotus walkeri: *C. walkeri* Forel 1893 was described from what seems to be a holotype major worker. The imaged ant is headless, but the description and the morphology clearly align it with the *C. claripes* complex. The image, moreover, is identical with a syntype major worker of *C. claripes* Mayr, and this is supported by mention in Forel's original description of the glabrous antennal scape and legs and the apparently uniform darkness of the head and body (the latter features being variegated in colour in the otherwise similar *Camponotus inverallensis*). The taxon is provisionally made a junior synonym of *C. claripes* in this work.

Camponotus churchetti/*Camponotus inverallensis*: examination of syntype (*Camponotus claripes inverallensis*) and paratype (*C. churchetti*) images and abundant major and minor worker material make it clear that *C. churchetti* is one and the same as *C. claripes inverallensis* Forel, and it here becomes a junior synonym under *C. inverallensis*. However, the latter is specifically distinct from *C. claripes* for the reasons given in the key and is elevated to species status in this work.

Camponotus discors angustinodus: McArthur (2007, 2010 and 2014) and other publications, including Heterick (2009), incorrectly refer to this species as '*C. cowlei*'. In fact, '*Camponotus cowlei*' is a junior synonym of *Melophorus bagoti* (Lubbock). *Camponotus consecrator* (F. Smith, 1858) was described from a dealated queen, whose Automontage photograph features on AntWeb. The holotype has been disarticulated, but the head is intact, and enough of the mesosoma, gaster and legs can be viewed for it to be compared with an alate *Camponotus* queen held in WAM. The two specimens are in all respects identical, the lower genae possess erect setae and the mandible in each case has a vertical lighter stripe on the masticatory margin, the combination of these two features being sufficient to distinguish both ants from the queen of the otherwise similar *C. gibbinotus*. The WAM queen is also associated with workers. These workers agree with *C. discors angustinodus* Emery, which becomes a junior synonym of *C. consecrator* in this work.

Camponotus christmasensis: *Camponotus christmasensis* McArthur is clearly conspecific with *C. darlingtoni*. The two ants are morphologically identical. Moreover, the West Australian data points on the distribution map for *C. darlingtoni* in McArthur (2007) exactly match those for *C. christmasensis* in the distribution map in McArthur (2010), in which publication *C. darlingtoni* is not mentioned at all! This suggests some confusion on the part of the author.

Camponotus minimus: The Automontage of *Camponotus insipidus* type material (a 'holotype' [!] [BMNH label] and another specimen treated as a syntype) clearly reveals that they are identical with *C. minimus* Crawley, and *C. insipidus* takes priority as the senior name. Specimen CASENT0903542 is a typical large major worker and CASENT0910386 is a small major worker.

Camponotus samueli: *Camponotus scratius* and *C. samueli* are said by McArthur to differ in the proportions of the head. However, inspection of the Automontage photographs on AntWeb of a *C. samueli* paratype and a *C. scratius* syntype reveals not only two morphologically identical specimens (even down to a few erect setae in the same location on the lower genae) but ants with almost identical morphometrics! The two species are clearly identical. *Camponotus insipidus* group sp. JDM 1256 is very similar to *C. scratius* in appearance but lacks erect genal setae and erect setae under the head.

Camponotus walkeri bardus: *Camponotus walkeri bardus* is unquestionably identical with *C. michaelsoni*, even though the syntype major worker of the latter featured on AntWeb and AntWiki is headless.

Camponotus spenceri/*Camponotus nigroaeneus xuthus*: Based on Automontage photographs of type material for *Camponotus spenceri* Clark and *C. nigroaeneus xuthus* Emery, there is a strong argument that these two names should become junior synonyms under *C. fildeae* Forel. Note: the relegation of *C. nigroaeneus xuthus* to a subspecies again by McArthur (2014) after he had raised it to species (McArthur 2009) is puzzling and not explained in his later work.

Melophorus

Melophorus biroi/*Melophorus castanopus*/*Melophorus marius*: Syntype specimen code ANT44020 (*Melophorus biroi*) illustrated on AntWeb and regarded by Heterick et al. (2017) as a senior synonym of *M. marius* and *M. fieldi propinqua* is identical with what is 'castanopus' in Heterick et al. (2017). The former names were synonymised under *Melophorus biroi* based on a less detailed image of the same ant, and the new evidence reveals 'marius' and 'fieldi propinqua' are not in fact conspecific with 'biroi'. *Melophorus biroi* is here treated as a senior synonym of *M. castanopus*, and *M. marius* is given revived status as a senior synonym of *M. fieldi propinqua*. 'Melophorus marius' needs to be revisited as the molecular data indicate a species complex still exists under this name.

Plagiolepis

Plagiolepis clarki impasta: This species was described by Wheeler from workers in Victoria based on quite trivial distinctions, and the Automontage pictures in AntWiki lead this author to believe this ant and *P. clarki* are one and the same.

Prolasius

Prolasius reticulatus: A syntype of *Prolasius wheeleri* and *P. reticulatus* McAreavey were inspected at the ANIC by the author. The ants are identical. *Prolasius wheeleri* takes priority as it appears earlier on the same page as the other species (The Code, Article 69A.10).

Stigmacros

The classification used by McAreavey (1957) is used in part here. *Hagiostigmacros*, *Pseudostigmacros* and *Stigmacros* are not recognised as valid clades in this work, but the clades denoted by McAreavey's subgenera *Campostigmacros*, *Chariostigmacros* and *Cyrtostigmacros* are retained as species-groups. An additional clade ('species-group A') is added to include one species.

Stigmacros aciculata/*Stigmacros brooksi*/*Stigmacros clarki*/*Stigmacros extreminigra*/*Stigmacros ferruginea*/*Stigmacros glauerti*/*Stigmacros sordida*: A number of the species described in McAreavey's *Cyrtostigmacros* key are separated on the basis of

features that seem totally inadequate for the task. Apart from *S. flava*, whose workers are uniformly pale, there seem to be only two forms in WA that I have come across, these being *S. clivispina* (Forel), which has a narrow petiolar node and another, light-coloured form that has a broad node which I am calling *S. occidentalis* (Crawley), the earliest name. *Stigmacros clivispina* can be light or dark-coloured or of intermediate colouration, but the head and gaster are virtually always darker than the mesosoma. Lighter-coloured *S. clivispina* can only be satisfactorily distinguished from *S. occidentalis* by the shape of the node. Based on my examination of type specimens at ANIC, *S. clivispina* has at least seven synonyms (i.e. those listed above), all of these being species described by McAreavey. A syntype of *S. castanea* McAreavey was supposedly collected in Mundaring, based on an ANIC record, but McAreavey only mentions seeing eastern Australian material. The specific identity of the syntype is therefore questionable.

Stigmacros armstrongi: An examination of ANIC type specimens for *S. occidentalis* (Crawley) and *S. armstrongi* McAreavey reveals the two ants are identical. *Stigmacros occidentalis* is the senior name.

Stigmacros minor: This species is separated from *S. pusilla* by McAreavey on supposed small differences in colour, scape length and gastral sculpture. These are trivial, and the two ants are here treated as synonyms, *S. pusilla* being the senior synonym.

MYRMICINAE

Crematogaster

The taxonomic treatment of Western Australian *Crematogaster* follows Blaimer (2012).

Crematogaster frivola sculpticeps: Based on the AntWeb images of syntypes, *Crematogaster frivola* and *C. frivola sculpticeps* are identical. *Crematogaster frivola sculpticeps* becomes a junior synonym in this work.

Crematogaster laeviceps chasei/*Crematogaster laeviceps broomensis*: *Crematogaster laeviceps broomensis* Forel appears to represent no more than an ergatoid of *C. laeviceps* with vestigial ocelli and an indentation that represents the pronotal suture, whereas the AntWeb image of the *C. laeviceps* syntype is smoother and shinier and lacks the promesonotal sculpture and hint of a suture. This feature seems to vary with size and possibly also with populations. The AntWeb imaged type specimen of *Crematogaster laeviceps chasei* Forel, despite Forel's comments, is indistinguishable from the ant bearing the senior name. *Crematogaster laeviceps chasei* and *C. laeviceps broomensis* become junior synonyms under *C. laeviceps* in this work.

Crematogaster pythia/*Crematogaster laeviceps clarior*: Examination of the type images on AntWeb make it abundantly clear that *Crematogaster pythia* Forel is a junior synonym of *C. laeviceps clarior* Forel, which is a distinct taxon to *C. laeviceps* and is raised to species status in this work.

Crematogaster bipartita: The overall appearance is the same as *C. queenslandica*, including the stout erect bristle at the base of the propodeum. However, the different appearance of the posterior promesonotum and the different colour in the imaged type specimen dictate that it be kept as a separate taxon until more material can be examined. This ant is superficially similar to *C. dispar* (itself regarded as a junior synonym of *C. rufotestacea* Mayr here), but the latter is a temperate species with a different anterior clypeal margin and lacks the erect propodeal bristle; consequently *C. bipartita* is raised to species in this work.

Crematogaster rufotestacea dentinasis/*Crematogaster dispar*: Santschi distinguishes the worker of his subspecies *Crematogaster rufotestacea dentinasis* (Santschi) based on size, minor differences in the appearance of the vertex, the clypeal denticles and the metanotal groove, and the smaller eye. Based on the appearance of type images for both taxa, these differences should be regarded as trivial. *Crematogaster rufotestacea* is also clearly the senior synonym of *C. dispar* Forel.

Monomorium

The Australian members of this genus were revised by Heterick in 2001. However, the genus is now understood to be polyphyletic, and revisionary work by various researchers has resulted in separate genera being peeled off from *Monomorium*.

Pheidole

The Australian members of this medium-sized genus have never been monographed. However, species coverage by earlier researchers is surprisingly comprehensive given the taxonomic difficulties posed by the morphological uniformity of many taxa in both worker sub-castes.

Pheidole variabilis latigena: *P. variabilis latigena* (no relation to *Pheidole variabilis*, incidentally) from the northern goldfields in central Western Australia is part of the variation among ants generally conforming to the *P. ampla* radiation. This form has a relatively large eye in both worker subcastes, and the minor is a darkish, generally microreticulate ant with the *P. ampla* profile. The major worker also has a dark reddish mesosoma contrasting with slightly lighter coloured head and legs, and the frons is smooth. The major worker postpetiole is of the *P. ampla* form. This taxon is provisionally synonymised under *P. ampla* in this work. More detailed discussion of the *P. ampla* radiation is to be found in Excursus 3.

Pheidole ampla perthensis: This subspecies becomes a synonym of *P. bos* in this work: see discussion in Excursus 3.

Pheidole proxima bombalensis: This supposed subspecies of *P. proxima* is identical with *P. rugosula* (see images of syntype major and minor workers of both taxa in AntWeb) and becomes a junior synonym of that name in this work.

Pheidole variabilis rugociput: Comparison of AntWeb images of major and minor worker syntypes of this taxon and *P. variabilis* reveal no difference between these two ants. *Pheidole variabilis rugociput* therefore becomes a junior synonym under the latter name in this work. The ant designated by the unavailable quadrinomial '*Pheidole variabilis rugociput atrophispina*', however, is a distinct species not found in WA.

Tetramorium

Xiphomyrmex viehmeyeri venustus: This taxon is known from a single, dealated queen collected by Wheeler on Rottneest Island (Wheeler 1934) and was synonymised under the nominal species and under genus *Tetramorium* by Bolton (1977). The holotype dealate queen is held in the WAM types' drawer and inspection reveals it is not *T. viehmeyeri*. The specimen is now headless but otherwise corresponds exactly to dealated queens of *T. impressum* collected on the nearby mainland (i.e. from Hope Valley and Clontarf Hill, near Fremantle). The latter species is very common around Perth, and also occurs on Rottneest Island. This taxon is therefore removed from synonymy under *T. viehmeyeri* and made a junior synonym of *T. impressum*.

KEY TO WESTERN AUSTRALIAN ANT SUBFAMILIES

The following key is almost exclusively confined to characters found in the worker caste, the caste most often seen by members of the public and those specialists who work with ants. An exception has been made in couplet 21 under Myrmicinae, where the most useful distinguishing characters are found in the reproductive castes (queens and males). Several *Lioponera* intercastes are also included in the species key, as they are name-bearing types. A complete list of the ant subfamilies occurring in WA and their images can be found on AntWeb (<https://www.antweb.org/taxonomicPage.do?rank=subfamily&adm1Name=Western%20Australia&countryName=Australia>).

Note: Heteroponerinae is now regarded as a tribe [Heteroponerini] within Ectatomminae. Figures are included for the benefit of readers using a hard copy; links will assist readers working online.

1. Mesosoma (i.e. thorax and fused portion of the abdomen) attached to gaster by a single distinct segment (the petiole) that is demarcated by a constriction in front and behind, the posterior constriction varying from a clear separation to a more-or-less shallow impression (Figure 1)..... 2
 Mesosoma attached to gaster by two distinct segments (the petiole and the postpetiole), each segment clearly constricted anteriorly and posteriorly (Figure 2)..... 12
2. Petiole with visible anterior and dorsal faces but either broadly attached to the gaster posteriorly, the separation of the petiole and gaster indicated by a shallow impression or slit, or posterior face of petiole extremely short and effectively absent (Figure 3) 3
 Petiole with visible anterior, dorsal and posterior faces, the rear portion of the petiole separated from the gaster by a marked constriction (Figure 4) 4
3. Second upper gastral plate (second gastral tergite) strongly arched so that it is the last gastral segment visible in a dorsal view, the remaining gastral segments being much

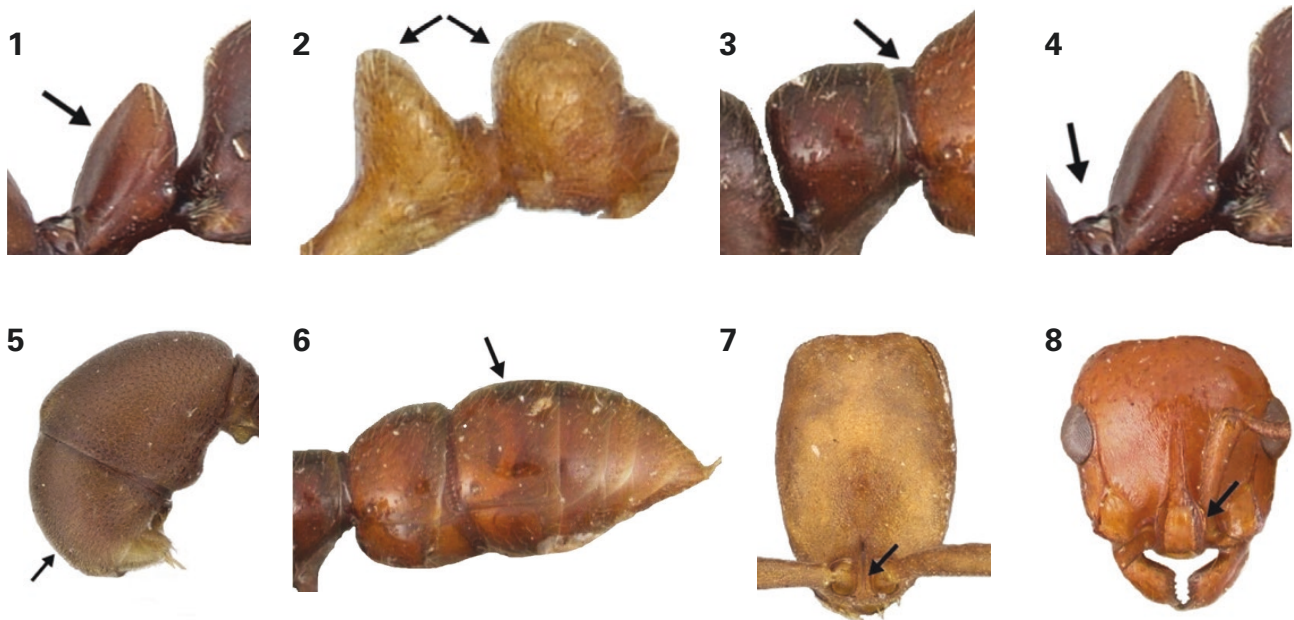
reduced, directed anterior and located ventrally (Figure 5) **Proceratiinae**
(Discothyrea)

Second gastral tergite only weakly arched, so that other gastral segments are visible in a dorsal view when the ant is moderately extended in a horizontal plane, these subsequent segments directed posteriad and not conspicuously reduced (Figure 6) **Amblyoponinae**

4. Frontal lobes reduced to a thin, sharp lamella between the antennal sockets, which are clearly visible in full-face view and located anteriorly on shelf-like frontoclypeal prominence that overhangs the mandibles (Figure 7)..... **Proceratiinae**
(Probolomyrmex)

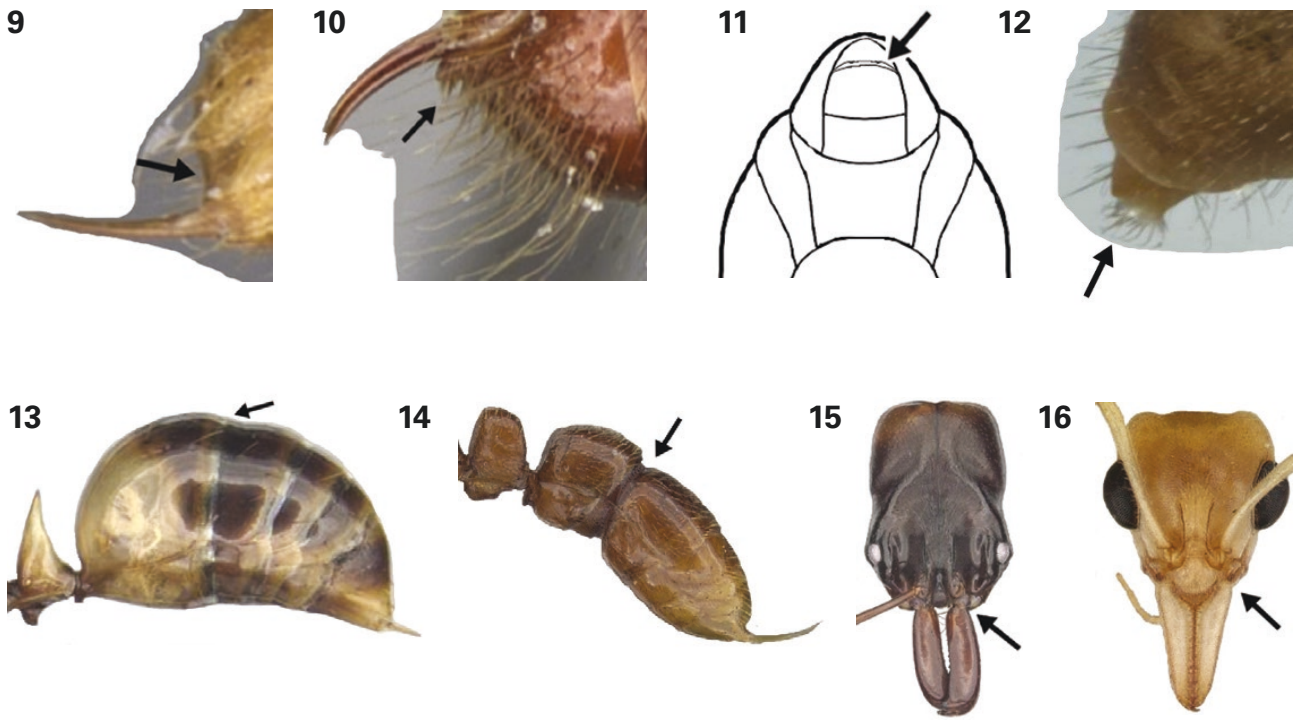
Frontal lobes not produced as thin, sharp lamellae or located on shelf-like frontoclypeal prominence that overhangs the mandibles; frontal lobes usually partially or completely obscuring antennal sockets (Figure 8)..... 5

5. Upper surface of terminal portion of gaster (the pygidium) flattened, with a row of spinous or peg-like teeth on its edge (Figure 9).....
 **Dorylinae**
(Lioponera, Ooceraea, Zaspinctus)



FIGURES 1–8

1) Single waist segment (CASENT0173649); 2) two waist segments (CASENT0063125); 3) petiole broadly attached to gaster (CASENT010251); 4) petiole narrowly attached to gaster (CASENT0173649); 5) Proceratiinae (*Discothyrea*) (CASENT0281863); 6) Amblyoponinae (CASENT010251); 7) Proceratiinae (*Probolomyrmex*) (CASENT0235685); 8) frontal lobes not reduced to thin lamellae (FOCOLO80).



FIGURES 9–16 9) Upper surface of pygidium lacking teeth (CASENT0902499); 10) Dorylinae (*Lioponera*, *Ooceraea*, *Zasphectus*) (CASENT0249290); 11) Dolichoderinae; 12) Formicinae (JDM32-002113); 13) gaster without slight but distinct constriction between first and second segments (CASENT0250098); 14) gaster with a distinct constriction between first and second segments (CASENT0270594); 15) Ponerinae (*Odontomachus*) (CASENT0250098); 16) Myrmeciinae (*Nothomyrmecia*) (CASENT0172003).

- Upper surface of pygidium not so flattened and lacking teeth as described above (Figure 10) 6
- 6. Sting absent from tip of gaster, its place taken by a pygidial slit or semicircular opening 7
- Sting present at tip of gaster, usually visible ... 8
- 7. Tip of gaster with transverse, ventral slit that is never surrounded by short setae (Figure 11) **Dolichoderinae**
- Tip of gaster with circular or semicircular orifice (acidipore) that is often surrounded by short setae (Figure 12)..... **Formicinae**
- 8. Gaster without a slight but distinct constriction between first and second segments 9
- Gaster with a distinct constriction between first and second segments (Figure 14) 10
- 9. Mandibles situated close together, elongate and linear, armed with developed teeth only at tip and capable of a gape of almost 180°; petiolar node high terminating in a spine (Figure 15)..... **Ponerinae** (*Odontomachus*)
- Mandibles attached near corners of head; elongate triangulate, armed with intermeshing teeth along entire margin; petiolar node low, rounded (Figure 16)..... **Myrmeciinae** (*Nothomyrmecia*)
- 10. Seen in full-face view, head with a fine but distinct median longitudinal ridge that runs uninterrupted from the vertex of the head to the anterior clypeal margin; hind tarsal claws simple (Figure 17) **Ectatomminae** (part: genus *Heteroponera*)
- Seen in full-face view, head without an uninterrupted median longitudinal ridge, although a partial median impression may be present (e.g. *Pseudoneoponera*); hind tarsal claws may be toothed or comb-like (pectinate) (Figure 18) 11
- 11. Metapleural gland orifice a longitudinal to oblique curved slit or crescent directed upward by a strip of cuticle; tibial claw with a preapical tooth; anterior angle of pronotum just above front legs nearly always with small tooth or spine (Figure 19)..... **Ectatomminae** (part: genus *Rhytidoponera*)

Metapleural gland orifice elliptical or circular and opening laterally or posteriad and not bounded by a strip of cuticle; tibial claw may be simple or pectinate; angle of pronotum not armed in Western Australian species (Figure 20).....**Ponerinae** (less *Odontomachus*)

12. Mandibles long, mainly straight, nearly always armed with teeth along their length and attached next to genae, if teeth highly reduced or absent from proximal portion of mandible then mandibles crossed at rest; eyes very large, positioned close to the mandibular attachment; mostly very large species (> 8 mm) (Figure 21).....**Myrmeciinae** (*Myrmecia*)

Mandibles usually short and triangular, if long and linear then armed with teeth only at tip and mandibles not crossed at rest; eyes present or absent but generally moderate in size and located above the mandibular attachment; mostly smaller species (< 8 mm) (Figure 22).....14

14. Pronotum and mesonotum fused to form the promesonotum, promesonotal suture incomplete or absent (Figure 23)15

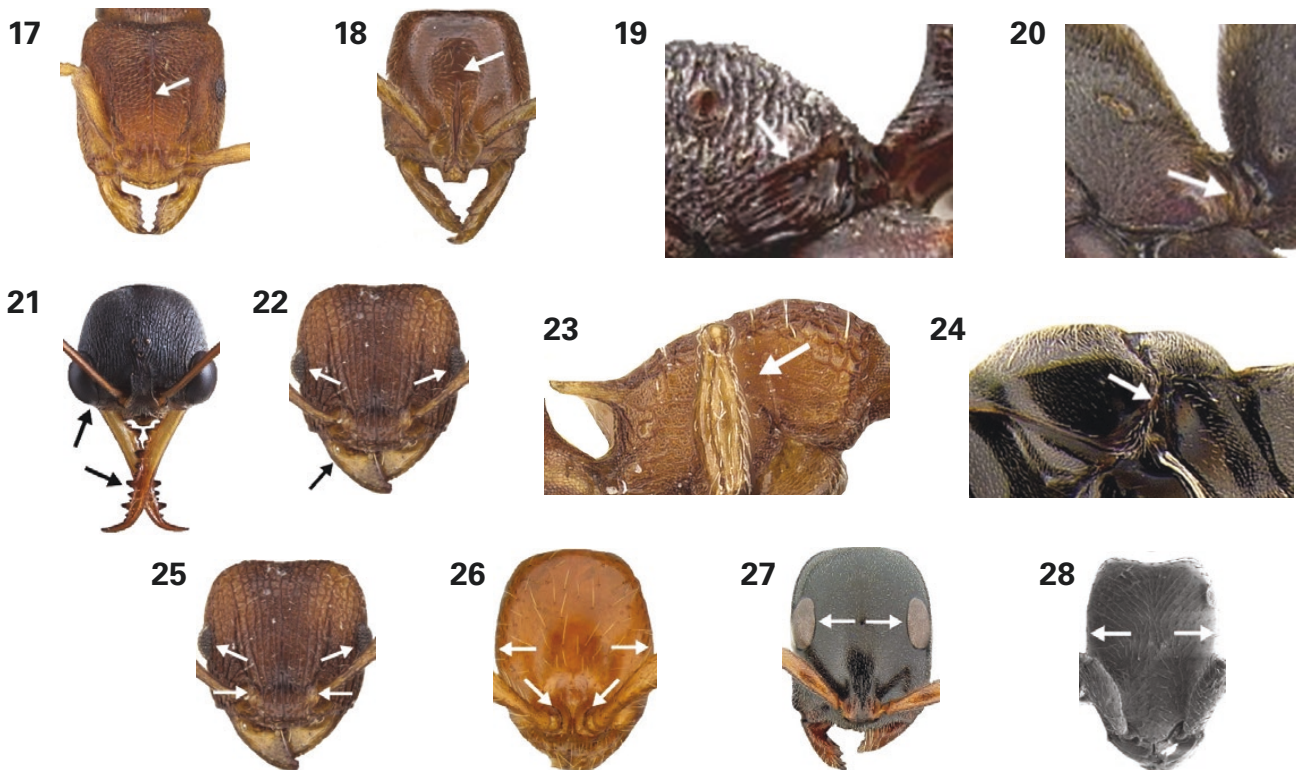
Pronotum and mesonotum not fused, the join between them flexible (Figure 24)16

15. Frontal lobes present, in full-face view partially or fully obscuring the antennal bases; antennae inserted to varying degrees above clypeal margin; eyes usually present (Figure 25).....**Myrmicinae**

Frontal lobes absent, in full-face view antennal bases exposed; antennae inserted at clypeal margin; eyes always absent (Figure 26).....**Dorylinae** (*Aenictus*)

16. Eyes present and large; tarsal claws toothed; of medium size (≥ 3 mm); arboreal (Figure 27) **Pseudomyrmecinae** (one WA genus, *Tetraoponera*)

Eyes always absent; tarsal claws simple; minute (< 1.5 mm); fossorial (Figure 28) **Leptanillinae** (one WA genus and species, *Leptanilla swani* Wheeler 1932)



FIGURES 17–28 17) Ectatomminae (*Heteroponera*) (CASENT0922017); 18) head without median longitudinal ridge (CASENT0270594); 19) Ectatomminae (*Rhytidoponera*) (ANTWEB1008311); 20) Ponerinae (less *Odontomachus*) (CASENT0249187); 21) Myrmeciinae (*Myrmecia*) (JDM32-003522); 22) mandibles short and triangular (CASENT0280871); 23) pronotum and mesonotum fused to form the promesonotum (CASENT0280871); 24) pronotum and mesonotum not fused (CASENT0106098); 25) Myrmicinae (CASENT0280871); 26) Dorylinae (*Aenictus*) (CASENT0106017); 27) Pseudomyrmecinae (CASENT0106098); 28) Leptanillinae (ANTWEB1008539).

KEY TO WESTERN AUSTRALIAN ANT GENERA

A complete list of the ant genera occurring in WA and their images can be found on AntWeb (<https://www.antweb.org/taxonomicPage.do?rank=genus&adm1Name=Western%20Australia&countryName=Australia>).

Note: a few changes are made to the list in this paper: *Pseudolasius* and *Prionopelta* are excluded from the list of WA taxa, and *Fulakora*, *Lepisiota*, *Ooceraea* and *Probolomyrmex* are included.

AMBLYOPONINAE

1. Lobes of frontal carinae contiguous or fused; anterior subpetiolar process with window (fenestra); apical tooth of mandible not elongate (Figure 29) *Fulakora*

Without the above combination of characters; if frontal carinae of similar appearance (*Onychomyrmex*), then apical tooth elongate 2

2. Antennal lobes broadly separated; tibiae with pectinate spurs; apical mandibular tooth at most twice as long as penultimate tooth (Figure 30) *Amblyopone*

Lobes of frontal carinae contiguous; tibiae with simple spurs or no spur; apical mandibular tooth at least four times as long as penultimate tooth (Figure 31) *Onychomyrmex*

DOLICHODERINAE

1. Scale of the petiole greatly reduced or absent; dorsal face of propodeum (if defined) shorter than declivous face; mandible lacking distinct separation between basal margin and inner (masticatory) margin; posterior clypeal margin circular in outline 2

Scale of the petiole usually distinct (if unclear, as in *Doleromyrma rotnestensis*, then mandible with distinct angle separating basal and masticatory margins, and posterior clypeal margin quadrate in outline); dorsal face of propodeum generally longer than declivous face 3

2. Seen in dorsal view, gaster with four visible tergites; pronotum generally lacking erect setae (thus in all WA species) (Figure 32) *Tapinoma*

Seen in dorsal view, gaster with five visible tergites; erect setae present on pronotum (Figure 33) *Technomyrmex*
(*T. jocosus* Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0909800>]

3. Propodeal angles armed with blunt horizontal spines directed posteriad, propodeal spiracle situated at base of spine (Figure 34) *Froggattella*

If propodeal angles armed with spines, then spines directed upward, and propodeal spiracle positioned well below propodeal angle 4

4. Palps short, PF 2,2; eyes small (< 50 ommatidia) (Figure 35) *Arnoldius*

Palps longer, PF 5,3 or 6,3; eyes generally larger (usually > 100 ommatidia), except for *Nebothriomyrmex* 5

5. Underside of head near base of mandible (lateral hypostoma) with weak to strongly developed flange that may be toothlike; ventral plates (prosternum and mesosternum) expanded and overlapping; head (in WA species) with weak to strong striate or foveate sculpture, mesonotum and propodeum, at least, also sculptured; propodeal angles produced as spines directed upward and posteriad or propodeum unarmed, its posterior surface abruptly flattened or concave (Figure 36) *Dolichoderus*

Underside of head rounded or with ridge but never with a flange; ventral plates separated by membrane; head and mesosoma may have shagreenate sculpture but usually smooth; propodeum seen in profile never armed with spines and rarely angulate, usually rounded but may be flattened or concave 6

6. PF 5,3; anterior margin of clypeus with around 8-20 short, straight setae which only barely surpass the anterior clypeal margin and don't overlap the mandibles; mandibles lack denticles; metanotal groove a deep groove or trough, the anterior dorsum of the propodeum often raised as a small prominence or the dorsum weakly sinuate when viewed in profile (Figure 37) *Papyrius*

PF 6,4; anterior margin of clypeus with around 2-16 short, erect setae which clearly surpass the anterior clypeal margin and overlap the



FIGURES 29–42

29) *Fulakora* (ANTWEB1041131); 30) *Amblyopone* (CASENT0172816); 31) *Onychomyrmex* (CASENT0172206); 32) *Tapinoma* (CASENT0104536); 33) *Technomyrmex* (*T. jocosus*) syntype (CASENT0909800); 34) *Froggattella* (JDM32-000175); 35) *Arnoldius* (CASENT0178491); 36) *Dolichoderus* (CASENT0909477); 37) *Papyrius* (CASENT0104328); 38) *Ochetellus* (CASENT0905059); 39) *Nebothriomyrmex* (*N. majeri*) (CASENT0009951); 40) *Iridomyrmex* (CASENT0172052); 41) *Anonychomyrma* (CASENT0905056); 42) *Linepithema* (*L. humile*) holotype (CASENT0915577).

basal margin of the mandibles; mandibles generally with a few denticles; metanotal groove a distinct angle, a narrow groove or notch; dorsum of the propodeum rounded or flattened but not irregularly shaped as above..... 7

- 7. Seen in profile, propodeum narrow, its declivous face weakly to distinctly concave, the overhanging dorsum forming a ridge that is a protrusive lip in some taxa; petiolar node an upright, flattened scale; appearance (especially the gaster) often glossy or metallic (Figure 38).....*Ochetellus*

Seen in profile, propodeum flat or convex, the dorsal and declivous faces not separated by ridge; petiolar node usually with shorter anterior than posterior face and directed anteriorly 8

- 8. Mesonotum flat anteriorly and strongly angled posteriorly where it declines into a deep, narrow metanotal groove; propodeum much higher than long; eyes small (~20 ommatidia) (Figure 39).....*Nebothriomyrmex* (*N. majeri* Dubovikoff)

[<https://www.antweb.org/specimenImages.do?name=casent0009951>]

Upper surface of mesosoma with pronotum and propodeum connected by a sloping mesonotum, metanotal groove a broad angle or, pronotum and mesonotum on same plane, metanotal groove a weak furrow; propodeum generally as high as long; eyes larger (usually > 100 ommatidia) 9

- 9. Seen in full-face view, mandibles linear-triangular, much longer than broad, with apical tooth more than twice as long as penultimate tooth; also in full-face view, eyes placed around middle of head; posterior margin of clypeus angled around tentorial pits; anterior margin of clypeus usually with anteromedian protuberance or tooth but planar or even weakly concave in a few species; seen in profile pronotum and mesonotum raised and separated from propodeum by a broad angle (Figure 40)*Iridomyrmex*

If mandibles linear-triangular as above in full-face view, then eyes placed in lower half of head; posterior margin of clypeus not angled around tentorial pits and anterior margin of clypeus weakly concave without anteromedian protuberance or tooth10

- 10. Seen in profile, mesosoma distinctly bimodal, with pronotal-mesonotal hump descending to propodeum and separated by a broad angle; mesosoma always with more than a dozen erect setae; mandibles broadly triangular, about as long as wide, and often marked by large hair pits or other sculpture; apical tooth only slightly longer than penultimate tooth (Figure 41)*Anonychomyrma*

Seen in profile, mesosoma weakly and smoothly convex anteriorly (*Linepithema*) or essentially planar, the outline interrupted only by weakly furrowed metanotal groove (*Doleromyrma*); mesosoma glabrous; mandible without conspicuous pitting, generally smooth, mandible tending to elongate-triangular in *Linepithema* with distinctly elongate apical tooth.....11

- 11. Seen in profile, ant more gracile (mesonotum wider than propodeum); metanotal groove distinct, propodeum raised slightly above level of mesonotum; mandibles linear-triangular with apical tooth more than twice as long as penultimate tooth (Figure 42).....*Linepithema* (*L. humile* [Mayr])

[<https://www.antweb.org/specimenImages.do?name=casent0915577>]

Seen in profile, ant more compact (mesonotum slightly narrower than propodeum); metanotal groove a weak furrow, propodeum on same plane as mesonotum; mandibles broadly triangular with apical tooth at most twice as long as penultimate tooth (Figure 43)*Doleromyrma*

DORYLINAE

- 1. Pygidium not armed with numerous spinous or peg-like setae; always eyeless (Figure 44)*Aenictus*

Pygidium armed with numerous spinous or peg-like setae; eyes usually present..... 2

- 2. Middle tibiae without spur, hind tibia with simple spur; petiole emarginate and with median longitudinal groove (Figure 45).....*Lioponera* (part: *Lioponera* sp. JDM 574)

[<https://www.antweb.org/specimenImages.do?name=jdm32-002647>]

Middle and hind tibiae always with pectinate spur; petiole often with at least anterior and lateral margins; petiolar node never grooved 3

3. At least dorsolateral sectors of petiolar node and often entire petiolar node marginate; hind coxa usually with posterior flange produced as a vertical opaque or semi-transparent lamella; metatibial gland opening usually evident as a slit or (less commonly) a circular opening, but may be inconspicuous; eyes large (Figure 46).....
.....*Lioponera* (part)

No segment of body conspicuously marginate; hind coxa without vertical lamella; metatibial gland opening reduced to an oval whitish patch or not discernible; eyes absent or vestigial 4

4. Seen in profile, base of promesonotal suture partially or completely fused, never a curved cut in the cuticular surface just above the first pair of legs; constrictions present at anterior end of abdominal segments V and VI (Figure 47)..... *Zasphinctus*

Seen in profile, base of promesonotal suture present as a deep cut in the cuticle; constrictions absent from anterior end of abdominal segments V and VI (Figure 48)....
.....*Ooceraea*
(*O. australis* [Forel])

[<https://www.antweb.org/specimenImages.do?name=casent0902746>]

ECTATOMMINAE

See below for key to species of *Heteroponera* and *Rhytidoponera*.

FORMICINAE

1. Antennal segments 10 or 11 (including scape) 2
Antennal segments 12 (including scape) 5
2. Palps short (PF 2,3); eyes vestigial in WA species (Figure 49) *Acropyga*
Palps long (PF 6,4); eyes of moderate size (\geq maximum scape diameter) 3
3. Propodeum smoothly rounded, without spines or denticles; petiole smoothly rounded, never armed above (Figure 50) ... *Plagiolepis*
Propodeum with one or more spines, denticles or protuberances; petiolar node may also be armed above with spines..... 4
4. In both lateral and dorsal view, mesonotum strongly constricted anteriorly, almost

tubelike; propodeal spiracle located just below propodeal angle (Figure 51).....
.....*Lepisiota*
(*L. frauenfeldi* [Mayr])

[<https://www.antweb.org/specimenImages.do?name=casent0909884>]

Mesonotum not constricted anteriorly and often widest in this sector; propodeal spiracle located laterally adjacent to declivous propodeal face and about halfway down propodeum, often directly under a prominence or denticle (Figure 52)
.....*Stigmacros*

5. Rear corner of metapleuron (part of the abdomen and fused above with the propodeum) just above the hind legs without an opening or a row of elongate setae 6

Rear corner of metapleuron just above the hind legs with a small opening (the metapleural gland opening) which is often fringed with fine, elongate setae..... 8

6. Palps shorter (PF 5,4); node of petiole low and rounded; in both profile and dorsal view mesonotum constricted and narrower than pronotum and propodeum; mandible with 10 or more teeth (Figure 53) *Oecophylla*
(*O. smaragdina* [Fabricius])

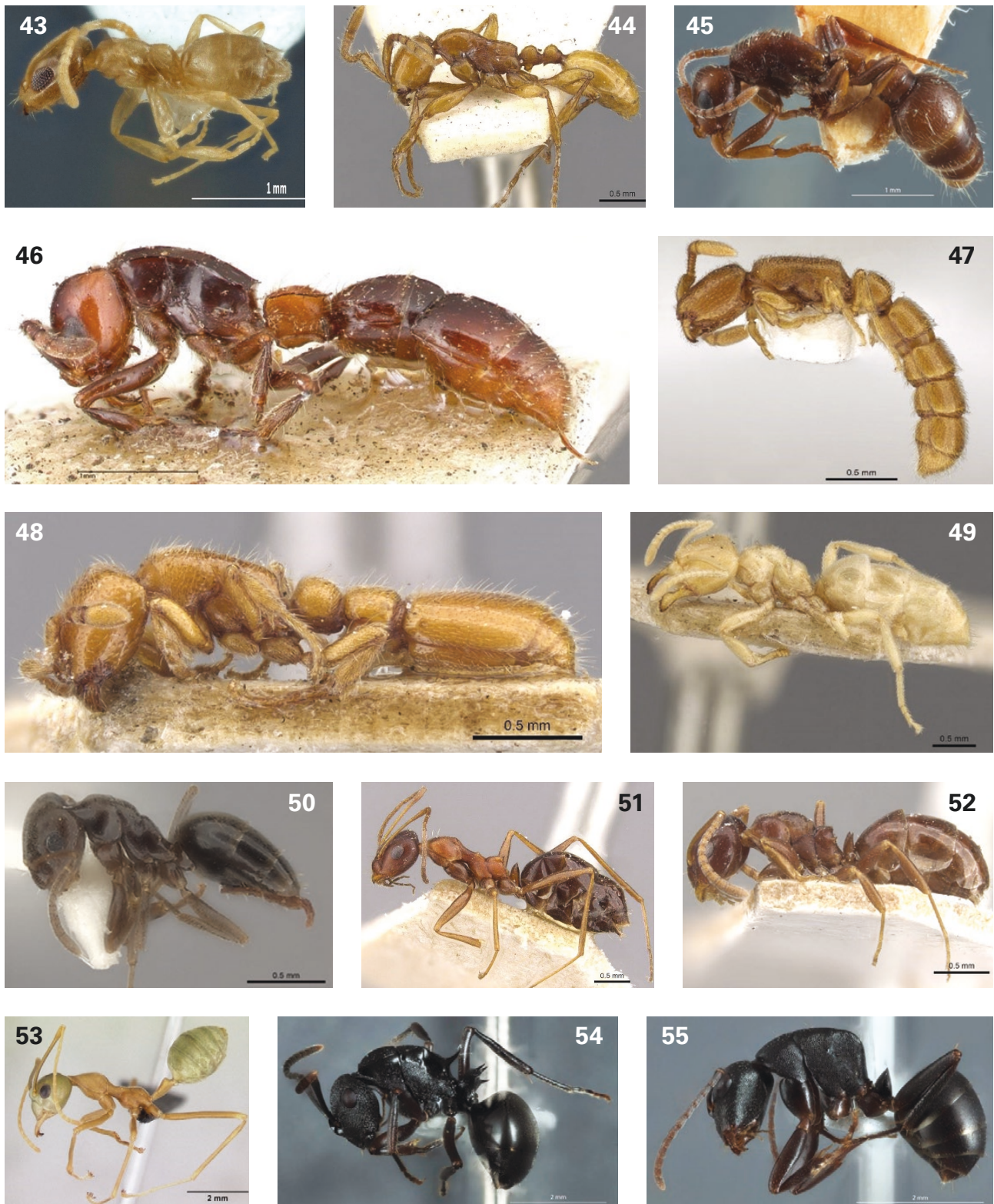
[<https://www.antweb.org/specimenImages.do?name=casent0070232>]

Palps longer (PF 6,4); node of petiole upright and distinct; mesonotum not constricted, intermediate in width between pronotum and propodeum in dorsal view; mandible usually with 8 or fewer teeth 7

7. First gastral tergite approximately half as long as the total length of the gaster; spines or sharp angles present on the dorsum of the petiole and often the mesosoma (Figure 54) *Polyrhachis*

First gastral tergite much less than half length of gaster; spines never present on mesosoma and petiole, the petiole rounded or angular above (Figures 55–56).....
.....*Camponotus/Colobopsis**

* Note: *Colobopsis* and *Camponotus* workers are very difficult to separate without recourse to molecular analysis, although the male genitalia, larvae and pupae are distinctive. *Colobopsis gasseri* (Forel) is confirmed as *Colobopsis* but not *Colobopsis* (?) sp. JDM 927, which shares similar morphological traits.



FIGURES 43–55

43) *Doleromyrma* (JDM32-00410); 44) *Aenictus* (CASENT0901480); 45) *Lioponera* (part: *Lioponera* sp. JDM 574) (JDM32-002647); 46) *Lioponera* (part) (FOCOLO340-1); 47) *Zasphinctus* (CASENT0249325); 48) *Ooceraea* (*O. australis*) syntype (CASENT0902746); 49) *Acropyga* (CASENT0909884); 50) *Plagiopsis* (CASENT0217738); 51) *Lepisiota* (*L. frauenfeldi*) syntype (CASENT0906081); 52) *Stigmacros* (CASENT0909935); 53) *Oecophylla* (*O. smaragdina*) (CASENT0070232); 54) *Polyrhachis* (JDM32-002207); 55) *Camponotus* (ANTWEB1041154).



FIGURES 56–69

56) *Colobopsis* (CASENT0280186); 57) *Opisthopsis* (ANTWEB1041154); 58) *Calomyrmex* (CASENT0906855); 59) *Prolasius* (CASENT0281470); 60) *Nylanderia* (CASENT0903128); 61) *Paraparatrechina* (ANTWEB1041155); 62) *Paratrechina* (*P. longicornis*) (CASENT0104236); 63) *Melophorus* (ANIC32-900190-1); 64) *Notoncus* (JDM32-002051); 65) *Myrmecorhynchus* (*M. emeryi*) (CASENT0227590); 66) *Leptanillinae* one species (*L. swani*) paratype (CASENT0172006); 67) *Nothomyrmecia* (*N. macrops*) (CASENT0003155); 68) *Myrmecia* (CASENT0914014); 69) *Epopostruma* (CASENT0280691).

8. Antennal sockets situated about two-fifths to halfway along antennal carina (considered in an upward direction), and well separated from the posterior clypeal margin..... 9

Antennal sockets situated at base of frontal carinae so that they abut the posterior margin of the clypeus.10

9. Eyes very large in size and placed at rear margins of the head, so that in full-face view they form part of the outline of the head (Figure 57).....*Opisthopsis*

Eyes moderate in size and placed laterally, never at rear corners of head; eyes in full-face view do not form part of outline of the head (Figure 58)*Calomyrmex*

10. Seen in full-face view, clypeus convex, acutely angled medially and often with complete or incomplete median longitudinal carina, the carina terminating in a small denticle or protuberance; propodeal spiracle round and placed immediately adjacent to declivous face of the propodeum (Figure 59).....

.....*Prolasius*

Anterior clypeal margin usually rounded, quadrate or otherwise shaped, if clypeus similar to above (a few *Melophorus*) then propodeal spiracle elongate or tear- or comma-shaped.....11

11. Upper surface of head and body with pairs of large, dark, stout, erect setae..... 12

Upper surface of the head and body with randomly placed, relatively thin erect setae which are unpaired and are often light-coloured, or body surfaces lacking erect setae14

12. Scapes with erect setae; mandibles with 6–7 teeth (Figure 60)..... *Nylanderia*

Scapes lacking erect setae; mandibles with 5 teeth.....13

13. Erect setae present on propodeum; 5–7 pairs of erect setae present on head; legs lacking erect setae (Figure 61).....*Parapatrechina*

Erect setae absent on propodeum; erect setae on head randomly scattered and not forming pairs; numerous erect setae present on legs (Figure 62)..... *Paratrechina*
(*P. longicornis* [Latreille])

[<https://www.antweb.org/specimenImages.do?name=casent0104236>]

14. Propodeal spiracle elongate, tear- or comma-shaped; psammophore usually present on

clypeus along with other, elongate curved setae on mandibles and on underside of head; tuft of J-shaped setae present on ventral mouthparts (Figure 63).....

..... *Melophorus*

Propodeal spiracle round or oval; elongate, curved setae absent from clypeus, mandibles and underside of head; tuft of J-shaped setae absent from ventral mouthparts.....15

15. Seen in full-face view, frontal carinae narrowly separated (separation $\leq 2.5 \times$ width of antennal socket); frontal carinae straight or weakly curved along their length; seen in full-face view, eyes placed distinctly above midpoint of head; worker caste monomorphic or essentially so in WA species; pronotum and metanotum expanded (except in *N. hickmani*) (Figure 64).....*Notoncus*

Seen in full-face view, frontal carinae broadly separated (separation $> 4 \times$ width of antennal socket at base); frontal carinae divergent posteriad; seen in full-face view, eyes placed at about midpoint of head; worker caste polymorphic with distinct minor, media and major workers; pronotum and metanotum not expanded (Figure 65)

.....*Myrmecorhynchus*

(*M. emeryi* André)

[<https://www.antweb.org/specimenImages.do?name=casent0227590>]

LEPTANILLINAE

One species (*Leptanilla swani* Wheeler) (Figure 66).

[<https://www.antweb.org/specimenImages.do?name=casent0172006>]

MYRMECIINAE

1. Mandibles elongate triangulate, armed with intermeshing teeth along entire margin; gaster without constriction behind petiole (Figure 67)..... *Nothomyrmecia*

(*N. macrops* Clark)

[<https://www.antweb.org/specimenImages.do?name=casent0003155>]

Mandibles linear, mainly straight, armed with non-intermeshing teeth along their length or with teeth reduced or absent on proximal portion of mandible; petiole and postpetiole present (Figure 68).....*Myrmecia*

MYRMICINAE

1. Seen in profile, antennal scape in resting position passing below the eye or across its lower margin; elongate depressions to receive the antennae (antennal scrobes), when present, run below the eye 2

Seen in profile, antennal scape in resting position passing above the eye (or where the eye would be in eyeless species); antennal scrobes, when present, run above the eye 4

2. Mandibles thin and linear, when fully closed separated by a broad gap for most of their length and touching only at the tips (Figure 69) *Epopostruma*

Mandibles triangular to elongate-triangular, when fully closed touching or nearly touching along their entire length 3

3. Mandible with teeth along its entire masticatory margin; seen in profile, base of mandible angled downwards as it passes under clypeus; seen in dorsal view, wing-like lamellae present on sides of petiole and postpetiole (postpetiolar lamellae absent in one species) (Figure 70) *Colobostruma*

Mandible with teeth confined to base and tip; seen in profile, base of mandible straight; seen in dorsal view, wing-like lamellae (when present) found only on the postpetiole, otherwise sides of petiole and postpetiole rounded or with ridge only (Figure 71) *Mesostruma*

4. Antennae with 4–6 segments (including the scape) 5

Antennae with 9–12 segments (including the scape) 6

5. Antennae with 5 segments (including the scape), the third segment (measuring from the apical segment) much longer than the other segments of the funiculus; PF 5,3 (Figure 72) *Orectognathus*
(*O. clarki* Brown)

[<https://www.antweb.org/specimenImages.do?name=casent0900020>]

Antennae with 4–6 segments (including the scape), the third segment (measured as above) about the same length or shorter than the remaining segments of the funiculus; PF 1,1 (Figure 73) *Strumigenys*

6. Antennae with 9 segments (including the scape); upper surface of promesonotum forming a broad shelf or shield whose extensions often project out and above the sides of the mesosoma (Figure 74)
..... *Meranoplus*

Antennae with 9–12 segments (including the scape); upper surface of the promesonotum variably developed but not expanded into a broad shelf or shield whose extensions project over the sides of the mesosoma 7

7. Postpetiole attached to upper surface of gaster; seen in dorsal view, gaster heart-shaped; petiole flattened dorsally without a node (Figure 75) *Crematogaster*

Postpetiole attached to front of gaster; seen in dorsal view gaster not distinctly heart-shaped; petiole usually with a developed node, may be barrel-shaped or with a low protuberance, but not flattened as above 8

8. Apical and penultimate antennal segments longer and often bulkier than remaining segments so that they form a conspicuous 2-segmented club 9

Antennae either without a club or with club of 3 or more segments 11

9. Propodeum with its dorsal face rounded smoothly over into its declivous face and lacking teeth, spines or thin flanges; clypeus medially notched with a single anteromedian seta, this often surrounded by paired setae (Figure 76) *Solenopsis*

Propodeal angles present, these armed with denticles, spines or thin, elongate flanges; clypeus not medially notched with a single anteromedian seta 10

10. Front of head without antennal scrobes; dimorphic or polymorphic with major, minor and (in one species) media workers; eyes small and round (Figure 77)
..... *Carebara*

Front of head with antennal scrobes; workers monomorphic; eyes comma-shaped, terminating in a point anteriorly (Figure 78)
..... *Mayriella*
(*M. occidua* Shattuck)

[https://www.antwiki.org/wiki/Mayriella_occidua]

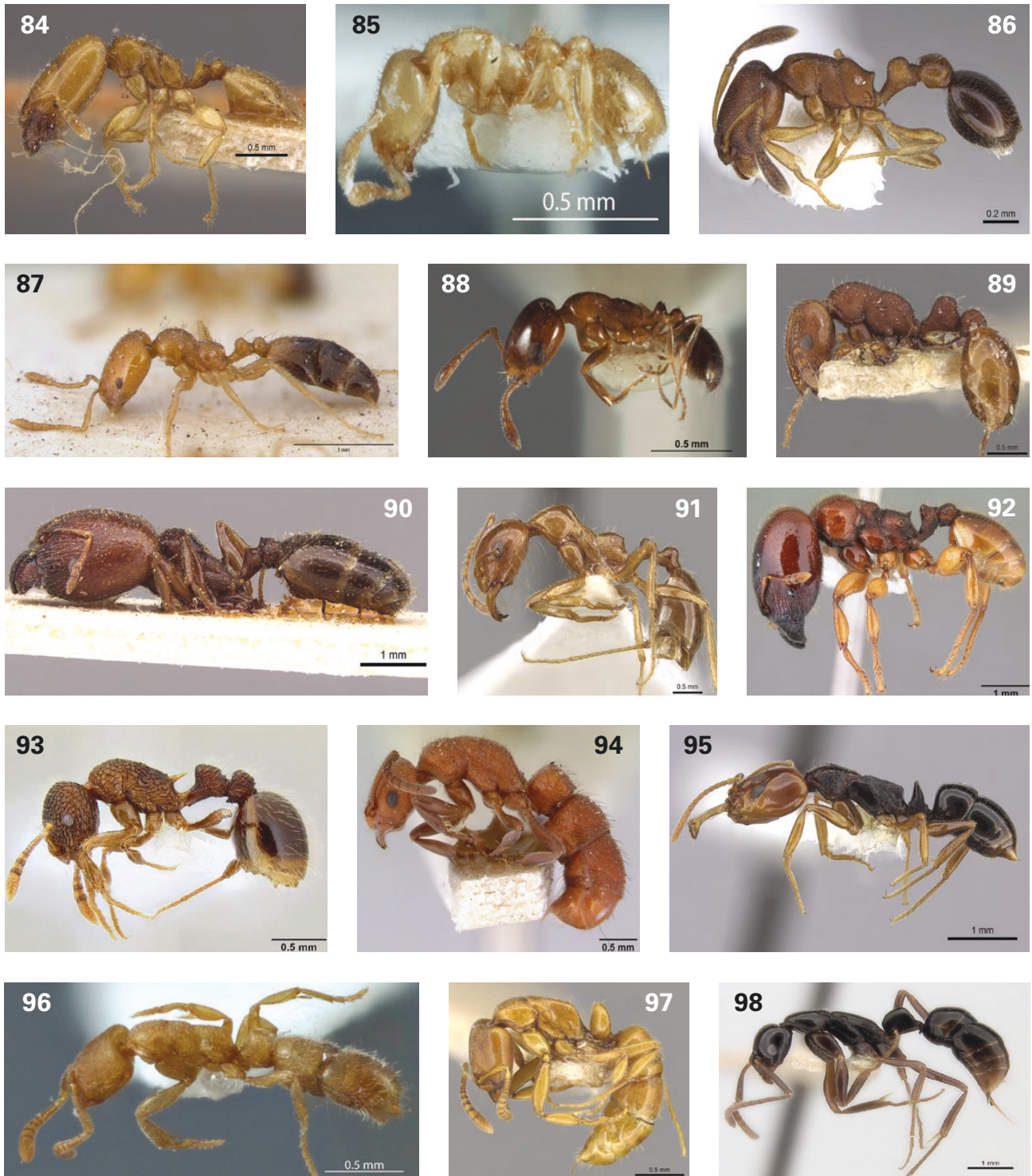
11. Clypeus below antennal sockets raised up into a sharp-edged ridge; tip of sting with a very small triangular to elongate lamella that can be seen when the sting is protruded (Figure 79) *Tetramorium*



FIGURES 70–83

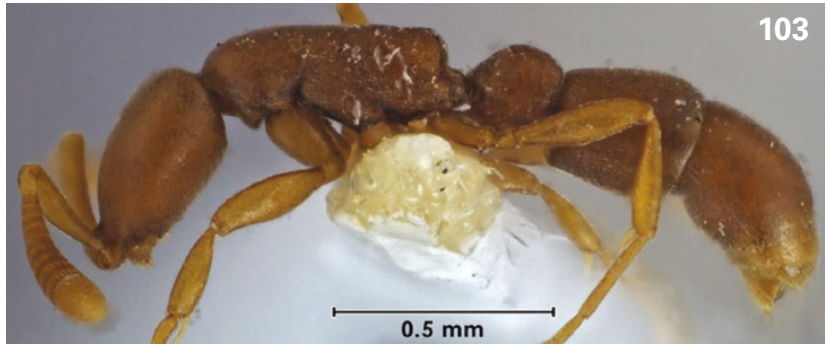
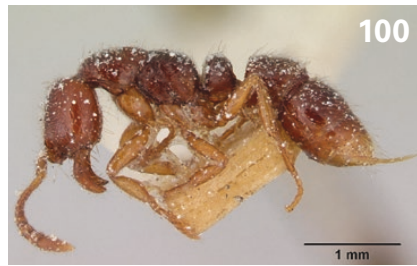
70) *Colobostruma* (CASENT0280688); 71) *Mesostruma* (CASENT0172474); 72) *Orectognathus* (*O. clarki*) paratype (CASENT0900020); 73) *Strumigenys* (CASENT0172366); 74) *Meranoplus* (CASENT0922918); 75) *Crematogaster* (CASENT0908375); 76) *Solenopsis* (CASENT0902365); 77) *Carebara* (CASENT0908903); 78) *Mayriella* (*M. occidua*) holotype (ANIC32-009464); 79) *Tetramorium* (CASENT0280872); 80) *Podomyrma* (CASENT0901997); 81) *Stereomyrmex* (*S. anderseni*) holotype (CASENT0172304); 82) *Monomorium* (part) (CASENT0908685); 83) *Adlerzia* (*A. froggatti*) syntype ('*Machomyrma silvestrii*') (CASENT0010805).

- Clypeus below antennal sockets usually smooth, and never raised up into a sharp-edged ridge; tip of sting without lamella, its appearance varying from thin and pointed to slightly flattened and swollen 12
12. Antenna with 10 or 11 segments, including the scape 13
- Antenna with 12 segments, including the scape 17
13. Femora and often tibiae of middle and hind legs greatly swollen; petiole long and low usually with a dorsal angle, denticle or small spine or pair of spines; arboreal ants (Figure 80).....*Podomyrma*
- Femora and tibiae of middle and hind legs of normal dimensions; petiole nodiform and unarmed.....14
14. Dorsum of mesosoma evenly convex and with no trace of metanotal groove; PF 5,3; seen in dorsal view, petiole and postpetiole relatively thick and broad, about the same width as propodeum; monomorphic (Figure 81)*Stereomyrma* (*S. anderseni* [Taylor])
- [<https://www.antweb.org/specimenImages.do?name=casent0172304>]
- Dorsum of mesosoma usually undulant and always with weakly to strongly defined metanotal groove; PF 1,2; 2,2 or 4,3; seen in dorsal view, petiole and postpetiole usually narrower than propodeum (postpetiole broad in major worker of *Pheidole dispar*, but here the petiole is very narrow); monomorphic or dimorphic.....15
15. Monomorphic; PF 1,2 (commonly) or 2,2; clypeus usually distinctly longitudinally bicarinate; anterior margin of clypeus with single median seta (Figure 82).....*Monomorium* (part)
- Dimorphic with major and minor workers; PF 4,3 (*Adlerzia*) or 2,2 (*Pheidole dispar*); anterior clypeal margin with pair of setae that straddle the midpoint or with row of undifferentiated setae16
16. Palp formula 4,3; seen in full-face view, clypeus longitudinally bicarinate; seen in profile, petiole elongate with broadly rounded node and a spinous anteroventral process (most distinctive in the major worker) (Figure 83)*Adlerzia* (*A. froggatti* [Forell])
- [<https://www.antweb.org/specimenImages.do?name=casent0010805>]
- Palp formula 2,2; seen in full-face view, clypeus smooth or with weak, scattered sculpture but not longitudinally bicarinate; seen in profile, petiole rather short with a high, narrow node, anteroventral process absent (Figure 84).....*Pheidole* (part: *P. dispar* [Forell])
- [<https://www.antweb.org/specimenImages.do?name=casent0917761>]
17. Eye absent or vestigial, represented by fleck of pigment and single ommatidium) (Figure 85)*Syllophopsis* (*Syllophopsis* sp. JDM 438)
- [<https://www.antweb.org/specimenImages.do?name=jdm32-003585>]
- Eye moderate to large, with many ommatidia18
18. Anterior clypeal margin with an anteromedian seta, which is often accompanied by other paired setae.....19
- Anterior clypeal margin with pair of setae that straddle midline, or with numerous unpaired setae or with no setae 22
19. Palp formula 5,3; clypeus in full face view a flat, broadly projecting apron with a depression extending from antennal sockets forming a small concavity on either side of apron; seen in dorsal view, postpetiole larger than petiole (Figure 86).....*Cardiocondyla*
- Palp formula 2,2 or 2,3; clypeus in full-face view not as above, usually weakly to strongly bicarinate, the carinae in some cases produced as distinct teeth, which may be accompanied by other clypeal teeth or prominences; seen in dorsal view, postpetiole usually the same size as or smaller than petiole..... 20
20. Seen in full-face view, with a band of fine, transverse striolae confined to margin of vertex of head (rarely absent in very small workers); worker exhibiting monophasic allometric size variation; PF 2,2; mandible with 3 distinct teeth with the apical tooth a minute offset denticle (Figure 87)*Trichomyrma* (*T. destructor* [Jerdon])
- [<https://www.antweb.org/specimenImages.do?name=casent0008623>]



FIGURES 84–98

84) *Pheidole* (part: *P. dispar*) syntype (CASENT0917761); 85) *Sylophopsis* (*Sylophopsis* sp. JDM 438) (JDM32-003585); 86) *Cardiocondyla* (CASENT0914965); 87) *Trichomyrmex* (*T. destructor*) lectotype (CASENT0008623); 88) *Monomorium* (part) (ANIC32-015672-1); 89) *Chelaner* (CASENT0902293); 90) *Pheidole* (excepting *P. dispar* and *P. antipodum*) (CASENT0908029); 91) *Aphaenogaster* (CASENT0280942); 92) *Pheidole* (part: *P. antipodum*) (CASENT0010804); 93) *Austromorium* (CASENT0106211); 94) *Platythyrea* (CASENT0172406); 95) *Anochetus* (CASENT0260505); 96) *Ponera* (ANTWEB1041118); 97) *Hypoponera* (CASENT0915192); 98) *Leptogenys* (CASENT0217532).



FIGURES 96–105 99) *Pseudoneoponera* (ANTWEB1041119); 100) *Myopias* (*M. tasmaniensis*) paratype (CASENT0270594); 101) *Brachyponera* (*B. lutea*) (CASENT0249181); 102) *Austroponera* (*A. rufonigra*) syntype (CASENT0249178); 103) *Probolomyrmex* (*P. latalongus*) (ANIC32-011632); 104) *Discothyrea* (CASENT0922241); 105) *Tetraponera* (CASENT0907468).

Palp formula usually 2,3, if 2,2 then head either completely smooth above, or with sculpture that is more uniformly distributed over the head; mandible with 2–7 teeth and denticles, but never with a PF of 2,2 and 4 mandibular teeth of which the apical member is a minute offset denticle21

- 21. Cross vein m-cu lacking or represented by shadow only, cross vein m-cu always absent (male and queen); PF 2,2 or 1,2, mandibular teeth 3 or 4; clypeus weakly to strongly bicarinate, where carinae produced as sharp angles or short teeth then with only paired teeth; monomorphic (Figure 88) *Monomorium* (part)

Cross vein m-cu always present as entire vein or at least an appendix; cross-vein cu-a usually present (male and queen); known

PF 2,3 in all WA species; mandibular teeth either always 4 (includes several polymorphic species with large-headed major workers as well as monomorphic species) or 2–7, mostly 5 (species monomorphic or showing weak allometric variation in size); clypeal carinal tooth often accompanied by additional teeth or denticles, especially in the *C. whitei* species-group (Figure 89) *Chelaner*

- 22. Seen in profile, the propodeum on a lower plane than promesonotum, with posterior sector of promesonotum forming a steep, sloping bridge between anterior and posterior mesosoma 23

In profile, promesonotum and propodeum on same plane, only interrupted by a shallow metanotal groove.....24

23. Antenna with 3-segmented club, pf 2,2 or 3,2; dimorphic (major and minor workers only) (Figure 90)..... (*Pheidole*, excepting

P. dispar and *P. antipodum*)

Antenna with a 4-segmented club; PF 4,3; monomorphic (Figure 91).....*Aphaenogaster*

24. Eyes small, with at most 4 ommatidia at greatest diameter; polymorphic (Figure 92)*Pheidole* (part: *P. antipodum* [F. Smith])

[<https://www.antweb.org/specimenImages.do?name=casent0010804>]

Eyes large, with at least 8 ommatidia at greatest diameter; monomorphic (Figure 93)*Austromorium*

PONERINAE

Excluding *Odontomachus* (see key to subfamilies above).

1. Seen in full-face view, clypeus broadly separated between flattened frontal lobes, the antennal sockets widely separated; hind tibiae with two pectinate spurs; tarsal claws usually with a single preapical tooth, rarely simple (Figure 94)*Platythyrea*

Seen in full-face view, clypeus narrowly inserted between frontal lobes (which may be raised) and antennal sockets closely approximated; hind tibiae with one or two spurs; tarsal claws usually simple but may be pectinate or armed with a single tooth..... 2

2. Mandibles long and linear, inserted medially in front of head; eyes set on prominences (Figure 95).....*Anochetus*

Mandibles usually triangular or elongate triangular, inserted towards sides of front of head; eyes not set on prominences..... 3

3. Ventral apex of hind tibia with a single spur, which is pectinate..... 4

Ventral apex of hind tibia with a large pectinate spur and a smaller simple spur 5

4. Subpetiolar process with an anterior fenestra (process with paired teeth posteriad in one WA species, lacking in the other WA species) (Figure 96) *Ponera*

Subpetiolar process without anterior fenestra or paired teeth posteriad (Figure 97)..... *Hypoponera*

5. Tarsal claws pectinate or armed with 1–2 preapical teeth (Figure 98)..... *Leptogenys*

Tarsal claws simple 6

6. Propodeal spiracle slit-shaped (Figure 99) *Pseudoneoponera*

Propodeal spiracle round or ovoid 7

7. Mandibles linear or triangular; clypeus with a blunt anteromedian rectangular projection (Figure 100) *Myopias* (*M. tasmaniensis* Wheeler)

[<https://www.antweb.org/specimenImages.do?name=casent0172088>]

Mandibles triangular. Clypeus without a blunt anteromedian clypeal projection..... 8

8. Mandible with a basal pit or groove; first ventral gastral plate (sternite) without an anterior cuticular ridge or process (prora) (Figure 101)*Brachyponera* (*B. lutea* [Mayr])

[<https://www.antweb.org/specimenImages.do?name=casent0249181>]

Mandible without a basal pit or groove; prora present on first gastral sternite (Figure 102)

.....*Austroponera* (*A. rufonigra* [Clark])

[<https://www.antweb.org/specimenImages.do?name=casent0249178>]

PROCERATIINAE

1. Second gastral tergite only weakly arched, so that subsequent gastral tergites can be seen in dorsal view when ant is moderately extended, tip of gaster directed downward or posteriad; petiole with visible anterior, dorsal and posterior faces (Figure 103).....

.....*Probolomyrmex* (*P. latalongus* Shattuck, Gunawardene and Heterick)

[https://www.antwiki.org/wiki/Probolomyrmex_latalongus]

Second gastral tergite strongly arched so that it constitutes the last visible tergite when seen in dorsal view, tip of gaster directed anteriad; petiole with visible anterior and dorsal faces but posterior face very short, effectively vestigial (Figure 104).....

.....*Discothyrea*

PSEUDOMYRMECINAE

See key to species of *Tetraponera* below (Figure 105).

**KEY TO WESTERN AUSTRALIAN
ANT SPECIES**

Links included in the following key refer to websites, chiefly AntWiki or AntWeb, that provide Automontaged photographic images of preserved museum specimens and occasionally shots of living animals. These can be used to confirm identifications arrived at by use of the key.

Note: AntWeb images may be under a different name to that appearing in the key. This is because the name was fixed at the time of original input and cannot be altered without access to the original CSIRO database. The AntWeb name should be disregarded in this case. Online copies of .pdfs also include photographs and diagnostic features where photographs are lacking.

AMBLYOPONINAE

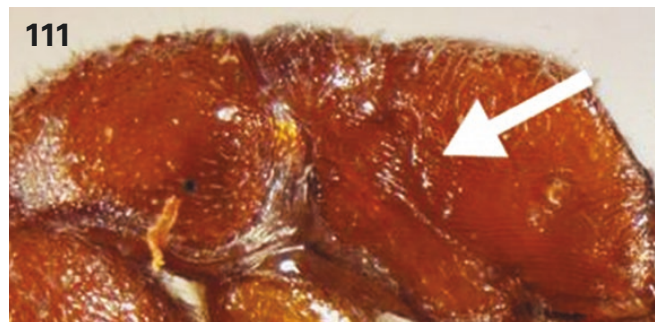
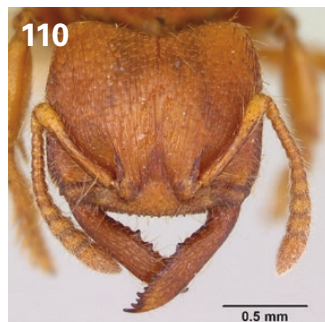
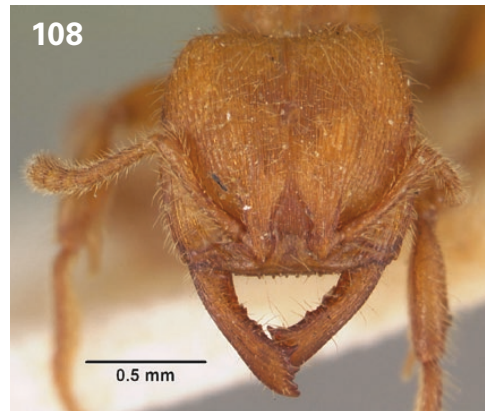
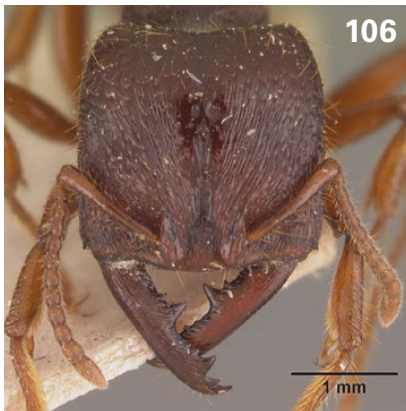
Amblyopone

1. Upper sector of frons predominantly smooth and shining with punctuation (scattered hair pits) only..... 2

Upper sector of frons weakly shining with regular fine striae and punctuation 3

2. Lower genae adjacent to mandibular insertions terminating in a spine; prominent middle tooth of mandible preceded by one or more denticles; frons of head with distinct punctuation (Figure 106)
..... *australis* Erichson

[<https://www.antweb.org/specimenImages.do?name=casent0102519>]



FIGURES 106–114

106) *Amblyopone australis* syntype ('*A. australis fortis*') (CASENT0102519); 107) *Amblyopone michaelsoni* (CASENT0102195); 108) *Amblyopone aberrans* (CASENT0102193); 109) *Amblyopone longidens* (CASENT0102521); 110) *Amblyopone clarki* (CASENT0102194); 111) *Fulakora punctulata* syntype (ANTWEB1008137); 112) *Fulakora* sp. JDM 1020 (ANTWEB1041131); 113) *Onychomyrmex glauerti* paratype (CASENT0172203); 114) *Onychomyrmex* sp. AU04 (ANIC) (CASENT0172386).

Lower genae adjacent to mandibular insertions rounded; prominent middle tooth of mandible unaccompanied by smaller denticles; frons of head with vestigial punctures only (Figure 107).....
..... *michaelseni* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0102195>]

3. Masticatory margin of mandible gently concave, the mandible slender with weak dentition apart from the end of the mandible where teeth are clustered; mandible terminates more-or-less abruptly (Figure 108).....
..... *aberrans* Wheeler

[<https://www.antweb.org/specimenImages.do?name=casent0102193>]

Masticatory margin of mandible straight or weakly convex, mandible may have a prominent tooth at its midpoint; mandible terminates in a prominent apical tooth..... 4

4. Masticatory margin of mandible with 3 noticeably enlarged preapical teeth including a prominent tooth at its midpoint (Figure 109).....
..... *longidens* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0102521>]

Masticatory margin of mandible with weak dentition, teeth varying little in size, tooth at midpoint of mandible not prominent as above (Figure 110).....
..... *clarki* Wheeler

[<https://www.antweb.org/specimenImages.do?name=casent0172816>]

Fulakora

1. Seen in profile, pronotum, upper sector of mesopleuron and propodeum shining and smooth except for scattered puncturation (Figure 111).....
..... *punctulata* (Clark)

[<https://www.antweb.org/specimenImages.do?name=antweb1008137>]

Seen in profile, pronotum, mesopleuron and propodeum finely striolate throughout (Figure 112).....
..... *Fulakora* sp. JDM 1020

[<https://www.antweb.org/specimenImages.do?name=antweb1041131>]

Onychomyrmex

1. Well-developed eyes present; larger (HW > 0.85 mm) (south-western WA) (Figure 113).....
..... *glauerti* (Clark)

[<https://www.antweb.org/specimenImages.do?name=casent0172203>]

Eye represented by small circular discoloration; smaller (HW < 0.60 mm) (Kimberley) (Figure 114).....
..... *Onychomyrmex* sp. AU04 (ANIC)

[<https://www.antweb.org/specimenImages.do?name=casent0172386>]

DOLICHODERINAE

Anonychomyrma

1. Seen in full-face view, head about as long as wide, vertex shallowly concave; small setae constituting pubescence almost semi-erect, mesonotum not prominent (terrestrial) (Figure 115).....
..... *itinerans perthensis* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0909544>]

Seen in full-face view, if head as long as wide, then vertex deeply concave; small setae constituting pubescence appressed or weakly decumbent; mesonotum often prominent (arboreal)..... 2

2. Erect setae absent from sides of head; vertex deeply concave; seen in full-face view, head as long as wide; mandibles usually brown or orange, contrasting with darker head (Figure 116).....
..... *nitidiceps* (André)

[<https://www.antweb.org/specimenImages.do?name=casent0909543>]

Erect setae present on sides of head; vertex shallowly concave; seen in full-face view, head distinctly longer than wide; mandibles often black or dark brown, concolorous with head (Figure 117).....
..... *fornicata* (Emery)

[<https://www.antweb.org/specimenImages.do?name=casent0905056>]

Arnoldius

Arnoldius scissor (Crawley) was described from two queens taken from a colony of *Iridomyrmex innocens* Forel, and Crawley opined that this was likely a parasitic species. The shape of the mandible suggests this (Heterick 2009). However, most formicid parasites choose as a host a closely related species within their own genus, and the queens may have come from a nest adjacent to the *Iridomyrmex* colony. *Arnoldius scissor* may be the queen of *Arnoldius* sp. JDM 433.

1. Eye larger, eye width > greatest width of antennal scape; brown species (Figure 118).....
..... *Arnoldius* sp. JDM 433

[<https://www.antweb.org/specimenImages.do?name=antweb1008611>]

Eye smaller, eye width \leq greatest width of antennal scape; yellowish species (Figure 119) *flavus* (Crawley)

[<https://www.antweb.org/specimenImages.do?name=casent0103285>]

Doleromyrma

1. Eye large, in profile about one third as long as head (Figure 120) *Doleromyrma* sp. JDM 1154

[<https://www.antweb.org/specimenImages.do?name=jdm32-004610>]

Eye moderate, in profile about one quarter as long as head 2

2. Node prominent, rising well above the articulation of the peduncle with the propodeum (Figure 121) *darwiniana fida* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0909518>]

Node vestigial, barely rising above articulation of the propodeum (Figure 122) *rotnestensis* (Wheeler)

[<https://www.antweb.org/specimenImages.do?name=antweb1008633>]

Dolichoderus

1. Propodeum with elongate spines 1
Propodeum lacking spines 5

2. Seen in full-face view, propodeal spines directed dorsad at angle of greater than 60° to horizontal plane (may be almost vertical), the angle between them approximately 45° (Figure 123) *angusticornis* Clark

[<https://www.antweb.org/specimenImages.do?name=casent0249557>]

Seen in full-face view, propodeal spines directed dorsad at angle of 45° or less to horizontal plane, the angle between them at least 90° 3

3. Legs entirely light red or orange (Figure 124) *ypsilon* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0909477>]

Femora dark reddish-brown or black, tibia varying from dark brown to light red 4

4. Legs bicoloured, dark femora contrasting with lighter-coloured tibia; pubescence on gaster yellow (Figure 125) *rufotibialis* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008175>]

Legs uniformly dark reddish-brown to reddish-black; pubescence on gaster off-white (Figure 126) *niger* Crawley

[<https://www.antweb.org/specimenImages.do?name=casent0902980>]

5. Seen in profile, posterior face of propodeum weakly concave, separated from dorsal face by at most a weakly defined angle; sculpturing on head minimal, either essentially absent or consisting of very fine reticulation 6

Seen in profile, posterior face of propodeum strongly concave, separated from dorsal face by a distinct carina; sculpturing on head consisting of large, shallow to moderately deep fovea 7

6. Worker medium brown with yellowish legs; pubescence absent on gaster; seen in full-face view, sculpture of head consisting mainly of superficial microreticulation (Figure 127) *parvus* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008172>]

Worker dark brown to black; pubescence present on gaster, appressed setae thick, overlapping; seen in full-face view, sculpture of head consisting of small hair pits and weak fovea, head shining (Figure 128) *goudiei* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008169>]

7. Tibiae lacking erect setae (Figure 129) *semiorbis* Shattuck & Marsden
[https://www.antwiki.org/wiki/Dolichoderus_semiorbis]

Tibiae with erect or sub-erect setae 8

8. Seen in profile, dorsum of propodeum elongate (longer than declivous face); the carina separating dorsal and declivous faces produced as a sharp shelf; with pale markings near lower margin of eye (Figure 130) *albamaculus* Shattuck & Marsden

[https://www.antwiki.org/wiki/Dolichoderus_albamaculus]

Seen in profile, dorsum of propodeum shorter (at most, approximately same length as declivous face); carina separating dorsal and declivous faces narrow; without pale markings near lower margin of eye 9

9. Seen in profile, dorsum of propodeum highly arched and often with flat or even weakly concave sections; posterior face of propodeum deeply concave and often



FIGURES 115–132

115) *Anonychomyrma itinerans perthensis* syntype (CASENT0915192); 116) *Anonychomyrma nitidiceps* syntype (CASENT0909543); 117) *Anonychomyrma fornicata* syntype (CASENT0905056); 118) *Arnoldius* sp. JDM 433 (CASENT1008611); 119) *Arnoldius flavus* (CASENT0103285); 120) *Doleromyrma* sp. JDM 1154 (JDM32-004610); 121) *Doleromyrma darwiniana fida* syntype (CASENT0909518); 122) *Doleromyrma rotnestensis* (ANTWEB1008633); 123) *Dolichoderus angusticornis* (CASENT0249557); 124) *Dolichoderus ypsilon* (CASENT0909477); 125) *Dolichoderus rufotibialis* holotype (ANTWEB1008175); 126) *Dolichoderus niger* syntype (CASENT0902980); 127) *Dolichoderus parvus* holotype (ANTWEB1008172); 128) *Dolichoderus goudiei* holotype (ANTWEB1008169); 129) *Dolichoderus semiorbis* holotype (ANIC32-059627); 130) *Dolichoderus albamaculus* paratype (ANIC32-0061315); 131) *Dolichoderus reflexus* holotype (ANTWEB1008173); 132) *Dolichoderus clusor* (CASENT0906227).



FIGURES 133–139 133) *Dolichoderus omicron* (CASENT0249560); 134) *Dolichoderus nigricornis* syntype (ANTWEB1008170); 135) *Dolichoderus formosus* holotype ('*D. occidentalis*') (ANTWEB1008171); 136) *Froggattella kirbii* syntype ('*F. kirbyi bispinosa*') (CASENT0907611); 137) *Froggattella latispina* (JDM32-000175); 138) *Iridomyrmex rufoinclinus* holotype (CASENT0172060); 139) *Iridomyrmex cappoinclinus* holotype (CASENT0172058).

nearly semi-circular; seen in dorsal view the pronotum with strongly developed shoulders, area between the shoulders weakly convex to weakly concave (Figure 131) *reflexus* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008173>]

Seen in profile, dorsum of propodeum more weakly and evenly convex, occasionally with a flat or nearly flat section posteriad; posterior face of propodeum less deeply concave and much less semi-circular; seen in dorsal view the pronotum with only weakly developed shoulders, the area between them more strongly convex to flat.....10

10. Seen in dorsal view, dorsum of pronotum essentially smooth, the surface shining; pubescence on first gastral tergite abundant, with appressed setae overlapping (Figure 132) *clusor* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0906227>]

Seen in dorsal view, dorsum of pronotum sculptured to varying degrees; pubescence of first gastral tergite either absent, or sparser, with most appressed setae not overlapping.....11

11. Gaster generally yellowish-red and lighter in colour than mesosoma, but can be darker, in which case the head is light-coloured and antennal scapes are the same colour as the head (Figure 133) *omicron* Shattuck & Marsden

[<https://www.antweb.org/specimenImages.do?name=casent0249560>]

Gaster dark brown to black, darker than mesosoma when mesosoma is lightly coloured (similar to mesosoma in colour when entire body is dark brown to black), if head is light-coloured, then antennal scapes are darker than head capsule..... 12

12. Head reddish to reddish-brown and much lighter in colour than dark brown to black gaster; antennal scape typically black, much darker than head (Figure 134)..... *nigricornis* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008170>]

Head dark brown to black and similar in colour to the gaster (head and body may be uniformly dark); antennal scape same colour as head (Figure 135)..... *formosus* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008171>]

Froggattella

1. Seen in full-face view, head with weakly developed, uniform sculpture on upper sector of frons; seen in profile, rugae on mesopleuron well-developed, not interrupted by other sculpture; seen in dorsal view propodeal spines with outer surfaces concave posteriad (Figure 136) *kirbii* (Lowne)
[<https://www.antweb.org/specimenImages.do?name=casent0907611>]

Seen in full-face view, sculpture on lower frons consisting of very fine striae, shagreenate sculpture on upper frons or sculpture absent; seen in profile, rugae on mesopleuron weakly developed and interrupted by underlying punctuation or reticulate sculpture; seen in dorsal view, propodeal spines with outer surfaces flat or convex posteriad (Figure 137)
.....*latispina* Wheeler
[<https://www.antweb.org/specimenImages.do?name=jdm32-000175>]

Iridomyrmex

1. In profile, petiolar node thick, very elongate and strongly inclined anteriorly, the anterior face very short or even virtually absent; seen in full-face view, frontal carinae strongly concave 2
Seen in profile, petiolar node not thick or elongate as above; seen in full-face view, frontal carinae moderately to weakly concave, straight or weakly convex 5
2. Head capsule uniformly red; gaster with bluish iridescence (Figure 138)
.....*rufoinclinus* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172060>]
Head capsule partially or wholly infuscated; gaster coppery, lacking bluish iridescence 3
3. Cephalic infuscation limited to frons of head, lateral and ventral surfaces of head reddish, matching colour of posterior mesosoma (Figure 139)*cappoinclinus* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172058>]
Entire head brown to black, contrasting with reddish colour of posterior mesosoma 4
4. Pronotum infuscated and darker than rest of mesosoma (Figure 140)
.....*anteroinclinus* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172045>]

Pronotum of the same reddish colour as rest of mesosoma (Figure 141)
.....*cephaloinclinus* Shattuck

[<https://www.antweb.org/specimenImages.do?name=antweb1008639>]

5. Seen in full-face view, anterior margin of clypeus weakly to strongly concave between its lateral lobes, its central point usually well posterior to an imaginary horizontal line connecting the outer margins of the lateral lobes, and the anteromedial clypeal prominence absent or denoted by a weak undulation; frontal carinae short (as long as distance between them) and usually concave but may be straight 6

Seen in full-face view, anterior margin of clypeus not concave between its lateral lobes, its central point at or anterior to an imaginary horizontal line connecting the outer margins of the lateral lobes, and usually with a weak to strong anteromedial clypeal prominence or undulation; frontal carinae often longer (i.e. longer than distance between them) and straight or weakly to strongly sinuate 11

6. Seen in profile, propodeal spiracle situated near confluence of dorsal and declivous faces of propodeum; also in profile, petiolar node reduced to a sharp ridge (Figure 142)
.....*mirabilis* Heterick & Shattuck
[https://www.antwiki.org/wiki/Iridomyrmex_mirabilis]

Seen in profile, propodeal spiracle situated well below dorsum of propodeum; also in profile, well-developed petiolar node always present as a thick or thin scale-like projection 7

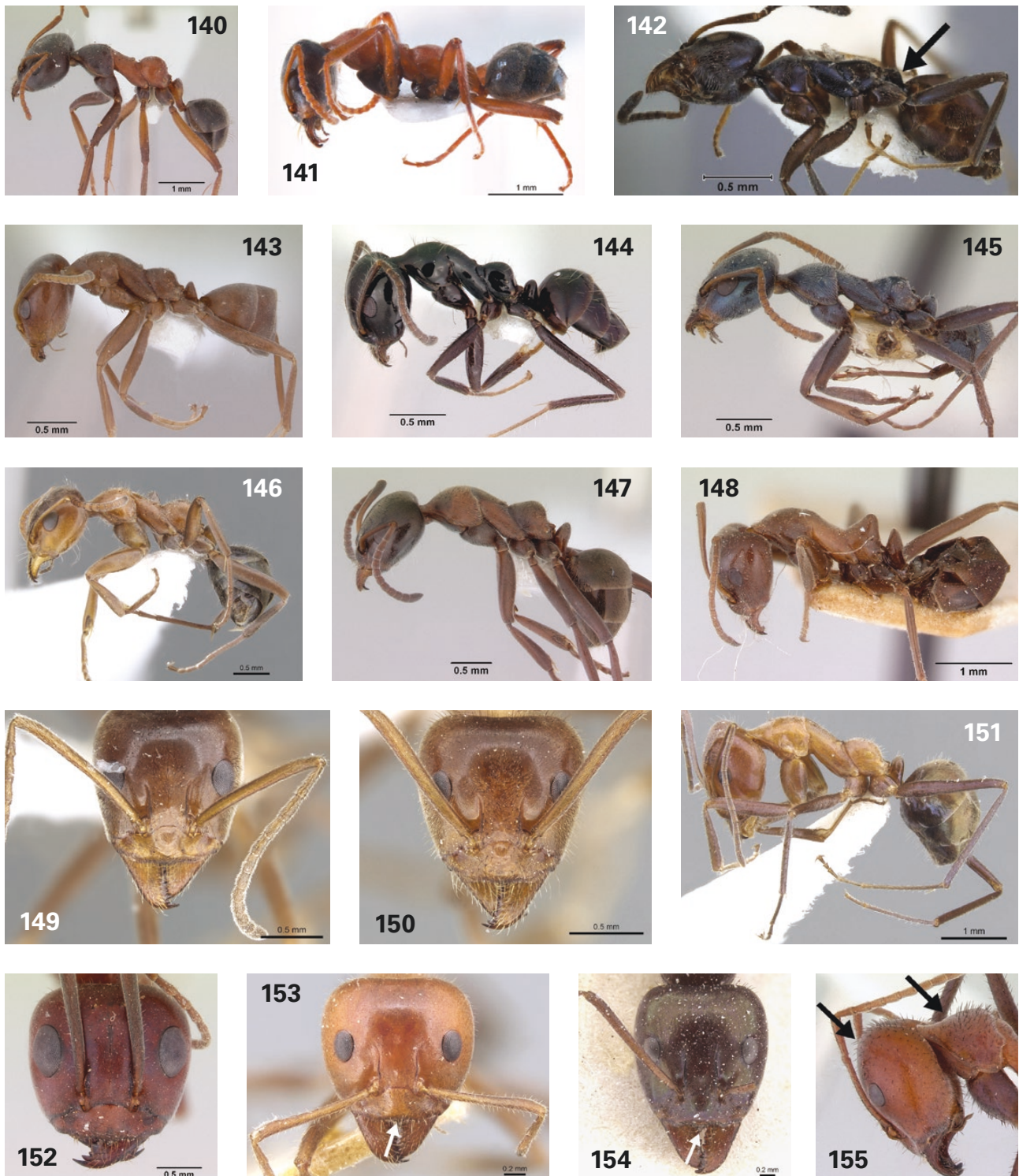
7. Mesosoma with fewer (0–6) erect setae (Figure 143)*calvus* Emery
[<https://www.antweb.org/specimenImages.do?name=casent0172063>]

Mesosoma with very many (25 or more) erect setae 8

8. Cuticle strongly shining, with sculpture (where present) confined to a very weak, superficial reticulation; long, J-shaped setae absent from underside of head (a few, slightly bent setae may be present); appressed setae on mesosoma sparse, not hiding cuticle (Figure 144)*innocens* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0172062>]

- Cuticle not uniformly shining, coriaceous (leathery) or shagreenate sculpture present; J-shaped setae present on underside of head; appressed setae thick on some areas of mesosoma, hiding underlying cuticle 9
9. Head, body and appendages with weak blue to bluish-green iridescence; cuticular pigment uniformly brown to black (Figure 145)
.....*prismatis* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172064>]
- Blue or bluish-green iridescence (if present) confined to gaster; head and body never black and rarely uniformly brown, usually with light ochre to reddish head and mesosoma (with degrees of brown infuscation on head and propodeum), and dark brown gaster10
10. Tibiae lacking erect or semi-erect setae; seen in profile, node relatively thick, not scale-like (seen in profile, width of node $\geq 0.6 \times$ length of posterior face of node) (Figure 146)
.....*nudipes* Heterick & Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0903101>]
- Tibiae with at least 3-4 semi-erect or erect setae (may be small and inconspicuous), often numerous setae present; seen in profile, node relatively thin and scale-like (seen in profile, width of node $\leq 0.5 \times$ length of posterior face of node (Figure 147).....*hesperus* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172052>]
11. Seen in profile, propodeum dorsally expanded in a more-or-less triangular projection 12
Seen in profile, propodeum not so expanded, although it may be strongly protuberant....14
12. Erect or sub-erect setae generally absent from pronotum but when present they are short, stout and essentially straight (Figure 148)
.....*conifer* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0172061>]
- More than eight gently curved setae present on pronotum13
13. Seen in full-face view, sides of head generally lacking erect setae, but when present those setae near the vertex are longer than the maximum scape diameter and distinctly curved (Figure 149).....
.....*turbineus* Shattuck & McMillan
[<https://www.antweb.org/specimenImages.do?name=casent0903086>]
- Seen in full-face view, sides of head always with numerous short (less than maximum scape diameter), straight or very slightly curved erect setae (Figure 150).....
.....*setoconus* Shattuck & McMillan
[<https://www.antweb.org/specimenImages.do?name=casent0903085>]
14. Seen in full-face view, acute anteromedial clypeal prominence present as a conspicuous triangle; erect setae present on antennal scapes, sides of head and hind femora; also in full-face view, frontal carinae distinctly sinuate with small flanges on carinae often tending to angulate medially; metathoracic spiracles prominent (medium-large to large ants, often with broad, triangular heads and purple, pink, blue or green iridescence on body and legs)15
Seen in full-face view, anteromedial clypeal prominence not a conspicuous triangle (either a small blunt projection, an indistinct undulation of the cuticle or completely absent), *or* erect setae absent from one or more of antennal scapes, sides of head and hind femora; seen in full-face view, frontal carinae rarely distinctly sinuate 22
15. Seen in profile, propodeal dorsum straight or weakly convex; antennal scapes relatively long (SI > 109 , surpassing posterior margin of vertex by $0.2-0.5 \times$ their length) (Figure 151)*roseatus* Heterick & Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0903100>]
- Seen in profile, propodeal dorsum strongly convex and often protuberant; antennal scapes relatively short (scapes surpassing posterior margin of vertex by $\leq 2 \times$ their greatest diameter).....16
16. Eyes large (EI ≥ 30); scapes with erect setae mainly confined to outer surface; seen in profile, mesonotum straight (Figure 152).....
.....*bigi* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172037>]
- Eyes smaller (EI < 25); scapes with erect setae on all surfaces; seen in profile, mesonotum sinuate, convex anteriorly and flat to convex posteriorly17
17. Antennal scapes shorter (SL < 1.30 mm); seen in full-face view, anteromedial clypeal prominence shorter, not extending beyond



FIGURES 140–155

140) *Iridomyrmex anteroinclinus* holotype (CASENT0172045); 141) *Iridomyrmex cephaloinclinus* (ANTWEB1008639); 142) *Iridomyrmex mirabilis* holotype (JDM32-000260); 143) *Iridomyrmex calvus* paratype ('*I. notialis*') (CASENT0172063); 144) *Iridomyrmex innocens* holotype ('*I. occiduus*') (CASENT0172062); 145) *Iridomyrmex prismatis* holotype (CASENT0172064); 146) *Iridomyrmex nudipes* paratype (CASENT0903101); 147) *Iridomyrmex hesperus* holotype (CASENT0172052); 148) *Iridomyrmex conifer* (CASENT0172061); 149) *Iridomyrmex turbineus* paratype (CASENT0903086); 150) *Iridomyrmex setoconus* paratype (CASENT0903085); 151) *Iridomyrmex roseatus* paratype (CASENT0903100); 152) *Iridomyrmex bigi* holotype (CASENT0172037); 153) *Iridomyrmex discors* syntype (CASENT0915580); 154) *Iridomyrmex viridiaeneus* syntype (CASENT0911557); 155) *Iridomyrmex reburrus* holotype (CASENT0172049).

lateral lobes of anterior clypeal margin; erect setae on head and body fine and pale in colour (Figure 153)..... *discors* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0915580>]

Antennal scapes longer (SL > 1.37 mm); seen in full-face view, anteromedial clypeal prominence longer, extending beyond lateral lobes of anterior clypeal margin; erect setae on head and body typically bristly and dark in colour18

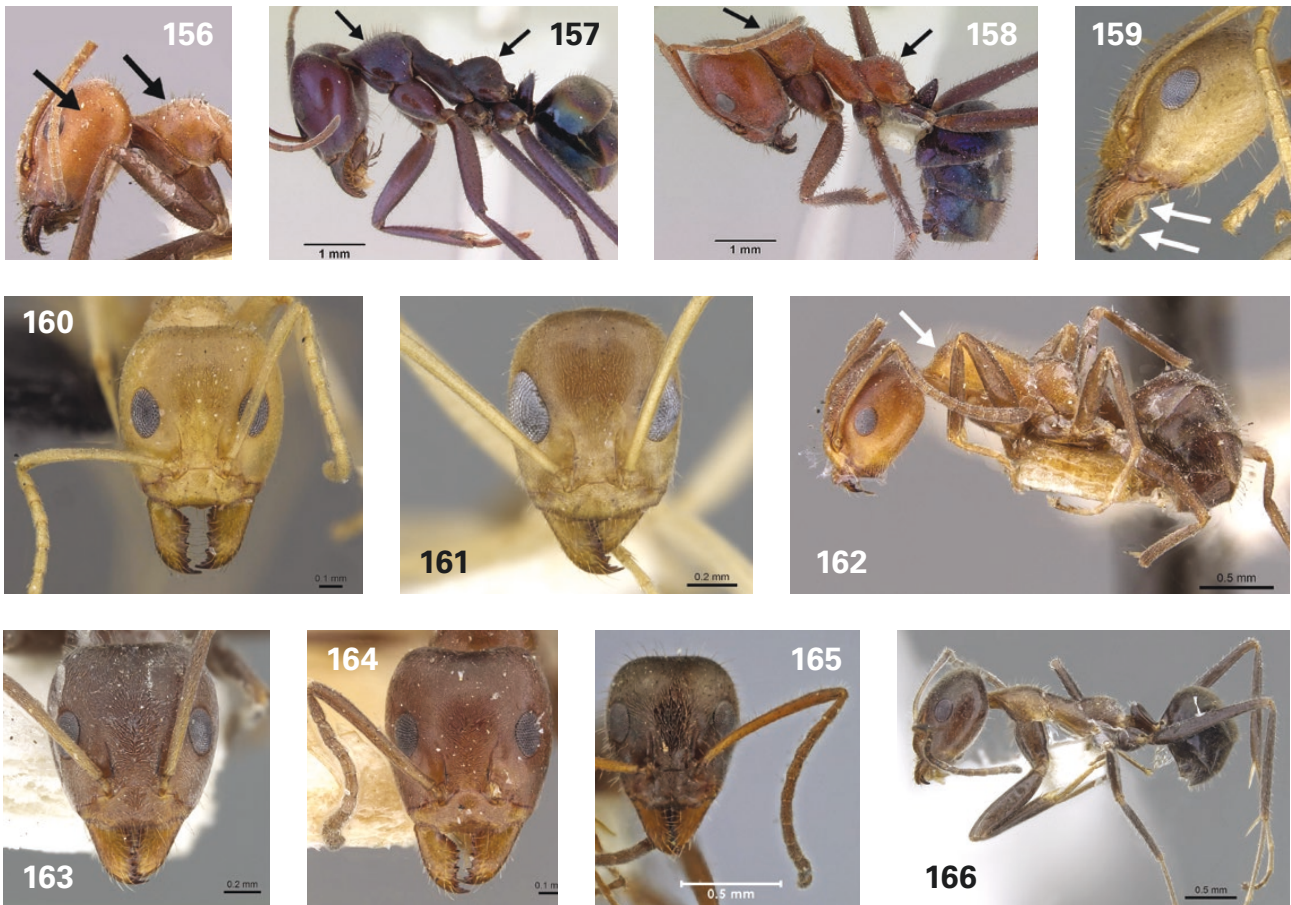
18. Sides and vertex of head with distinct green iridescence (often with purple iridescence as well) (Figure 154)*viridiaeneus* Viehmeyer

[<https://www.antweb.org/specimenImages.do?name=casent0911557>]

Sides and vertex of head with purple or blue and occasionally weak greenish-yellow iridescence; (some south-western *I. purpureus*), but never with distinctly green iridescence19

19. Seen in profile, posterior sector of pronotum (immediately anterior of the promesonotal suture) rising above the mesonotum in a short, strongly convex arch; sides of head often with at most very weak purplish iridescence 20

Seen in profile, posterior sector of pronotum (immediately anterior of the promesonotal suture) rising above the mesonotum in a broad, uniform, weakly convex arch; sides of head with well-developed iridescence (usually purple or blue).....21



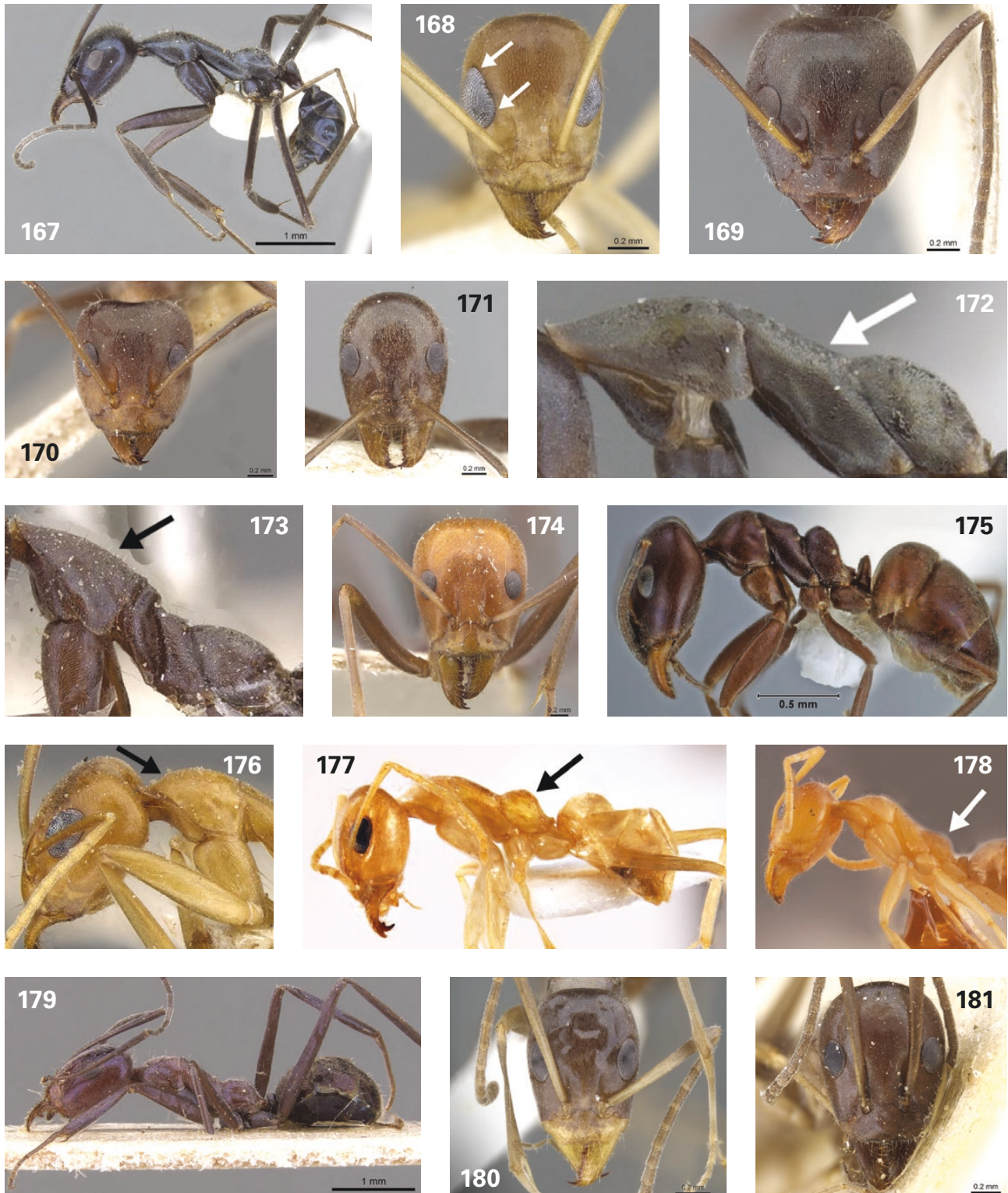
FIGURES 156–166

156) *Iridomyrmex sanguineus* syntype (CASENT0909521); 157) *Iridomyrmex lividus* holotype (CASENT0172041); 158) *Iridomyrmex purpureus* holotype ('*I. greensladei*') (CASENT0172039); 159) *Iridomyrmex trigonoceps* paratype (CASENT0903087); 160) *Iridomyrmex pallidus* lectotype (ANIC32037651); 161) *Iridomyrmex macrops* paratype (CASENT0903102); 162) *Iridomyrmex chasei* lectotype (ANIC32000054); 163) *Iridomyrmex suchieri* holotype ('*obscurus*') (CASENT0903082); 164) *Iridomyrmex rufoniger* syntype ('*I. rufoniger domestica*') (CASENT0909555); 165) *Iridomyrmex spurcus* (ANIC32-039583); 166) *Iridomyrmex omalonotus* paratype (CASENT0903088).

20. Seen in full-face view, side of head with more than four erect or sub-erect setae, and often with more than 10 (Figure 155).....
.....*reburrus* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172049>]
- In full face view, sides of head generally without erect or sub-erect setae, but always with less than five (Figure 156).....
.....*sanguineus* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0909521>]
21. Head and mesosoma dark reddish brown to black; head often with strong blue iridescence; seen in profile, propodeal dorsum often strongly arched, forming a blunt right angle as propodeum rounds into its declivous face (Figure 157).....
.....*lividus* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172041>]
- Head and mesosoma reddish brown; head with purple or greenish-yellow iridescence; seen in profile, propodeal dorsum generally rounded, not forming angle as propodeum rounds into its declivous face (Figure 158)
.....*purpureus* F. Smith
[<https://www.antweb.org/specimenImages.do?name=casent0172039>]
22. Second and third maxillary palp segments elongate so that their combined length is equal to or greater than palp segments 4–6 combined (Figure 159).....
.....*trigonoceps* Heterick & Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0903087>]
- Second and third maxillary palp segments individually about as long as or only slightly longer than segments 4–6, so their combined length is much less than combined length of segments 4–6 23
23. Semi-erect to erect setae present on antennal scapes and hind tibiae (and, often, sides of head)24
- Semi-erect to erect setae absent from antennal scapes, or hind tibiae, or both parts..... 30
24. Broad-headed (CI 90 or more), yellow, depigmented, tropical species; seen in full-face view, eye with distinctly protuberant anteromedial margin; also in full-face view, eyes placed at least $0.5 \times$ their own diameter
- away from sides of head; setae on scapes small and sub-erect or subdecumbent, erect and sub-erect setae present on legs (Figure 160)*pallidus* Forel (part)
[<https://www.antweb.org/specimenImages.do?name=anic32037651>]
- If yellow and depigmented, differing from the above in respect of the appearance and placement of the eyes, and the narrower head 25
25. Seen in full-face view, eye with distinctly protuberant anteromedial margin, and a posterior lobe that is narrower than its anterior lobe; yellow, depigmented ants (Figure 161).....
.....*macrops* Heterick & Shattuck (part)
[<https://www.antweb.org/specimenImages.do?name=casent0903102>]
- Seen in full-face view, eye with, at most, a slightly protuberant anteromedial margin, and a posterior lobe that is not narrower than its anterior lobe; ants bicoloured or concolorous reddish-brown to black..... 26
26. Ant with reddish or reddish-brown head and mesosoma, darker gaster without iridescence; seen in profile, anterior pronotum strongly arched at angle of 60° or more; antennal scapes shorter, barely surpassing posterior margin of vertex (Figure 162)
.....*chasei* Forel (part)
[<https://www.antweb.org/specimenImages.do?name=anic32000054>]
- If ant with short antennal scapes, then anterior pronotum less strongly arched at angle of 60° or less, and gaster with blue-green or greenish-yellow iridescence..... 27
27. Antennal scapes relatively short, surpassing posterior margin of vertex by maximum of $1-1.5 \times$ their greatest diameter; hind femur shorter, $< 0.8 \times$ length of mesosoma 28
- Antennal scapes longer, surpassing posterior margin of vertex by minimum of $2 \times$ their greatest diameter; hind femur longer, $\geq 0.85 \times$ length of mesosoma..... 29
28. Seen in full-face view, posterior margin of vertex planar; seen in profile, curve of anterior pronotum usually broad and gradual; seen in dorsal view, pronotum tapering gradually towards its anterior flange (Figure 163)*suchieri* Forel (part)
[<https://www.antweb.org/specimenImages.do?name=casent0903082>]

- Seen in full-face view, posterior margin of vertex distinctly concave; seen in profile, curve of anterior pronotum more distinctly circular; seen in dorsal view, pronotum tapering sharply towards its anterior flange (Figure 164) *rufoniger* (Lowne) (part)
[<https://www.antweb.org/specimenImages.do?name=casent0909555>]
29. Densely hairy, longest setae on antennal scapes and tibiae greater than or equal to greatest diameter of scape and tibia; semi-erect setae present on dorsal surface of fore basitarsus (Figure 165) *spurcus* Wheeler
[https://www.antwiki.org/wiki/Iridomyrmex_spurcus]
- Longest setae on antennal scapes and tibiae less than greatest diameter of scape and tibia; semi-erect setae absent from dorsal surface of fore basitarsus (Figure 166)
..... *omalonotus* Heterick & Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0903088>]
30. Erect setae present on antennal scapes, but absent from hind tibiae (gracile, black species with blue iridescence from southwestern WA) (Figure 167)
..... *longisoma* Heterick & Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0903090>]
- Erect setae absent from antennal scapes31
31. Hind tibiae with distinct erect and/or semi-erect setae in addition to appressed or decumbent setae (may be sparse)..... 32
Hind tibiae without distinct erect and/or semi-erect setae..... 37
32. Eye with distinctly protuberant anteromedial margin, and a posterior lobe that is narrower than its anterior lobe (Figure 168)
..... *macrops* Heterick & Shattuck (part)
[<https://www.antweb.org/specimenImages.do?name=casent0903102>]
- Eye with, at most, a slightly protuberant anteromedial margin, and a posterior lobe that is not narrower than its anterior lobe 33
33. Antennal scapes very short (SL < 0.93 mm and SI < 97, surpassing posterior margin of vertex by < their greatest diameter); posterior margin of vertex concave, with erect setae on vertex not extending to sides; gaster nearly always with blue, greenish-blue or greenish-yellow iridescence (see Figure 164)..... *rufoniger* (Lowne) (part)
[<https://www.antweb.org/specimenImages.do?name=casent0909555>]
- Antennal scapes longer (SL > 0.93 mm or SI > 96); posterior margin of vertex planar to strongly convex, with or without erect setae on the sides 34
34. Seen in full-face view, erect setae confined to posterior margin of the head; erect setae on hind tibia sparse, often confined to one or two (Figure 169) *anceps* (Roger) (part)
[<https://www.antweb.org/specimenImages.do?name=casent0905045>]
- Seen in full-face view, erect setae extending along lateral margins of head to at least the eyes; typically, erect setae on hind tibia moderately plentiful to abundant and extending along length of tibia..... 35
35. Antennal scapes short (SL < 0.90 mm, surpassing posterior margin of vertex by 2 × their greatest diameter or less); less gracile (length of hind femur < 0.75 × length of mesosoma); gaster often with weak bluish-green or yellow-green iridescence (see Figure 163)..... *suchieri* Forel (part)
[<https://www.antweb.org/specimenImages.do?name=casent0903082>]
- Antennal scapes long (SL > 0.90 mm, surpassing posterior margin of vertex by at least 0.2 × their length, i.e. > 2 × their greatest diameter); more gracile (length of hind femur > 0.82 × length of mesosoma); gaster without iridescence..... 36
36. Seen in full-face view, posterior margin of vertex planar (Figure 170) *minor* Forel (part)
[<https://www.antweb.org/specimenImages.do?name=casent0909532>]
- Seen in full-face view, posterior margin of vertex strongly convex (Figure 171)
..... *elongatus* Heterick & Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0903091>]
37. Head in full-face view extremely narrow (CI 64–70); seen in dorsal view, pronotum tapering very weakly towards its anterior margin; eyes large (EL > 0.24 mm, EW > 0.19 mm, EI > 38, eye width ≥ to 3 × greatest diameter of antennal scape) 38

- Without above combination of three characters (in similar species, eye either smaller or pronotum strongly tapered towards its anterior margin)..... 39
38. Mesosoma glabrous (Figure 172)
.....*tenuiceps* Heterick & Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0903099>]
Mesosoma with very short, bristly setae (Figure 173) *angusticeps* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0909504>]
39. Broad-headed (CI \geq 90), yellow, depigmented, tropical species; eye with distinctly protuberant anteromedial margin; seen in full-face view, eyes placed at least 0.5 \times their own diameter away from sides of head; setae on scapes and legs very small, all of same size and decumbent or subdecumbent, often giving these parts a shaggy appearance (best seen against a dark background) (see Figure 160)*pallidus* Forel (part)
[<https://www.antweb.org/specimenImages.do?name=anic32037651>]
If yellow and depigmented, differing from the above in respect of the appearance and placement of the eyes, and setae on scapes and legs 40
40. Head in full-face view elongate (CI < 83), upper vertex rather broad above eyes; seen in full-face view, eyes placed at about midpoint of head; anteromedial margin of clypeus produced as a sharp, narrowly triangular tooth; hind femur very long, length \geq length of mesosoma (Figure 174)*agilis* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0909499>]
If head elongate (e.g. *I. bicknelli*), then length of hind femur less than length of mesosoma or, in full-face view, eyes placed above midpoint of head, upper vertex narrow compared with region below eyes and anteromedial clypeal margin not produced as a sharp, narrowly triangular tooth41
41. Brown to dark brown species with blue, pinkish-purple or pink iridescence over entire body; eye with marked anteromedial protuberance; seen in profile, junction of dorsal and declivous propodeal face forming an abrupt peak which may be carinate; declivous face of propodeum vertical and flat or with gentle angle, giving this structure the appearance of having been sectioned (Figure 175)..... *cyaneus* Wheeler
[https://www.antwiki.org/wiki/Iridomyrmex_cyaneus]
If ant brown or dark brown and iridescent, then appearance not as above, and propodeum never with junction of dorsal and declivous faces forming an abrupt peak 42
42. Eye distinctive, with protuberant anteromedial margin, and a posterior lobe that is narrower than its anterior lobe; most commonly depigmented or tawny yellow 43
Eye without protuberant anteromedial margin, or, if somewhat asymmetrical, then posterior lobe of eye not narrower than anterior lobe 45
43. Erect setae short, pronotal and mesonotal setae fewer than six, often mesosoma glabrous (lacking setae); seen in profile, propodeum strongly protuberant; seen in full-face view, posterior margin of vertex weakly to strongly concave (Figure 176).....
.....*hartmeyeri* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0909537>]
Mesosoma always with some pilosity, and if propodeum protuberant or truncate in profile, then with six or more short mesosomal setae, setae often numerous; seen in full-face view, posterior margin of vertex generally slightly convex or planar, but may be very weakly concave 44
44. Seen in profile, propodeal dorsum curved on to its declivous surface through a blunt to sharp right angle, propodeum truncate and often weakly protuberant; colour mainly pale, depigmented yellow, occasionally tawny brownish-yellow (northern species) (Figure 177)..... *exsanguis* Forel
[<https://www.antweb.org/specimenImages.do?name=antweb1008644>]
Seen in profile, propodeal dorsum curved on to its declivous surface smoothly, without distinct right angle, propodeum relatively short and truncate to elongate, rarely protuberant; colour variable, from yellow to dark brown, gaster and head often darker than mesosoma and appendages (Figure 178)*dromus* Clark
[<https://www.antweb.org/specimenImages.do?name=antweb1008193>]



FIGURES 167–181

167) *Iridomyrmex longisoma* paratype (CASENT0903090); 168) *Iridomyrmex macrops* paratype (CASENT0903102); 169) *Iridomyrmex anceps* syntype ('*I. gracilis papuana*') (CASENT0905045); 170) *Iridomyrmex minor* syntype (CASENT0909532); 171) *Iridomyrmex elongatus* paratype (CASENT0903091); 172) *Iridomyrmex tenuiceps* paratype (CASENT0903099); 173) *Iridomyrmex angusticeps* syntype (CASENT0909504); 174) *Iridomyrmex agilis* syntype (CASENT0909499); 175) *Iridomyrmex cyaneus* (ANIC32-039936); 176) *Iridomyrmex hartmeyeri* syntype (CASENT0909537); 177) *Iridomyrmex exsanguis* (ANTWEB1008644); 178) *Iridomyrmex dromus* holotype (ANTWEB1008193); 179) *Iridomyrmex azureus* syntype (CASENT0905833); 180) *Iridomyrmex luteoclypeatus* paratype (CASENT0903097); 181) *Iridomyrmex bicknelli* syntype (CASENT0905053).

45. Antennal scapes surpassing posterior margin of vertex by $0.33\text{--}0.50 \times$ their length, or workers with bright orange, orange-red or variegated head and scapes that surpass posterior margin of vertex by $\sim 3 \times$ their greatest diameter; workers more slender, with relatively elongate, often low propodeum (length of dorsum $>$ length of declivous face); eyes anteriorly divergent in several species; vertex in full-face view convex, straight or gently concave; anteromedial clypeal protuberance usually present as a blunt to sharp triangle 46
- Without this combination of characters; in particular, if worker with a red and orange-head then posterior margin of the head is deeply concave and the antennal scapes do not or only barely surpass the posterior margin of the head and the propodeum is short and truncate or protuberant 57
46. Ant with reddish head and mesosoma and with bluish-green to purple iridescence on head and mesosoma (Figure 179)
.....*azureus* Viehmeyer
- [<https://www.antweb.org/specimenImages.do?name=casent0905833>]
- Ant without such iridescence, or, ant black ... 47
47. Small species (HW $0.70\text{--}0.75$ mm); dull brown with faint coppery reflections; head rather narrow (CI $79\text{--}82$); posterior margin of vertex planar; sides of head parallel or weakly convex; mandibles and often much of clypeus bright yellow (Figure 180)
..... *luteoclypeatus* Heterick & Shattuck
- [<https://www.antweb.org/specimenImages.do?name=casent0903097>]
- Without the above combination of characters (*Iridomyrmex bicknelli* is close, but here CI is usually < 79 , posterior margin of vertex is weakly to strongly convex and sides of head converge towards mandibles) 48
48. Head elongate, narrow (CI < 79); sides of head convergent towards mandibles; posterior margin of vertex weakly (many Western Australian populations) to strongly convex; ant dark brown to black with coppery, yellowish-green to more distinctly bluish iridescence (iridescence absent from some older material) (Figure 181)
.....*bicknelli* Emery
- [<https://www.antweb.org/specimenImages.do?name=casent0905053>]
- If ant dark brown to black, then head less elongate (CI > 82); posterior margin of vertex planar or concave, and sides of head convex or parallel 49
49. Side of head with at least six erect setae; colour various shades of red or brown, but gaster always darker than mesosoma or mandibles larger (crossed mandibles $\sim 0.25 \times$ head length) 50
- Side of head usually without erect setae; if setae present, then body concolourous, coppery dark brown or mandibles smaller (crossed mandibles $\sim 0.20 \times$ head length) 51
50. Anteromedial clypeal prominence a distinct, triangular spur that projects between the anterolateral clypeal lobes; seen in profile, mesonotum straight or slightly sinuate, not forming an even curve with the pronotum (Figure 182)*minor* Forel (part)
- [<https://www.antweb.org/specimenImages.do?name=casent0909532>]
- Anteromedial clypeal prominence vestigial, barely forming an interruption in the curve between the anterolateral clypeal lobes; seen in profile mesonotum weakly convex, forming an even curve with the pronotum (Figure 183)*brunneus* Forel (part)
- [<https://www.antweb.org/specimenImages.do?name=anic32039031>]
51. Pronotum and mesonotum glabrous or with 1–6 minute setae (length of setae much less than narrowest diameter of antennal scape) 52
- Pronotum and mesonotum not glabrous; longest pronotal setae longer than or equal to greatest diameter of antennal scape 54
52. Head and body concolorous dull brown or olive brown (Figure 184)
..... *anceps* (Roger) (part)
- [<https://www.antweb.org/specimenImages.do?name=casent0905045>]
- Head and body not concolorous but with different colour tones 53
53. Body variegated blackish-red, head infuscated reddish-black; larger (HW > 1.25 mm, ML > 2.03 mm) (Figure 185)
.....*brennani* Heterick & Shattuck
- [<https://www.antweb.org/specimenImages.do?name=casent0903098>]

Head reddish-orange to dark brown, mesosoma light orange to brown, usually with lighter patches but colour combination never as above; smaller (HW < 1.25 mm, ML < 2.04 mm) (a few populations) (Figure 186)
*minor* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=casent0909532>]

54. Head, mesosoma, and fore coxae bright orange, legs brown, gaster dark brown (north-western WA) (Figure 187)
*xanthocoxa* Heterick & Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0903093>]

If head and mesosoma red or reddish, then fore coxae brown, agreeing with colour of remaining leg segments 55

55. Anteromedial clypeal prominence vestigial, barely forming an interruption in the curve between the anterolateral clypeal lobes; seen in profile, mesonotum weakly convex, forming an even curve with the pronotum; body and legs not uniformly brown (Figure 188)*brunneus* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=anic32039031>]

Anteromedial clypeal prominence a distinct, usually triangular spur projecting between the anterolateral clypeal lobes; seen in profile, mesonotum straight or slightly sinuate, not forming an even curve with the pronotum, *or* body and legs uniformly brown 56

56. Concolorous brown to dark brown, often with coppery reflections; setae on pronotum and mesonotum short and bristly, their length not exceeding greatest diameter of the eye; length of hind femur variable, but usually < 0.90 × length of mesosoma (see Figure 184)
*anceps* (Roger) (part)

[<https://www.antweb.org/specimenImages.do?name=casent0905045>]

Not concolorous brown (generally, gaster darker than body, and head and head and mesosoma often with varying degrees of reddish or orange colouration); length of setae on pronotum and mesonotum often exceeding greatest diameter of the eye; length of hind femur ≥ 0.90 × length of mesosoma (see Figure 186)*minor* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=casent0909532>]

57. Seen in profile, posterior region of head flattened, giving it a wedge-shaped appearance (dull brown, north-western WA species) (Figure 189)
*cuneiceps* Heterick & Shattuck

[https://www.antwiki.org/wiki/Iridomyrmex_cuneiceps]

Seen in profile, head rounded normally 58

58. Seen in full-face view, posterior margin of vertex broadly concave, posterolateral corners broadly angulate; seen in profile, propodeum narrowly protuberant; head and mesosoma without iridescence; if gaster with blue-green reflections then ground colour of gaster distinctly black and head and mesosoma bright orange with or without some brown infuscation, usually gaster with coppery reflections only; pronotum with few to many erect setae 59

Seen in full-face view, posterior margin of vertex not broadly concave with broadly angulate posterolateral corners in remaining WA *Iridomyrmex*; if gaster with faint to strong blue-green to yellow-green iridescence then head and mesosoma not bright orange with gaster distinctly black, head, mesosoma and gaster also generally with faint to strong blue-green to yellow-green iridescence; pronotum often with one or two small erect setae only 60

59. Seen in profile, anterior pronotum humped, arising steeply at angle of ~60°, ascending curve of pronotum much more steeply inclined than descending curve of mesonotum; posterior margin of vertex noticeably and broadly concave in full-face view; pronotum usually with 10 or more erect setae; variably coloured, but cuticle of head and mesosoma usually with reddish tinge, most commonly orange or brownish-orange, or brown with orange highlights (see Figure 190)*chasei* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=anic32000054>]

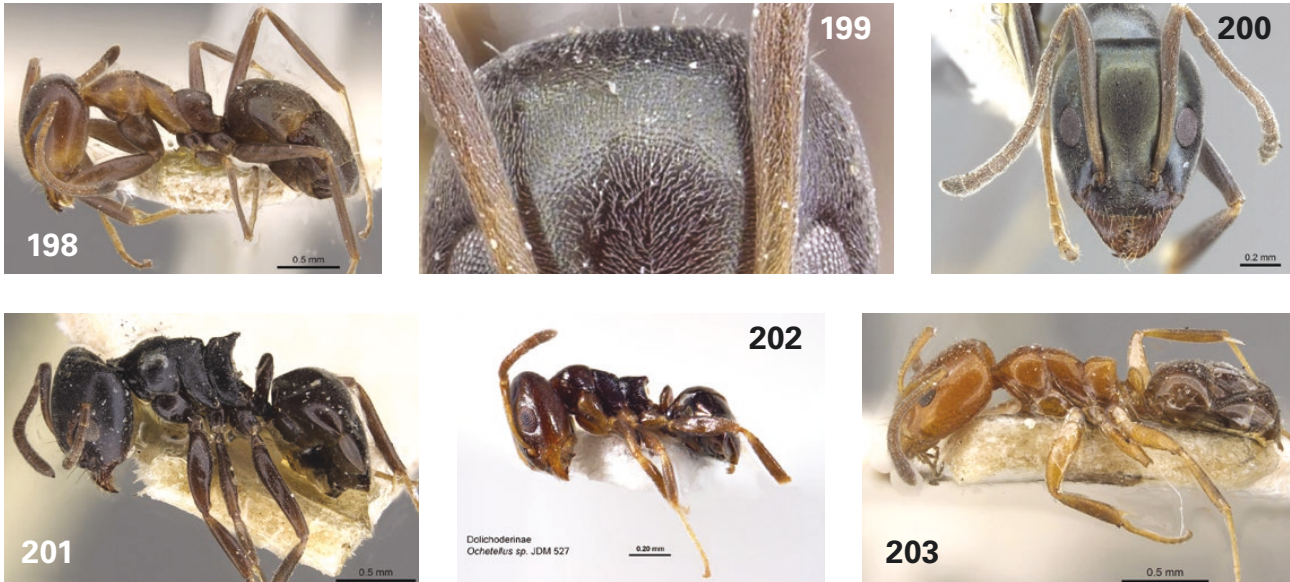
Seen in profile, anterior pronotum moderately inclined at angle of ~45°, ascending curve of pronotum almost identical with descending curve of mesonotum; posterior margin of vertex weakly concave or almost planar in full-face view; pronotum often with six or fewer erect setae; uniformly brown (compact, small northern species, easily confused with *I. chasei*) (Figure 191)
*gibbus* Heterick & Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0903104>]



FIGURES 182–197

182) *Iridomyrmex minor* syntype (CASENT0909532); 183) *Iridomyrmex brunneus* lectotype (ANIC32039031); 184) *Iridomyrmex anceps* syntype ('*I. gracilis papuana*') (CASENT0905045); 185) *Iridomyrmex brennani* paratype (CASENT0903098); 186) *Iridomyrmex minor* syntype (CASENT0909532); 187) *Iridomyrmex xanthocoxa* paratype (CASENT0903093); 188) *Iridomyrmex brunneus* lectotype (ANIC32039031); 189) *Iridomyrmex cuneiceps* (ANIC32-037500); 190) *Iridomyrmex chasei* lectotype (ANIC32-000054); 191) *Iridomyrmex gibbus* paratype (CASENT0903104); 192) *Iridomyrmex suchieroides* paratype (CASENT0903094); 193) *Iridomyrmex coeruleus* paratype (CASENT0903105); 194) *Iridomyrmex hertogi* holotype (ANIC32-047828); 195) *Iridomyrmex difficilis* (CASENT0249721); 196) *Iridomyrmex mjobergi* syntype (CASENT0907614); 197) *Iridomyrmex continentis* syntype (CASENT0909546).



FIGURES 198–203 198) *Iridomyrmex suchieri* lectotype (ANIC32017917); 199) *Iridomyrmex splendens* syntype (CASENT0909547); 200) *Iridomyrmex meridianus* paratype (CASENT0903089); 201) *Ochetellus flavipes* syntype ('*Iridomyrmex rostrinotus*') (CASENT0909561); 202) *Ochetellus* sp. JDM 527 (Barrow Island, Western Australia); 203) *Ochetellus* sp. JDM 851 (CASENT0909529).

60. Seen in full-face view, erect setae extending along sides of head (Figure 192)
 *suchieroides* Heterick & Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0903094>]

Seen in full-face view, erect setae either absent or confined to posterior margin of vertex.... 61

61. Eyes rather large (eye width $\geq 2 \times$ greatest diameter of antennal scape); entire body usually with weak to moderate bluish- or yellowish-green iridescence (iridescence may be absent in some populations), mandible very pale, much lighter in colour than head; underlying cuticle coriaceous, weakly to moderately shining; short, pale, bristly setae present on mesosoma; anteromedial clypeal prominence broad and well developed; curved setae longer than greatest diameter of eye present on venter of head (may be abraded) (Figure 193).....
 *coeruleus* Heterick & Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0903105>]

If ant with bluish- or yellow-green iridescence and pale, bristly setae, then *either* eye smaller (eye width $\geq 1.5 \times$ greatest diameter of antennal scape), *or* curved setae on underside of head (if present) shorter;

anteromedial clypeal prominence may be absent or vestigial; underlying cuticle (in all cases) often superficially strigulate, shining 62

62. Very small, mostly bluish-brown or black ants, rarely dark, shining yellowish brown (HL < 0.61 mm, HW < 0.52 mm, ML < 0.73 mm), appearance as in *I. coeruleus*, workers glabrous or with a few minute, bristly setae on mesosoma, in full-face view, sides of head convergent anteriorly; seen in profile, mesosoma forming a seamless, even curve; head narrow (CI ~84–86); anteromedial clypeal margin without prominence; propodeum truncate, tending to protuberant in profile (Figure 194)
 *hertogi* Heterick & Shattuck

[https://www.antwiki.org/wiki/Iridomyrmex_hertogi]

If ant very small (i.e. HW < 0.55 mm), then body shades of brown and, in full-face view, head rectangular (i.e. CI > 85, except in a few *I. mjobergi* workers, which are brown ants), sides of head not noticeably convergent anteriorly; erect, non-bristly setae usually present (absent in northern *I. difficilis*), at least on margins of gastral tergites; HW variable; anteromedial clypeal prominence usually noticeable 63

63. Antennal scapes very short (SL < 0.60 mm and SI < 97, surpassing posterior margin of vertex by $\leq 1 \times$ their greatest diameter)..... 64

Antennal scapes longer (SL > 0.60 mm and SI > 97, surpassing posterior margin of vertex by at least $1.5 \times$ their greatest diameter)..... 65

64. Seen in full-face view, antennal scapes not or barely breaking the outline of the posterior margin of vertex (SL < 0.55 mm, SI < 95); seen in profile, worker usually with relatively steep curve to the anterior pronotum; metanotal groove deep, with propodeum either narrow and protuberant or narrow and truncate; smaller, brown species (Figure 195)*difficilis* Heterick & Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0249721>]

Seen in full-face view, antennal scapes slightly longer (surpassing posterior margin of vertex by at least $1 \times$ greatest diameter of scape (SL > 0.50 mm, SI > 91); anterior pronotum usually an even curve; metanotal groove relatively weak, propodeum may be narrow and truncate (a few small workers) but never protuberant; mostly larger species (Figure 196) *mjobergi* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=casent0907614>]

65. Posterior sector of propodeum flattened, so that propodeal angle is more-or-less erased and propodeal spiracle is near confluence of dorsal and declivous propodeal faces; antennae usually longer, antennal scapes surpassing posterior margin of vertex by $\geq 2 \times$ its greatest diameter in most specimens; ant glossy blackish-brown with strong coppery reflections (Figure 197) *continentis* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0909546>]

If ant similar (some northern populations of *I. mjobergi*), then propodeal spiracle placed well below flattened region of dorsum of propodeal dorsum, and antennal scapes surpasses posterior margin of vertex by $\leq 1.5 \times$ its greatest diameter..... 66

66. Seen in profile, length of dorsum of propodeum > length of its declivous face, and also > length of its base; dorsum of propodeum straight or only weakly convex (Figure 198)*suchieri* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=anic32017917>]

Seen in profile, length of dorsum about the same as the length of its declivous face and also its base; dorsum of propodeum more-or-less evenly convex or short and truncate (some northern populations of *I. mjobergi*) 67

67. Seen in full-face view, posterior margin of vertex surmounted by row or aggregation of short, erect setae; most populations uniformly dark brown or black with uniform weak bluish- to yellowish-green iridescence, but non-iridescent bicoloured brown-and-dark-brown, or even light-brown-and-orange workers can occur (Figure 199) *splendens* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0909547>]

Seen in full-face, posterior margin of vertex with a few well-dispersed setae, or a well-separated pair of setae or without erect setae; where several setae present, ant without distinct iridescence or bicoloured as above..... 68

68. Head, mesosoma and gaster with very weak to moderate yellowish- or bluish-green iridescence; pronotum normally glabrous across all populations, but may have one or two tiny bristly, erect setae; mandibles commonly brown to dark brown but may be orange; antennal scapes surpassing posterior margin of vertex by $\sim 2 \times$ its greatest diameter (south coastal) (Figure 200) *meridianus* Heterick & Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0903089>]

Rarely with iridescence on head, mesosoma and gaster, if present (south-western Australia, rare) then pronotum with several sizeable, erect, bristly setae and mandible orange, contrasting with blackish head; mandible also always lighter in colour than head in non-iridescent populations; antennal scape generally shorter, surpassing posterior margin of vertex by $1.5\text{--}2 \times$ its greatest diameter; mesosoma often with erect setae, although these may be lacking in (non-iridescent) specimens from drier environments (see Figure 196) *mjobergi* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=casent0907614>]

Linepithema

One species (*Linepithema humile* [Mayr 1868]) (see Figure 42).

[<https://www.antweb.org/specimenImages.do?name=casent0915577>]

Nebothriomyrmex

One species (*Nebothriomyrmex majeri* Dubovikoff 2004) (see Figure 39).

[<https://www.antweb.org/specimenImages.do?name=casent0009951>]

Ochetellus

1. Seen in profile, dorsum of propodeum narrowed posteriad to form to form a blunt spine (Figure 201).....*flavipes* (Kirby)

[<https://www.antweb.org/specimenImages.do?name=casent0909561>]

In profile, dorsum of propodeum of uniform width along its length..... 2

2. Seen in profile, dorsum of propodeum compressed posteriad to form a thin flange or shelf that overhangs the propodeal declivity, that declivity strongly concave (Figure 202)..... *Ochetellus* sp. JDM 527

[<https://www.padil.gov.au/barrow-island/pest/main/136757>]

Seen in profile, dorsum of propodeum not compressed posteriad so that it does not form a thin flange or shelf that overhangs the propodeal declivity; that declivity weakly concave..... 3

3. Ant orange to reddish-brown in colour (head may be darker) with brown to blackish-brown gaster (Figure 203).....*Ochetellus* sp. JDM 851

[<https://www.antweb.org/specimenImages.do?name=casent0909529>]

Ant uniformly dark brown to black..... 4

4. Body matt; seen in full-face view, frons of head matt and coriaceous with just detectable fine pubescence arising from very minute, overlapping appressed setae (Figure 204).....*punctatissimus* Emery

[<https://www.antweb.org/specimenImages.do?name=casent0905059>]

Body shining; seen in full-face view, sculpture on frons of head more superficial, imbricate, frons shining; minute appressed setae on frons more widely dispersed, mostly not overlapping or forming fine pubescence (Figure 205).....*glaber* (Mayr)

[<https://www.antweb.org/specimenImages.do?name=casent0172342>]

Papyrius

1. Vertex of head, first gastral tergite and node with erect setae; worker larger (HW ~1 mm) (Figure 206)..... *Papyrius* sp. JDM 666

[<https://www.antweb.org/specimenImages.do?name=casent0104328>]

Vertex of head, first gastral tergite and (usually) node lacking erect setae; smaller species (HW ≤ 1 mm) (Figure 207).....*nitidus* (Mayr)

[<https://www.antweb.org/specimenImages.do?name=casent0915546>]

Tapinoma

1. Head and mesosoma dark brown, strongly contrasting with pale gaster and appendages (Figure 208).....*melanocephalum* (Fabricius)

[<https://www.antweb.org/specimenImages.do?name=casent0104536>]

Head and mesosoma, gaster and appendages more-or-less concolourous..... 2

2. Eye large, eye length approximately 0.33 × length of side of head (Figure 209).....*Tapinoma* sp. JDM 981

[<https://www.padil.gov.au/barrow-island/pest/main/139836>]

Eye smaller, eye length approximately 0.25 × length of side of head (Figure 210).....*minutum broomense* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0909778>]

Technomyrmex

One species (*Technomyrmex jocosus* Forel 1910) (see Figure 33).

[<https://www.antweb.org/specimenImages.do?name=casent0909800>]

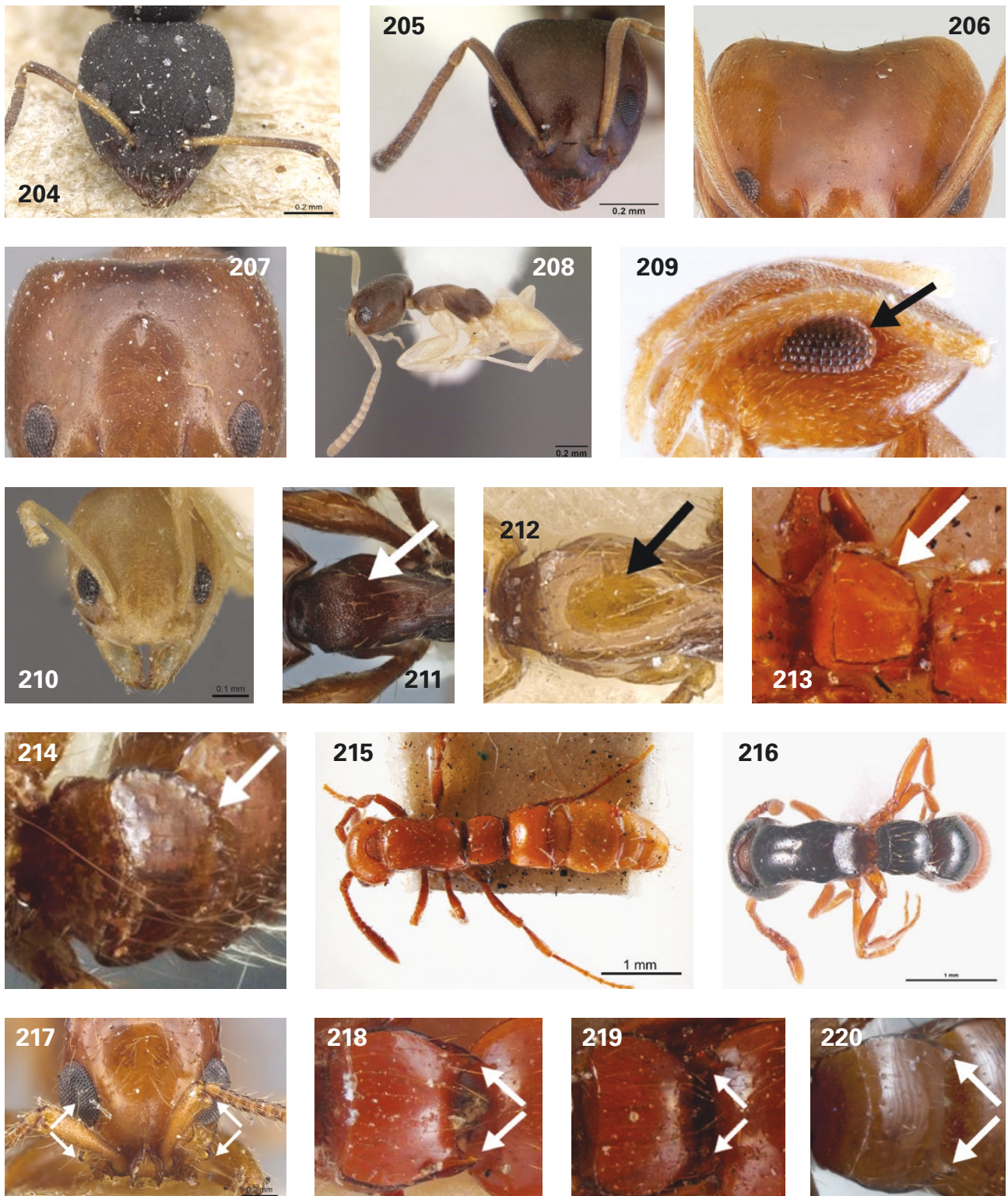
DORYLINAE

Aenictus

Aenictus hilli Clark 1928a, known only from the male and described from material from Malanda, Queensland, is associated with unidentified males of similar morphology by Shattuck, 2008c. Some of these specimens were collected in WA. Since the worker of *A. hilli* is unknown and workers of known species cannot be associated with males, this taxon is not treated further in this work.

1. Body larger (HW > 0.62 mm); sculpturing on pronotum extending posteriorly onto the main pronotal body (Figure 211).....*acerbus* Shattuck

[https://www.antwiki.org/wiki/Aenictus_acerbus]



FIGURES 204–206

204) *Ochetellus punctatissimus* syntype (CASENT0905059); 205) *Ochetellus glaber* (CASENT0172342); 206) *Papyrius* sp. JDM 666 (CASENT0104328); 207) *Papyrius nitidus* syntype ('*Iridomyrmex nitida*') (CASENT0915546); 208) *Tapinoma melanocephalum* (CASENT0104536); 209) *Tapinoma* sp. JDM 981 (Barrow Island, Western Australia); 210) *Tapinoma minutum broomense* syntype (CASENT0909778); 211) *Aenictus acerbus* holotype (ANIC32-023646); 212) *Aenictus turneri* 'type' ('*A. deuqueti*') (CASENT0901480); 213) *Lioponera picipes* 'type' (AntWeb) (ANTWEB1008243); 214) *Lioponera* sp. JDM 745 (JDM32-002649); 215) *Lioponera simmonsae* syntype (ANTWEB1008252); 216) *Lioponera* sp. JDM 942 (Barrow Island, Western Australia); 217) *Lioponera varians* syntype (CASENT0902758); 218) *Lioponera flammeus* syntype (ANTWEB1008233); 219) *Lioponera brevicollis* syntype (ANTWEB1008226); 220) *Lioponera mjobergi* (ANTWEB1041114).

Body smaller (HW < 0.62 mm); sculpturing on pronotum limited to the anterior sections around the collar, the main body of pronotum smooth (Figure 212) *turneri* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0901480>]

Lioponera

Excluding *Lioponera* sp. JDM 574 (see above).

Lioponera mullewana (Wheeler 1918a), described from a male, does not appear in this key, which covers only workers and some ergatoids (intercaste worker-queen). Moreover, *L. mullewana* is very likely a male of a species described from a worker or intercaste. The ergatoid names (*L. angustata* and *L. constricta*) may also be synonyms of species in which a worker has been separately described. Based on their closely matching morphology, for example, *L. constricta* (described from the ergatoid) and *L. greavesi* (described from the worker) are very likely conspecific.

1. Petiolar node trapezoid, narrowed posteriorly, marginate anteriorly and laterally but lacking a posterior margin (Figure 213)
..... *picipes* (Clark)

[<https://www.antweb.org/specimenImages.do?name=antweb1008243>]

Petiolar node square, horizontally rectangular or roundly triangular, but if attenuated posteriad then marginate on all sides 2

2. Petiolar node without distinct posterior angles, in dorsal view either square or tapered posteriad with a membranous border that can be entire, or bifid in the form of a pair of lamellae 3

Petiolar node with distinct posterior angles, these often produced as denticles or flanges 5

3. Petiolar node with lateral margins convergent, ending in a blunt angle surrounded by a membranous lamina, or ending in a pair of processes (Figure 214)
..... *Lioponera* sp. JDM 745

[<https://www.antweb.org/specimenImages.do?name=jdm32-002649>]

Seen in dorsal view, petiolar node square 4

4. Body colour uniformly red or reddish-orange (Figure 215) *simmonsae* (Clark)

[<https://www.antweb.org/specimenImages.do?name=antweb1008252>]

Head and mesosoma reddish-orange to black; mesosoma, petiolar node and postpetiole black, rest of gaster and legs bright orange (Figure 216) *Lioponera* sp. JDM 942

[<https://www.padil.gov.au/barrow-island/pest/main/136743/10070>]

5. Seen in profile, posterior corners of vertex with well-developed dorsolateral carinae curving towards eye 6

Seen in profile, posterior corners of vertex without well-developed dorsolateral carinae curving towards eye (a non-carinate angle may be present or vestigial carinae may be visible near vertex) 11

6. Eyes very large, length $\sim 0.33 \times$ length of side of head, eyes > distance between eye and mandibular insertion (Figure 217)
..... *varians* (Clark)

[<https://www.antweb.org/specimenImages.do?name=casent0902758>]

Eyes smaller, length < $0.33 \times$ length of side of head; length of eye \leq distance between eye and mandibular insertion 7

7. Ocelli present on upper vertex 8

Ocelli absent from upper vertex 9

8. Seen in dorsal view, petiole with convex sides, these curving inward and terminating in large teeth (Figures 218–219)
..... *flammea* (Clark)
..... *brevicollis* (Clark) (ergatoid)

[<https://www.antweb.org/specimenImages.do?name=antweb1008233>]; and

[<https://www.antweb.org/specimenImages.do?name=antweb1008226>]

Seen in dorsal view, petiole with very weakly convex sides, these terminating in small denticles (Figure 220) *mjobergi* (Forel)

[<https://www.antweb.org/specimenImages.do?name=antweb1041114>]

9. Seen in dorsal view, mesosoma very compact, $\sim 1.5 \times$ as long as wide (at its widest point), propodeal carina separating the dorsal from the declivous face in the form of a broad V-shape (Figure 221)
..... *Lioponera* sp. JDM 741

[<https://www.antweb.org/specimenImages.do?name=antweb1041181>]

Seen in dorsal view, mesosoma more elongate ($\geq 2 \times$ as long as wide at its widest point),

propodeal carina separating the dorsal face from the declivous face straight10

10. Seen in dorsal view, promesonotum before the mesonotal impression narrower than propodeum; seen in profile, petiole flattened; length of longest setae on head and antennal scapes much longer than greatest width of antennal scape (Figure 222).....*iovis* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0907063>]

In dorsal view, promesonotum before the mesonotal impression as wide as propodeum; seen in profile, petiole convex; length of longest setae on head and antennal scape about equal to greatest width of antennal scape (as for Figures 218–219 except for ocelli)*flammea* (Clark)
brevicollis (Clark) (worker)

[<https://www.antweb.org/specimenImages.do?name=antweb1008233>]; and

[<https://www.antweb.org/specimenImages.do?name=antweb1008226>]

11. Posterior corners of vertex delimited by a distinct non-carinate angle; virtually matt with head, mesosoma and metasoma coriaceous; dark reddish species (Figure 223) *Lioponera* sp. JDM 1087

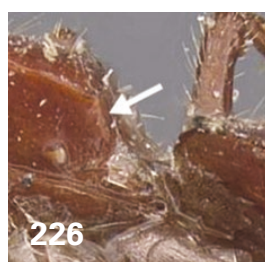
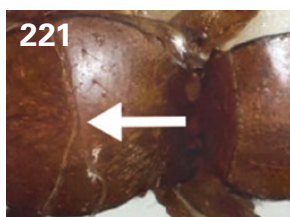
[<https://www.antweb.org/specimenImages.do?name=antweb1041116>]

Posterior angles of vertex not delimited by a distinct non-carinate angle; a vestigial carina may be present, but otherwise posterolateral sector smoothly rounded; body surfaces generally smooth and shining with or without superficial microreticulate sculpture 12

12. Dorsal surfaces of mesosoma rounded onto lateral surfaces, lateral carinae vestigial or absent.....13

Dorsal surfaces of mesosoma delimited from lateral surfaces by distinct carina14

13. Head and abdominal segments IV–VII black, mesosoma, petiolar node and appendages



FIGURES 221–229

221) *Lioponera* sp. JDM 741 (ANTWEB1041181); 222) *Lioponera iovis* syntype (CASENT0907063); 223) *Lioponera* sp. JDM 1087 (ANTWEB1041116); 224) *Lioponera longitarsus* syntype ('*L. longitarsus australis*') (CASENT0907069); 225) *Lioponera clara* syntype ('*Cerapachys princeps*') (CASENT0902752); 226) *Lioponera sjostedti* syntype (CASENT0907066); 227) *Lioponera constricta* syntype (ANTWEB1008230); 228) *Lioponera angustata* 'type' (AntWeb) (ANTWEB1008223); 229) *Lioponera greavesi* 'type' (AntWeb) (ANTWEB1008236).

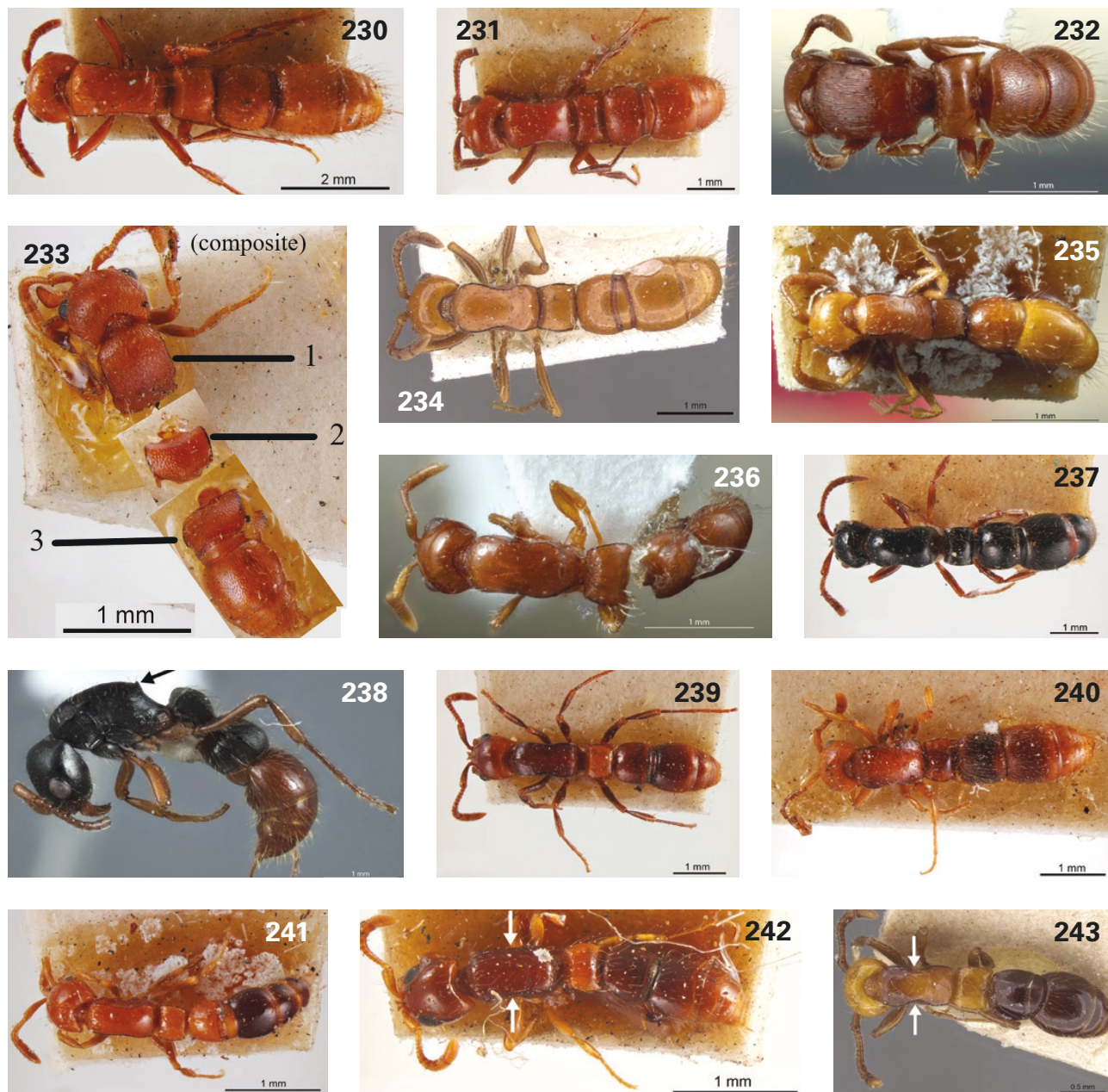
- light brown with some infuscation, abdominal segment III brown with an orange macula either side, its node wider than long; abdominal segment III only slightly narrower than segments IV–VII (Figure 224) *longitarsus* (Mayr)
[<https://www.antweb.org/specimenImages.do?name=casent0907069>]
- Head, mesosoma, petiolar node and abdominal segment III black, abdominal segments IV–VII black except for anterior orange band on abdominal tergite VI, appendages brown; petiolar node about as wide as long; abdominal segment III conspicuously narrower than segments IV–VII
..... *Lioponera* sp. **JDM 746** (ergatoid)
14. Body concolorous red15
Body black, dark brown, bicoloured or variegated 26
15. Head with three well-developed ocelli.....16
Ocelli absent or represented by minute, vestigial pits..... 20
16. Abdominal segment III with anterior, transverse carina that joins each side at a distinct angle (Figure 225).....*clara* (Clark)
[<https://www.antweb.org/specimenImages.do?name=casent0902752>]
- Abdominal segment III smoothly rounded towards its articulation with petiole.....17
17. Propodeal declivity without distinct lateral margins except for a tiny spur on upper corner below propodeal angle; petiolar node without a distinct anterior carina (Figure 226).....*sjostedti* (Forel)
[<https://www.antweb.org/specimenImages.do?name=casent0907066>]
- Propodeal declivity with distinct lateral margins; petiolar node with a distinct anterior carina18
18. Larger species (HW \geq 1.35 mm) (Figure 227)*constricta* (Clark)
(probable ergatoid of *L. greavesi* [Clark])
[<https://www.antweb.org/specimenImages.do?name=antweb1008230>]
- Smaller species (HW \leq 1 mm)19
19. Very slender species, in dorsal view, length of mesosoma 2.25 \times its greatest width and postpetiole as long as or slightly longer than wide (Figure 228)*angustata* (Clark)
(probable ergatoid of *L. inconspicua* [Clark])
[<https://www.antweb.org/specimenImages.do?name=antweb1008223>]
- More compact species, in dorsal view, length of mesosoma about 1.7 \times its greatest width and postpetiole as wide as or a little wider than long (Figure 229)*greavesi* (Clark)
[<https://www.antweb.org/specimenImages.do?name=antweb1008236>]
20. Seen in dorsal view, posterior angles of petiolar node produced as acute-angled flanges that project beyond anterior corners of node and are directed diagonally and outward.....21
Seen in dorsal view, posterior angles of petiolar node either not armed, or produced as inwardly directed denticles directed that do not project beyond anterior corners of node 23
21. Seen in dorsal view, petiolar node square or almost so, with nearly straight sides, lateral lamellae very narrow for most of their length and often notched at anterior corners (Figure 230)*punctatissima* (Clark)
[<https://www.antweb.org/specimenImages.do?name=antweb1008248>]
- Seen in dorsal view, petiolar node about twice as wide as long, lateral lamellae broadening out posteriad to form acute-angled flanges at posterior corners 22
22. Seen in dorsal view, dorsum of mesosoma smooth and unsculptured (Figure 231)
.....*clarki* (Crawley)
[<https://www.antweb.org/specimenImages.do?name=antweb1008228>]
- Seen in dorsal view, dorsum of mesosoma finely, longitudinally striate (Figure 232)
..... *Lioponera* sp. **JDM 941**
[<https://www.antweb.org/specimenImages.do?name=jdm32-002652>]
23. Seen in dorsal view, sides of dorsum of mesosoma almost straight throughout their length; surface of mesosoma minutely longitudinally striate; dorsum of petiolar node, postpetiole and gastral tergites also finely sculptured (Figure 233).....
.....*reticulata* (Clark)
[<https://www.antweb.org/specimenImages.do?name=antweb1008250>]

Seen in dorsal view, mesosoma impressed laterally at mesonotal sector of promesonotum; dorsum of mesosoma, petiolar node, postpetiole and gastral tergites smooth and shining24

corners; also in dorsal view, node not or only slightly concave posteriad; seen in profile, eyes smaller, their length < 2 × distance between eye and mandibular insertion (Figure 234).....*fervida* (Wheeler)

24. Seen in dorsal view, petiolar node only slightly wider than long, with denticles on posterior

[<https://www.antweb.org/specimenImages.do?name=casent0902761>]



FIGURES 230–243 230) *Lioponera punctatissima* syntype (ANTWEB1008248); 231) *Lioponera clarki* syntype ('Phyracaces castaneus') (ANTWEB1008228); 232) *Lioponera* sp. JDM 941 (JDM32-002652); 233) *Lioponera reticulata* 'type' (AntWeb) (ANTWEB1008250); 234) *Lioponera fervida* syntype ('Phyracaces newmani') (CASENT0902761); 235) *Lioponera inconspicua* syntype (ANTWEB1041113); 236) *Lioponera* cf. *inconspicua* (JDM32-002624); 237) *Lioponera ruficornis* syntype (ANTWEB1008251); 238) *Lioponera* sp. JDM 746 (ANTWEB1041115); 239) *Lioponera bicolor* syntype (ANTWEB1008225); 240) *Lioponera gilesi* syntype (ANTWEB1008235); 241) *Lioponera nigriventris* syntype (ANTWEB1008242); 242) *Lioponera brevis* syntype (ANTWEB1008227); 243) *Lioponera elegans* syntype (ANTWEB0915333).

Seen in dorsal view, petiolar node much wider than long, its posterior corners unarmed and represented by sharp angles; also in dorsal view, node distinctly concave anteriorly and posteriorly; eyes larger, their length < 2 × distance between eye and mandibular insertion 25

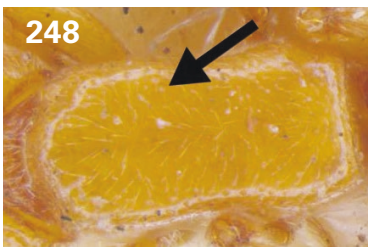
25. Seen in dorsal view, petiolar node weakly shining, minutely punctate throughout; seen in profile petiolar node flat or weakly convex above (Figure 235).....*inconspicua* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1041113]

Seen in dorsal view, petiolar node completely smooth and shining; seen in profile petiolar node markedly convex above (Figure 236)
cf. *inconspicua* (Clark)

[https://www.antweb.org/specimenImages.do?name=jdm32-002624]

26. Body entirely black (Figure 237)
*ruficornis* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008251]

Body with non-black elements (e.g. head, petiole, gaster) 27



FIGURES 244–253

244) *Zasphectus duchaussoyi* syntype (CASENT0911270); 245) *Zasphectus occidentalis* 'cotype' (AntWeb) (CASENT0173060); 246) *Zasphectus emeryi* syntype ('*Sphinctomyrmex perstictus*') (CASENT0902770); 247) *Zasphectus* sp. JDM 1262 (ANTWEB1041127); 248) *Zasphectus imbecilis* syntype ('*Eusphinctus brunnicornis*') (ANTWEB1008185); 249) *Zasphectus* sp. JDM 1263 (JDM32-002659); 250) *Heteroponera majeri* holotype (SEM) (Dwellingup, Western Australia); 251) *Heteroponera imbellis* 'cotype' (AntWeb) (CASENT0172106); 252) *Heteroponera* sp. JDM 732 (JDM32-003036); 253) *Rhytidoponera aurata* (CASENT0010638).

27. Body black with light brownish appendages and red gaster behind the postpetiole; often matt or with reduced sheen 28
 Body otherwise coloured; mesosoma, petiole and postpetiole usually smooth and shining 29
28. Seen in dorsal view, mesosoma, petiolar node and postpetiole matt with well-spaced shallow punctures; also in dorsal view, posterior propodeal carina raised medially to form a small lip (Figure 238)
 *Lioponera* sp. JDM 746 (worker)
 [https://www.antweb.org/specimenImages.do?name=antweb1041115]
 Seen in dorsal view, mesosoma, petiolar node and postpetiole moderately to strongly shining; shallow punctures absent from body surface; also in dorsal view, posterior propodeal carina not raised medially
 *gilesi* (Clark) (part)
29. Larger species (TL 5.3–5.6 mm); petiolar node yellowish, contrasting with much darker mesosoma and postpetiole; seen in dorsal view, postpetiolar angles of petiolar node developed as distinct teeth (Figure 239)
 *bicolor* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008225]
 If with a light-coloured petiolar node that contrasts with much darker mesosoma and postpetiole, then worker smaller (≤ 3.5 mm); seen in dorsal view, posterior angles of petiolar node developed as weak flanges or minute denticles at most, often sharp angles only 30
30. Petiolar node dark brown to black and concolorous with mesosoma and postpetiole (head usually lighter in colour or variegated but may be dark); seen in dorsal view, posterior angles of petiolar node developed as small teeth or strong, dentiform flanges (Figure 240).....*gilesi* (Clark) (part)
 [https://www.antweb.org/specimenImages.do?name=antweb1008235]
 Petiolar node usually yellow or otherwise pale-coloured; if darker, then posterior angles of petiolar node as described in second lug of couplet 2931
30. Head, mesosoma, petiolar node and postpetiole yellow or yellowish-red; remaining gaster brown or black (Figure 241).....
 *nigriventris* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008242]
- Colour combination not as above; usually with mesosoma and postpetiole of darker colouration than petiolar node31
31. Seen dorsally with head of worker uppermost, mesosoma virtually a longitudinal rectangle with rounded corners, the posterior corners of mesosoma turned inward to meet posterior propodeal carina at an obtuse angle; propodeal declivity without lateral carinae; posterior angles of petiolar node usually unarmed (Figure 242)
 *brevis* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008227]
 Seen dorsally with head of worker uppermost, mesosoma hour-glass shaped and impressed in the mesonotal sector on either side, the posterior corners angulate and meeting posterior propodeal carina at about a right-angle; posterolateral propodeal carinae present, distinct; posterior angles of petiolar node expanded to form minute denticles or dentiform flanges (Figure 243) ...
 *elegans* (Wheeler)
 [https://www.antweb.org/specimenImages.do?name=casent0915333]
- ### *Ooceraea*
- One species (*Ooceraea australis* [Forel 1900]) (see Figure 48).
 [https://www.antweb.org/specimenImages.do?name=casent0902746]
- ### *Zasphinctus*
1. Antenna with 11 segments (including scape) 2
 Antenna with 12 segments (including scape) 3
2. Smaller (Weber's Length [WL] < 0.80 mm) (Figure 244)..... *duchaussoyi* (André)
 [https://www.antweb.org/specimenImages.do?name=casent0911270]
 Larger (WL > 0.80 mm) (Figure 245)
 *occidentalis* (Clark)
 [https://www.antweb.org/specimenImages.do?name=casent0173060]
3. Matt or weakly shining; seen in dorsal view, foveae or foveolae of mesosoma contained within interstices between fine, winding, longitudinal striolae (Figure 246)
 *emeryi* (Forel)
 [https://www.antweb.org/specimenImages.do?name=casent0902770]

Moderately to strongly shining; seen in dorsal view, foveae of mesosoma mostly impressed directly into cuticle and surrounded by smooth interspaces 4

4. Slender species with very long antennal scape (when laid back this reaching $\sim 0.65 \times$ head length) (Figure 247)
..... *Zasphinctus* sp. JDM 1262

[<https://www.antweb.org/specimenImages.do?name=antweb1041127>]

More compact species, antennal scape when laid back reaching $\leq 0.5 \times$ head length 5

5. Hair pits on head and mesosoma in form of small punctations or foveolae only, not expanded to form well-defined foveae, these pits well separated by smooth, unsculptured cuticular surface (south-western WA) (Figure 248) *imbecilis* Forel

[<https://www.antweb.org/specimenImages.do?name=antweb1008185>]

Hair pits on body expanded to form well-defined foveae that are often contiguous, particularly on frons where the space between contiguous foveae may be raised as tiny, ramifying striolae in some specimens (north-western WA) (Figure 249)
..... *Zasphinctus* sp. JDM 1263

[<https://www.antweb.org/specimenImages.do?name=jdm32-002659>]

ECTATOMMINAE

Heteroponera

1. Larger species (HW ~ 2 mm); seen in profile, petiolar node acuminate (Figure 250)
..... *majeri* Taylor

[https://www.antwiki.org/wiki/Heteroponera_majeri]

Smaller species (HW ~ 1 mm); petiolar node cuboidal or subcuboidal 2

2. Eye smaller (EL $\sim 0.15 \times$ length of side of head); seen in profile, petiolar node subcuboidal, node higher than long (Figure 251)
..... *imbellis* (Emery)

[<https://www.antweb.org/specimenImages.do?name=casent0172106>]

Eye larger (EL $\sim 0.28 \times$ length of side of head); seen in profile, petiolar node cuboidal, node about as high as long (Figure 252)
..... *Heteroponera* sp. JDM 732

[<https://www.antweb.org/specimenImages.do?name=jdm32-003036>]

Rhytidoponera

1. Seen in full-face view, upper margin of vertex (the occiput) forming a horizontal crest with the corners produced as teeth, denticles or sharp angles 2

Seen in full-face view, occiput with or without a horizontal crest, but if this is present, then its corners are not produced as teeth, denticles or sharp angles 4

2. Smaller species (WL 2.21–3.34 mm; HW 2.14–2.45 mm) (Reichel, 2003); seen in full-face view, occipital crest only weakly indented medially, the corners produced as sharp angles (Figure 253) *aurata* (Roger)

[<https://www.antweb.org/specimenImages.do?name=casent0010638>]

Larger species (WL: 3.55–4.28 mm; HW: 2.14–2.45 mm) (Reichel, 2003); seen in full-face view, occipital crest strongly concave medially, the corners produced as distinct teeth or horns 3

3. Seen in full-face view, corners of occipital crest produced as large horns, directed dorsally, the teeth separated by about the width of the base of one of them (Figure 254)
..... *cerastes* Crawley

[<https://www.antweb.org/specimenImages.do?name=casent0915133>]

Seen in full-face view, corners of occipital crest produced as sharp denticles, these directed laterally (Figure 255) *taurus* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0907142>]

4. Eyes very large, seen in profile, eye length $\geq 0.4 \times$ length of side of head; hind tibial spur very short and may be difficult to distinguish from surrounding spiky setae 5

Eyes usually smaller; if eyes approaching this size then hind tibial spur elongate, distinct 6

5. Apex of petiolar node terminating in a sharp spur (usually) or dull point (rarely) directed posteriad (possibly a species complex) (Figure 256) *tyloxys* Brown and Douglas

[<https://www.antweb.org/specimenImages.do?name=antweb1008715>]

Apex of node rounded, lacking a process or point directed posteriad (Figure 257)
..... *Rhytidoponera dubia* group sp. JDM 904

[<https://www.antweb.org/specimenImages.do?name=jdm32-002831>]



FIGURES 254–268

254) *Rhytidoponera cerastes* syntype (CASENT0915133); 255) *Rhytidoponera taurus* syntype (CASENT0907142); 256) *Rhytidoponera tyloxys* (ANTWEB1008715); 257) *Rhytidoponera dubia* group sp. JDM 904 (JDM32-002831); 258) *Rhytidoponera mirabilis* holotype (ANTWEB1008311); 259) *Rhytidoponera quadriceps* 'type' (AntWeb) (ANTWEB1008317); 260) *Rhytidoponera mayri* syntype ('*Ectatomma mayri glabrius*') (CASENT0907149); 261) *Rhytidoponera metallica* lectotype (CASENT0900527); 262) *Rhytidoponera* sp. JDM 1098 (JDM32-002929); 263) *Rhytidoponera flavipes* holotype (ANTWEB1008155); 264) *Rhytidoponera borealis* holotype ('*R. brunnea*') (ANTWEB1008154); 265) *Rhytidoponera inornata* syntype ('*R. metallica carbonaria*') (CASENT0900528); 266) *Rhytidoponera tenuis* syntype (CASENT0907162); 267) *Rhytidoponera anceps* syntype (CASENT0903830); 268) *Rhytidoponera* sp. JDM 44 ANIC (ANIC32-146017-1).

6. Seen in full-face view, occipital crest formed by upper vertex prominent and clearly medially indented with the posterior angles of the vertex forming blunt tubercles, these often projecting when the ant is seen in profile.... 7
- Seen in full-face view, occipital crest formed by upper vertex either absent or not prominent and with only a vestigial medial indentation at most, the posterior corners not tuberculate 9
7. Erect pilosity lacking on head and body; ant weakly shining, sculpture of head and body mostly striolate with incomplete, minute branching ridges within the striae, gaster finely sculptured with minute scoring of the cuticle in a mesh-like pattern (Figure 258) *mirabilis* Clark
- [<https://www.antweb.org/specimenImages.do?name=antweb1008311>]
- Erect pilosity in form of short, spiky, erect setae well-distributed over head and body; ant strongly shining, head and body coarsely reticulate-rugose without sculpture within enclosed surfaces, gaster finely striolate or striate 8
8. Second gastral tergite longitudinally striate; seen in full-face view, angles of occipital crest expanded slightly laterally so that they project beyond the sides of the head (Figure 259) *quadriceps* Clark
- [<https://www.antweb.org/specimenImages.do?name=antweb1008317>]
- Second gastral tergite with superficial arched striae; seen in full-face view, angles of occipital crest not expanded laterally, sides of the head convergent towards the angles (Figure 260) *mayri* (Emery)
- [<https://www.antweb.org/specimenImages.do?name=casent0907149>]
9. Seen in profile, petiolar node thick, rectangular, higher than wide; antennal scape short, extended beyond vertex by $\leq 3 \times$ its greatest width, body compact; occipital lobes usually well-developed; smaller ants (HW ≤ 1.80 mm) 10
- If ant small, compact and with a short scape and thick, rectangular petiolar node, then in profile petiolar node about as wide as high or occipital lobes undeveloped 14
10. Body with noticeable iridescence (blue, green or purple hues may predominate) 11
- Body without noticeable iridescence as above, although coppery reflections may be present on gaster 13
11. Seen in full-face view, eyes rather flattened, asymmetrically and weakly convex; appendages dark, concolorous with head and body (Figure 261) *metallica* (F. Smith)
- [<https://www.antweb.org/specimenImages.do?name=casent0900527>]
- Seen in full-face view, eyes protrusive, strongly and often evenly convex; appendages distinctly lighter in colour than head and body 12
12. Seen in rear view, first gastral tergite uniformly reticulate-foveate; second gastral tergite with numerous small pits or foveolae; occipital lobes weak and inconspicuous (Figure 262) *metallica* group sp. JDM 1098
- [<https://www.antweb.org/specimenImages.do?name=jdm32-002929>]
- Seen in rear view, first gastral tergite either mainly smooth and shining with fine, transverse striolae only or with numerous foveae and arched striolae but not uniformly reticulate-foveate; second gastral tergite shining with fine, arched striolae only; occipital lobes well-developed (Figure 263) *metallica* group sp. JDM 1023 (*flavipes* Clark?)
- [<https://www.antweb.org/specimenImages.do?name=antweb1008155>]
13. Seen in profile, occipital lobe strongly developed as a large flange that extends posteriad in a distinct laterally directed curve; anteroventral petiolar process with sharp posterior angle; head and body with uniform, fine microreticulate sculpture within the coarser reticulations and foveae, ant weakly shining (Figure 264) *borealis* Crawley
- [<https://www.antweb.org/specimenImages.do?name=antweb1008154>]
- Seen in profile, occipital lobe less well-developed, not extending posteriad in a distinct laterally directed curve; anteroventral petiolar process more-or-less rounded and without a sharp posterior angle; head and body mostly without fine microsculpture, ant strongly shining (Figure 265) *inornata* Crawley
- [<https://www.antweb.org/specimenImages.do?name=casent0900528>]

14. Very small species (HW 0.78–1.25 mm); node low and thick (about as wide as long).....15
 Larger species (HW \geq 1.45 mm); node often higher than wide17
15. Hind tibial spur very short, vestigial or absent; antennal scapes longer, extending beyond the vertex by 0.25–0.33 \times their length; head narrow (CI \leq 0.75) with vertex rounded (Figure 266)..... *tenuis* Forel
[\[https://www.antweb.org/specimenImages.do?name=casent0907162\]](https://www.antweb.org/specimenImages.do?name=casent0907162)
 Hind tibial spur long and pectinate; antennal scapes short, extending beyond the vertex by about 2.5 \times their greatest width; head broad (CI > 0.80) and slightly concave16
16. First gastral tergite with fine, close parallel striae; seen in full-face view erect setae on eyes microscopic, vestigial (Figure 267)
 *anceps* Emery
[\[https://www.antweb.org/specimenImages.do?name=casent0903830\]](https://www.antweb.org/specimenImages.do?name=casent0903830)
 First gastral tergite with thick discontinuous striae; seen in full-face view eyes with short, decumbent to erect setae (Figure 268)
 *Rhytidoponera* sp. 44 ANIC
[\[https://www.antweb.org/specimenImages.do?name=anic32-146017-1\]](https://www.antweb.org/specimenImages.do?name=anic32-146017-1)
17. Horizontal occipital crest present; seen in full-face view, this crest with a planar margin, only weakly indented at most and often with a carina or hint of one; petiolar node a vertically orientated, narrow rectangle that is much higher than wide with a planar or weakly convex dorsal surface; sculpture of frons uniformly reticulate-foveate or foveate-striolate.....18
 Horizontal crest usually absent; if horizontal occipital crest present and petiolar node narrowly rectangular, then in profile petiolar node sloped posteriad, the anterior and dorsal surfaces forming a sharp angle; frons in these species usually reticulate-punctate or foveate only..... 20
18. Seen in profile, eye larger (El \geq 0.25 \times HL); seen in rear view, petiolar node with a mixture of foveate and irregularly striolate sculpture; colour variable shades of yellowish, orange, reddish, brown and blackish-brown, either concolorous [*carinata*] or bicoloured (mostly head and mesosoma red or reddish-brown and gaster orange [*castanea*']), but never iridescent (Figure 269)..... *castanea* Crawley
[\[https://www.antweb.org/specimenImages.do?name=antweb1041120\]](https://www.antweb.org/specimenImages.do?name=antweb1041120)
 Seen in profile, eye smaller (EL \leq 0.23 \times HL); seen in rear view, petiolar node with fine, parallel transverse striolae, mainly or wholly lacking foveae; ant black or blackish brown, and often with variable iridescence (especially on the gaster)19
19. Seen in profile, petiolar node very thin and attenuated anteriorly, its dorsal surface a narrow crest; ant black; variable iridescence usually present (especially on the gaster), pink, purple, blue or greenish-yellow most commonly seen, more rarely iridescence very reduced (Figure 270)..... *violacea* (Forel)
[\[https://www.antweb.org/specimenImages.do?name=casent0907141\]](https://www.antweb.org/specimenImages.do?name=casent0907141)
 Seen in profile, petiolar node a narrow, vertical rectangle with a distinct dorsal face; ant blackish-brown, usually with more of a brown tinge than *R. violacea*; iridescence, where present, often less pronounced and confined to gaster (Figure 271)
 *convexa* group sp. JDM 1129
[\[https://www.padil.gov.au/barrow-island/pest/main/136670\]](https://www.padil.gov.au/barrow-island/pest/main/136670)
20. Large species (HW \geq 2.50 mm); ant matt in appearance, with microreticulation contained within minute, parallel striolae, scattered tiny, superficial pits also present; head, body and appendages covered in short, bristly setae (Figure 272).....
 *Rhytidoponera* sp. JDM 985
[\[https://www.antweb.org/specimenImages.do?name=antweb1041122\]](https://www.antweb.org/specimenImages.do?name=antweb1041122)
 Ant smaller (HW \leq 2.15 mm) and usually shining in appearance; otherwise appearance not as above.....21
21. In full-face view, horizontal occipital crest absent, the upper vertex rounded smoothly on to the sides of the head, sculpture of head and body consisting of very fine, uniform microreticulation overlaid with scattered, small, superficial foveae (*R. micans* complex)22
 If horizontal occipital crest lacking and upper vertex rounded smoothly on to sides of head, then sculpture of head and body not as above (specifically, strongly striolate and



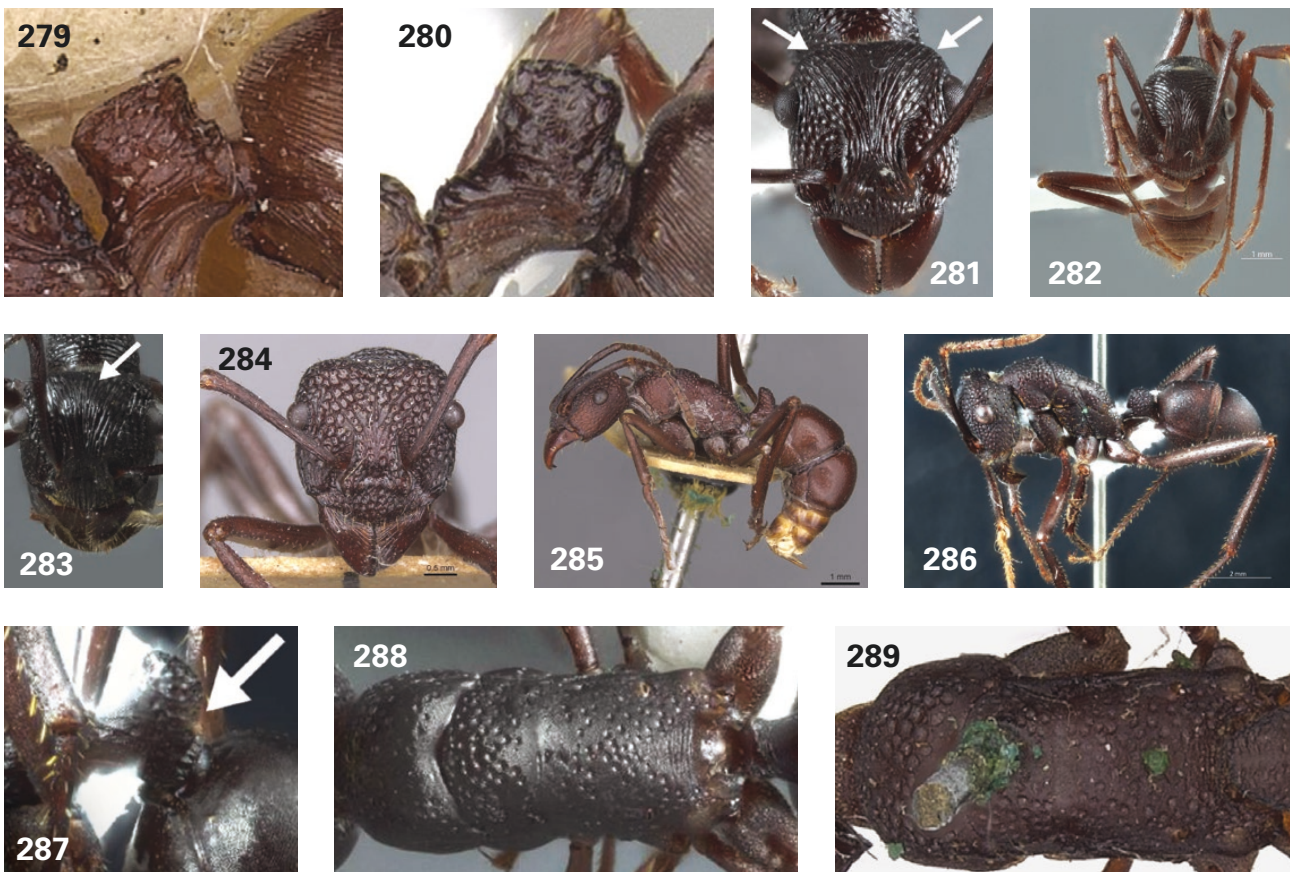
FIGURES 269–278 269) *Rhytidoponera castanea* from type series (AntWeb) (ANTWEB1041120); 270) *Rhytidoponera violacea* syntype (CASENT0907141); 271) *Rhytidoponera convexa* group sp. JDM 1129 (Barrow Island, Western Australia); 272) *Rhytidoponera* sp. JDM 985 (ANTWEB1041122); 273) *Rhytidoponera micans* complex sp. JDM 986 (ANTWEB1041123); 274) *Rhytidoponera flavicornis* 'type' (AntWeb) (ANTWEB1008305); 275) *Rhytidoponera micans* (ANTWEB1041390); 276) *Rhytidoponera* sp. JDM 736 (sp. 26 ANIC) (JDM32-003021); 277) *Rhytidoponera* sp. JDM 1372 (ANTWEB1041126); 278) *Rhytidoponera reticulata* complex sp. JDM 1056 (ANTWEB1041132)..

- reticulate/foveate or predominantly finely striolate).....24
- 22. Ant bicoloured with dark ferruginous head and mesosoma and yellow gaster with even, minute microreticulation but without striolae or other sculpture (Figure 273).....
.....*R. micans* complex sp. JDM 986
[https://www.antweb.org/specimenImages.do?name=antweb1041123]
Ant concolorous black or brownish-black; gaster with minute, regular striolae as well as microreticulation..... 23
- 23. Fine striolae on second gastral tergite longitudinal without deviation (Figure 274)*flavicornis* Clark
[https://www.antweb.org/specimenImages.do?name=antweb1008305]
- 24. Seen in full-face view, head truncate behind with nuchal carina visible, horizontal occipital crest absent; eye large to very large (eye length approximately 0.25–0.33 × length of side of head); petiolar node a thick, sloping, flat-topped rectangle, about twice as high as wide, anterior face of node much longer than its posterior face (Figure 276).....
..... *Rhytidoponera* sp. JDM 736 (sp. 26 ANIC)
[https://www.antweb.org/specimenImages.do?name=jdm32-003021]
Seen in full-face view, head not truncate with visible nuchal carina; horizontal occipital
- *micans* Clark
[https://www.antweb.org/specimenImages.do?name=antweb1041390]

- crest usually present; seen in profile petiolar node variable in appearance but not as above 25
25. Seen in profile, petiolar node oblong, much longer than wide, with anterior face sloped at about 45° and posterior face vertical; seen in full-face view, frons regularly reticulate-striolate; conspicuously bicoloured with brown head and mesosoma and light yellowish-brown gaster; body and appendages covered in short, prickly setae (Figure 277).....*Rhytidoponera* sp. JDM 1372
- [<https://www.antweb.org/specimenImages.do?name=antweb1041126>]
- Seen in profile, node often thin, if node thick then square in form and as long as wide.....26
26. Seen in profile, petiolar node symmetrical, if uniformly square or square tending to rectangular then with at a dorsal as well as posterior face; seen in full-face view, sculpture of frons reticulate or predominantly striolate 27
- Seen in profile, petiolar node usually asymmetrical, if petiolar node similar to the above, then in full-face view, sculpture of frons predominantly punctate or finely microstriolate with scattered punctation and foveae..... 32
27. Body and appendages of ant covered in abundant short, fine, erect setae, some of these curved on the occipital margin and sides of head; seen in profile, posterior angle of petiolar node acute and sharp (Figure 278)*reticulata* complex sp. JDM 1056
- [<https://www.antweb.org/specimenImages.do?name=antweb1041132>]
- Body and appendages of ant with sparse, though regular prickly, erect setae only; seen in profile, posterior angle of petiole acute or a right-angle..... 28
28. Seen in profile, petiolar node cuboidal and posterior angle of petiolar node acute; seen in dorsal view dorsum of node overhanging posterior face of petiole in a blunt point; anterior angle of petiolar node a right-angle (Figure 279) *reticulata* Forel
- [<https://www.antweb.org/specimenImages.do?name=casent0900523>]
- Seen in profile, if petiolar node cuboidal, then posterior angle of petiolar node a right angle or dorsal face of node overhangs its posterior face in a broad curve; also seen in profile, anterior angle of petiolar node > 90° or lacking entirely 29
29. Eyes larger (eye length > 0.25 × length of side of head); seen in full-face view, sculpture between frontal carinae predominantly reticulate or reticulate-striate; seen in profile, petiolar node cuboidal, about as high as wide (Figure 280) cf. *crassinodis* Forel
- [<https://www.antweb.org/specimenImages.do?name=casent0281284>]
- Eyes smaller (eye length < 0.25 × length of side of head); seen in full-face view, sculpture between frontal carinae consisting predominantly of branching striolae; seen in profile, petiolar node sub-cuboidal or thin, narrowly conical, higher than wide..... 30
30. Seen in full-face view, horizontal occipital crest completely absent, the upper vertex rounding smoothly on to sides of head (Figure 281) *Rhytidoponera* sp. JDM 576
- [<https://www.antweb.org/specimenImages.do?name=jdm32-002934>]
- Seen in full-face view, horizontal occipital crest present as a feeble ridge or noticeable boss above the eyes, the upper vertex with rounded angles31
31. Seen in full-face view, longitudinal striolae between frontal carinae interrupted before vertex by several rows of horizontal striolae; sides of head above eyes distinctly convergent (Figure 282)..... *Rhytidoponera* sp. JDM 1366
- [<https://www.antweb.org/specimenImages.do?name=antweb1041125>]
- Seen in full-face view, longitudinal striolae between frontal carinae continuing to vertex; sides of head above eyes not convergent (Figure 283).... *Rhytidoponera* sp. JDM 1370
- [<https://www.antweb.org/specimenImages.do?name=jdm32-002936>]
32. Seen in full-face view frons strongly reticulate-rugulose; gaster markedly sculptured with combination of tiny, raised striolae, scattered shallow punctation and even microreticulation (Figure 284) *foveolata* Crawley
- [<https://www.antweb.org/specimenImages.do?name=casent0915136>]

- Seen in full-face view, frons predominantly striolate, striolate punctate or striolate-foveate; gaster either evenly microreticulate or with fine, parallel striolae..... 33
- 33 Gastral sculpture consisting of fine, parallel striolae... 34
- Gastral sculpture consisting of very small, even microreticulation 35
34. Seen in profile, petiolar node narrowly triangular, its anterior face vertical and its posterior faced weakly convex and bisected by a median groove; underside of head mostly devoid of erect setae; ant shining (Figure 285).....*punctigera* Crawley
- [<https://www.antweb.org/specimenImages.do?name=casent0915142>]

- Seen in profile, petiolar node roundly square with a slight depression on the dorsum but without a median groove; underside of head with many semi-erect, sometimes curved setae (Figure 286).....*aciculata* group sp. JDM 1022
- [<https://www.antweb.org/specimenImages.do?name=antweb1041124>]
35. Seen in profile, petiole node a symmetrical square, as wide as long, with indistinct angles between the dorsal face and the sides (Figure 287).....*punctata* complex sp. JDM 253
- [<https://www.antweb.org/specimenImages.do?name=antweb1041121>]
- Seen in profile, petiolar node usually slightly higher than wide, but always sloping



FIGURES 279–289

279) *Rhytidoponera reticulata* syntype (CASENT0900523); 280) *Rhytidoponera* cf. *crassinodis* (CASENT0281284); 281) *Rhytidoponera* sp. JDM 576 (JDM32-002934); 282) *Rhytidoponera* sp. JDM 1366 (ANTWEB1008316); 283) *Rhytidoponera* sp. JDM 1370 (JDM32-002936); 284) *Rhytidoponera foveolata* syntype (CASENT0915136); 285) *Rhytidoponera punctigera* syntype (CASENT0915142); 286) *Rhytidoponera aciculata* group sp. JDM 1022 (ANTWEB1041124); 287) *Rhytidoponera punctata* complex sp. JDM 253 (ANTWEB1041121); 288) *Rhytidoponera levior* (JDM32-002868); 289) *Rhytidoponera punctata* syntype (CASENT0900520).

posteriad and with distinct angles between the dorsal face and sides..... 36

36. Seen in dorsal view, pronotal foveae very small, mostly separated from each other by more than their own width; anteroventral petiolar process a small nub or spur; horizontal occipital crest usually lacking any discernible carina (Figure 288).....*levior* Crawley

[<https://www.antweb.org/specimenImages.do?name=jdm32-002868>]

Seen in dorsal view, pronotal foveae larger, often contiguous; anteroventral petiolar process a short but distinct spine; a weakly developed and medially interrupted horizontal occipital carina often present (best seen in profile) (Figure 289)*punctata* (F. Smith)

[<https://www.antweb.org/specimenImages.do?name=casent0900520>]

FORMICINAE

Acropyga

1. Larger species (HW > 0.6 mm); dorsal surface of mandible with dense layer of setae (Figure 290).....*myops* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0909906>]

Smaller species (HW < 0.6 mm); dorsal surface of mandible lacking dense layer of setae (Figure 291)*pallida* (Donisthorpe)

[<https://www.antweb.org/specimenImages.do?name=casent0249913>]

Calomyrmex

1. Gaster with golden, appressed setae that form a thick pubescence, these overtopped by erect and semi-erect setae that are also golden (Figure 292)*glauerti* Clark

[https://www.antwiki.org/wiki/Calomyrmex_glauerti]

Gaster mostly or completely lacking appressed setae, where present these are whitish, and not sufficiently thick to form distinct pubescence..... 2

2. Seen in dorsal view, gaster black, lacking iridescence (Figure 293)*purpureus smaragdinus* Emery

[<https://www.antweb.org/specimenImages.do?name=casent0905537>]

Seen in dorsal view, gaster with strong iridescence, usually greenish or blue 3

3. Seen in dorsal view, iridescence of head and mesosoma variable but always of a contrasting colour to that of gaster; legs black, lacking iridescence (Figure 294)*splendidus viridiventris* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0910762>]

Seen in dorsal view, iridescence of head and mesosoma and gaster variable greenish or bluish but ant always concolourous; all legs iridescent, concolourous with body (Figure 295)*Calomyrmex* sp. JDM 751

[<https://www.flickr.com/photos/myrmecian/7710278454/>]

Camponotus (minor workers)

For *Camponotus*, in particular, care has been taken in selecting photographs that accurately depict a major or minor worker of a given named species. Regrettably, for this genus, a number of Automontaged or otherwise photographed specimens available on the various online platforms and in the literature (e.g. McArthur 2014) have been wrongly identified or are obliged to carry the name originally given when the ant was databased. Hence, a damaged type specimen has often been preferred to fresher but questionably identified material.

1. Seen in full-face view, anterior clypeal margin with a square, apron-like protrusion with angles acute or near a right-angle 2

Seen in full-face view, anterior clypeal margin convex to varying degrees or emarginate or notched medially, but not projecting as above (*C. intrepidus* group workers have a vaguely apron-like anterior clypeal margin, but here the angles are > 90°) 12

2. Seen in full-face view, angles of clypeal apron < 90° (*C. nigriceps* group) 3

Seen in full-face view, angles of clypeal apron ≥ 90° (*C. novaehollandiae* group) 8

3. Erect setae on underside of head absent (Figure 296)*longideclivis* McArthur & Adams

[<https://www.antweb.org/specimenImages.do?name=jdm32-001233>]

Erect setae on underside of head present 4

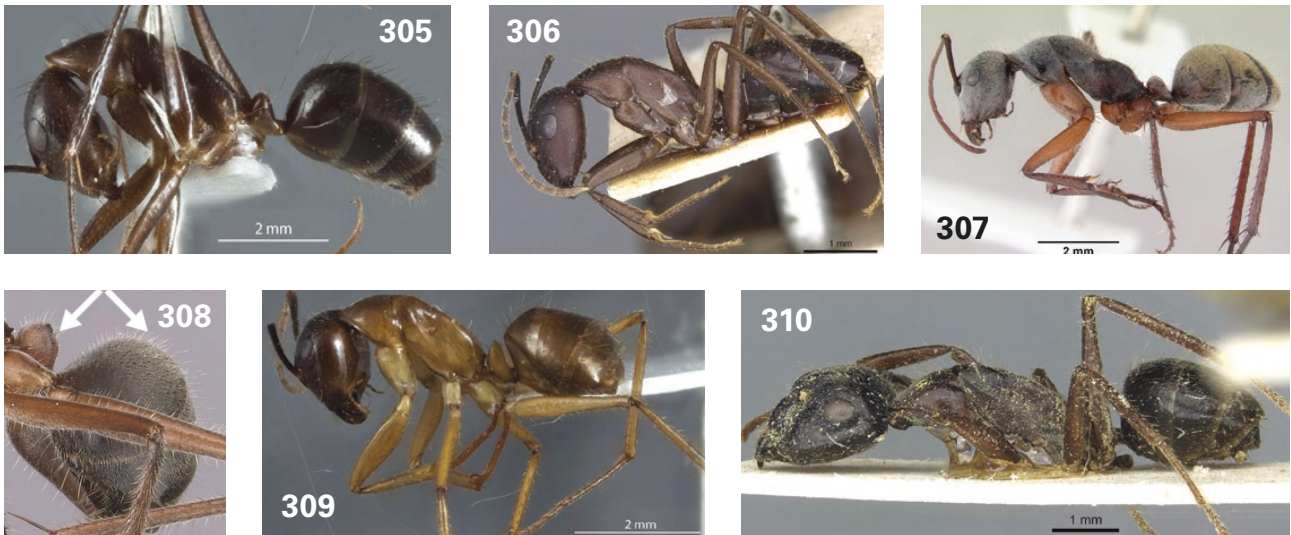
4. Seen in profile, propodeum with > 10 erect setae evenly ranged along its dorsum 5



FIGURES 290–304

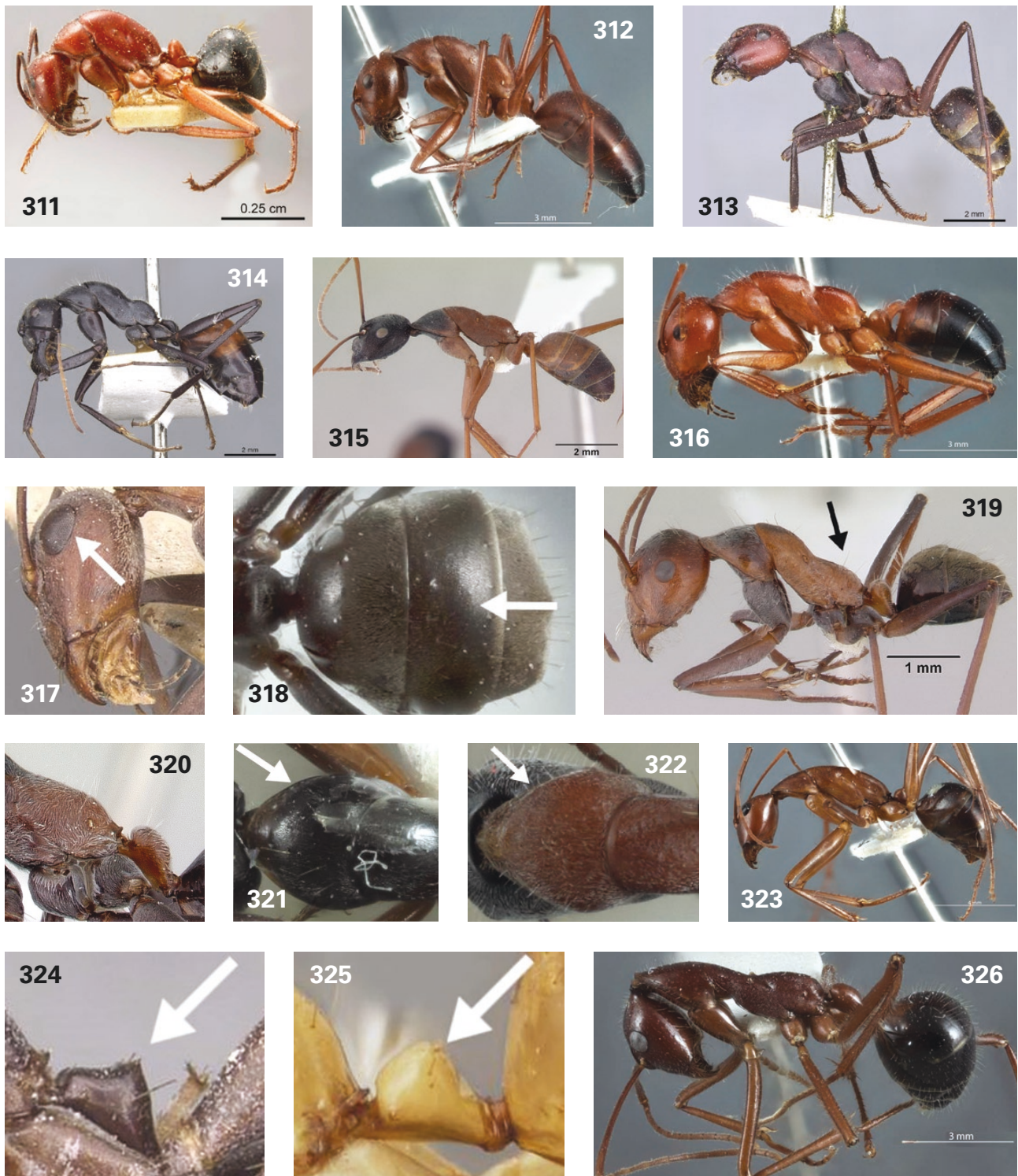
290) *Acropyga myops* syntype (CASENT0909906); 291) *Acropyga pallida* (CASENT0249913); 292) *Calomyrmex glauerti* (Ashburton, Western Australia); 293) *Calomyrmex purpureus smaragdinus* syntype (CASENT0905537); 294) *Calomyrmex splendidus viridiventris* syntype (CASENT0910762); 295) *Calomyrmex* sp. JDM 751 (Pannawonica, Western Australia); 296) *Camponotus longideclivis* minor (JDM32-001233); 297) *Camponotus clarior* minor syntype (CASENT0910306); 298) *Camponotus nigriceps* minor (JDM32-001282); 299) *Camponotus nigriceps* 'perthianus' minor syntype ('*C. nigriceps dimidiatus perthiana*') (CASENT0903532); 300) *Camponotus prostars* minor syntype (CASENT0910312); 301) *Camponotus dryandrae* with prey (*Pheidole* male) (Brigadoon, Western Australia); 302) *Camponotus novaehollandiae* minor syntype (CASENT0910178); 303) *Camponotus crozieri* minor (ANTWEB1041384); 304) *Camponotus humilior* minor syntype (CASENT0910182).

- Seen in profile, propodeum with < 10 erect setae concentrated around propodeal angle 7
5. Head, mesosoma, node and most of gaster uniformly honey-coloured (Figure 297).....
.....*clarior* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910306>]
Head black or brown, mesosoma yellow or red-brown 6
6. First gastral tergite yellow, the remainder black (Figure 298).....*nigriceps* (F. Smith)
[<https://www.antweb.org/specimenImages.do?name=jdm32-001282>]
First gastral tergite black, as for the remaining gastral tergites (Figure 299).....
.....*nigriceps* (F. Smith) (*'perthianus'*)
[<https://www.antweb.org/specimenImages.do?name=casent0910310>]
7. Erect setae on underside of head < 20, or erect setae covering less than half of underside of head; head and mesosoma typically concolorous dark brown or black (Figure 300).....*prostans* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910312>]
Erect setae on underside of head > 20, or erect setae covering more than half of underside of head; head typically dark brown or black contrasting with yellowish to dark red mesosoma (Figure 301)
.....*dryandrae* McArthur & Adams
[https://www.antwiki.org/wiki/Camponotus_dryandrae]
8. Worker with erect setae on scape and tibiae raised to an angle of ~45°; more-or-less uniformly yellow or yellowish (Figure 302)
.....*novaehollandiae* Mayr
[<https://www.antweb.org/specimenImages.do?name=casent0910178>]
Worker with erect setae on scape and tibiae raised to an angle of ~30°; colour as above or brown or brown and yellowish..... 9
9. Worker yellowish, brownish-yellow or bicoloured; appearance rather glossy10
Worker uniformly brown, reddish- or blackish brown; appearance may be matt11
10. Worker bicoloured with dorsum of head brown, clypeus and often sector between frontal carina yellow or yellowish, a yellowish mesosoma and a brown gaster (Figure 303).....*crozieri* McArthur & Leys
[<https://www.antweb.org/specimenImages.do?name=antweb1041384>]
Worker yellowish or brownish-yellow, but not bicoloured as above (Figure 304)
.....*humilior* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910182>]
11. Seen in profile, propodeal dorsum very long compared with its declivous face (length of dorsum > 4 × length of declivous face) (Figure 305).....*extensus* Mayr
[<https://www.antweb.org/specimenImages.do?name=antweb1041238>]
Seen in profile, propodeal dorsum moderately long compared with its declivous face (length of dorsum ≤ 3 × length of declivous face) (Figure 306).....*feldeae* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0905316>]
12. Ant with tuft of coarse J-shaped bristles at base of labium, these bristles noticeably stouter and different in texture to adjacent setae (*C. wiederkehri* group).....13
If J-shaped setae present on labium (e.g. *C. johnclarki*), then these fine and indistinguishable in texture from adjacent setae, and not confined to base of labium ... 28
13. Tibiae with erect setae14
Tibiae lacking erect setae17
14. Metanotal groove deeply impressed; erect setae absent from antennal scape (Figure 307)
.....*setosus* Shattuck & McArthur
[<https://www.antweb.org/specimenImages.do?name=casent0172149>]
Metanotal groove shallowly impressed; bristly, erect setae present on antennal scape15
15. Seen in profile, dorsum of petiolar node bluntly rounded; pubescence on gaster abundant with individual setae overlapping (Figure 308).....*gouldianus* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0280204>]
Seen in profile, dorsum of petiole sharp, petiolar node thin, scale-like; pubescence on gaster less abundant, individual setae usually not overlapping.....16



FIGURES 305-310 305) *Camponotus extensus* minor (ANTWEB1041238); 306) *Camponotus fieideae* minor syntype (CASENT0905316); 307) *Camponotus setosus* minor holotype (CASENT0172149); 308) *Camponotus gouldianus* minor (CASENT0280204); 309) *Camponotus 'terebrans'* minor (ANTWEB1041153); 310) *Camponotus terebrans* minor syntype ('*C. latrunculus victoriensis*') (CASENT0911964).

- 16. Mesosoma and gaster yellow, contrasting with brown head (Figure 309).....
 '*terebrans*' (Lowne) (pale morph)
 [<https://www.antweb.org/specimenImages.do?name=antweb1041153>]
 Mesosoma reddish-orange to dark brown, not strongly differentiated in colour from head and gaster, which are black or blackish-brown (Figure 310).....
 *terebrans* (Lowne) (dark morph)
 [<https://www.antweb.org/specimenImages.do?name=casent0911964>]
- 17. Seen in profile, outline of mesosoma strongly arched; seen in dorsal view, posterior angles of vertex acute (Figure 311).....
 *postcornutus* Clark
 [<https://www.antweb.org/specimenImages.do?name=antweb1008149>]
 Seen in profile, dorsum of mesosoma gently to moderately sinuate; seen in dorsal view, angles of vertex rounded.....18
- 18. Metanotal groove strongly impressed, rising abruptly at commencement of propodeum; petiolar node low, elongate or truncate, with anterior face much shorter than posterior face19
 Metanotal groove, at most only weakly to moderately impressed, in such cases not rising abruptly with commencement of propodeum; petiolar node variable but not normally elongate or truncate, its vertex often distinctly convex, its anterior face only slightly shorter than its posterior face21
- 19. Head and mesosoma red, gaster with areas of the same colour anteriorly, darker posteriorly; petiolar node truncate but not long and flat; gaster never with golden bands (Figure 312)
 *wiederkehri* group sp. JDM 924
 [<https://www.antweb.org/specimenImages.do?name=jdm32-001456>]
 Head and mesosoma always darker, dark red to black, if head reddish, then petiolar node long and flat and gaster often with golden bands 20
- 20. Propodeum lighter in colour than anterior gaster or of similar hue; gaster often with golden bands (Figure 313)
 *aurocinctus* (F. Smith)
 [<https://www.antweb.org/specimenImages.do?name=casent0903545>]
 Propodeum darker than anterior gaster; gaster never with golden bands (Figure 314).....
 *versicolor* Clark
 [<https://www.antweb.org/specimenImages.do?name=casent0903549>]
- 21. Metanotal groove visibly impressed, propodeum distinctly convex; first gastral tergite may be lighter in colour than remaining tergites 22



FIGURES 311–326

311) *Camponotus postcornutus* minor syntype (ANTWEB1008149); 312) *Camponotus wiederkehri* group sp. JDM 924 minor (JDM32-001456); 313) *Camponotus aurocinctus* minor syntype (CASENT0903545); 314) *Camponotus versicolor* minor syntype (CASENT0903549); 315) *Camponotus arenatus* minor holotype (CASENT0172154); 316) *Camponotus wiederkehri* group sp. JDM 925 minor (JDM32-001457); 317) *Camponotus wiederkehri* minor syntype (CASENT0910298); 318) *Camponotus ceriseipes* complex sp. JDM 105 minor (JDM32-0009543); 319) *Camponotus donnellani* minor holotype (CASENT0172148); 320) *Camponotus prosseri* minor holotype (CASENT0172146); 321) *Camponotus ceriseipes* minor (JDM32-000950); 322) *Camponotus ceriseipes* complex sp. JDM 774 minor (JDM32-001317); 323) *Camponotus rufus* minor (JDM32-001333); 324) *Camponotus subnitidus* minor syntype (CASENT0910100); 325) *Camponotus tricoloratus* minor syntype (ANTWEB1008151); 326) *Camponotus johnclarki* minor (JDM32-001230).

- Metanotal groove vestigial or absent, propodeal dorsum straight or barely convex; first gastral tergite concolorous with remaining tergites 23
22. Head black contrasting with mesonotum and propodeum, pronotum often also black (Figure 315)
 *arenatus* Shattuck & McArthur
 [<https://www.antweb.org/specimenImages.do?name=casent0172154>]
 Head red, concolorous with mesosoma (Figure 316) *wiederkehri* group sp. JDM 925
 [<https://www.antweb.org/specimenImages.do?name=jdm32-001457>]
23. Eye larger, eye length $\sim 0.25 \times$ length of side of head (Figure 317) *wiederkehri* Forel
 [<https://www.antweb.org/specimenImages.do?name=casent0910298>]
 Eye smaller, eye length $\leq 0.20 \times$ length of side of head 24
24. Seen from behind, appressed setae that form gastral pubescence arranged more or less longitudinally without a clear line of demarcation along the midline of the gaster (Figure 318)
 *ceriseipes* complex sp. JDM 105
 [<https://www.antweb.org/specimenImages.do?name=jdm32-000954>]
 Seen from behind, appressed setae that form gastral pubescence convergent towards midline, those on one side being the mirror image of those on the other, line of demarcation along the midline usually distinct but may be weak 25
25. Erect setae sparse on mesosoma, on propodeum ≤ 6 erect setae, clustered on or near propodeal angle (Figure 319)
 *donnellani* Shattuck & McArthur
 [<https://www.antweb.org/specimenImages.do?name=casent0172148>]
 Erect setae abundant on mesosoma; on propodeum > 6 erect setae, arranged along length of sclerite 26
26. Antennal scape longer ($SI > 1.5$); seen in profile, dorsal face of propodeum planar and $\sim 2 \times$ length of declivous face; also in profile, petiolar node usually strongly inclined anteriorly with a distinctly sloping posterior face (Figure 320)
 *prosseri* Shattuck & McArthur
 [<https://www.antweb.org/specimenImages.do?name=casent0172146>]
- Antennal scape shorter ($SI < 1.5$); seen in profile, dorsal face of propodeum weakly convex and $\sim 1.5 \times$ length of declivous face; also seen in profile, petiolar node only weakly inclined anteriorly, its posterior face straight 27
27. Seen in dorsal view, sides of pronotum convex, almost circular in outline and only weakly arched towards anterior pronotal margin; central line of demarcation of gastral pubescence strongly accentuated and pubescence itself bright yellow (Figure 321) *ceriseipes* Clark
 [<https://www.antweb.org/specimenImages.do?name=jdm32-000950>]
 Seen in dorsal view, sides of pronotum convex but not circular, and moderately arched towards anterior pronotal margin; central line of demarcation of gastral pubescence only weakly indicated and pubescence itself off-white (Figure 322)
 *ceriseipes* complex sp. JDM 774
 [<https://www.antweb.org/specimenImages.do?name=jdm32-001317>]
28. Large species with elongate appendages; seen in full-face view, head extremely attenuated posteriorly, broadest across the anterior clypeal sector and narrowest at the vertex; eyes large, hemispherical and positioned less than their width from frontal carinae; seen in dorsal view, occipital carina present, often obsolete or only weakly indicated medially but strengthened and flared laterally; mandibular teeth ≥ 7 (*C. subnitidus* group) 29
 If worker of this general appearance (some members of *C. claripes* group), then, in full-face view, head not extremely attenuated as above (and usually parallel-sided) and number of mandibular teeth 6 31
29. Erect setae absent under head (Figure 323) *rufus* Crawley
 [<https://www.antweb.org/specimenImages.do?name=jdm32-001333>]
 Several to many erect setae present under head 30
30. Seen in profile, petiolar node flattened, much wider than high, its anterior face rising at angle of $\sim 25^\circ$ to its summit (a short denticle); concolorous dark brown ant (Figure 324) *subnitidus* Mayr
 [<https://www.antweb.org/specimenImages.do?name=casent0910100>]

Seen in profile, petiolar node raised, about as wide as high, its anterior face rising at angle of ~45° to its summit; bicoloured with head dark, gaster variably ochre or ochre and brownish above; gaster brown or yellowish (Figure 325)..... *tricoloratus* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008151>]

31. Head, body and appendages of worker covered in vestiture of many short, fine, white, erect setae, those on body flexuous and sometimes bent throughout their length or at their tips, especially under the head; pubescence lacking on head, gaster and most of mesosoma in WA species; mandibular teeth 7; seen in full-face view, clypeus projecting, its anteromedial margin straight (*C. intrepidus* group)..... 32

If head, body and appendages of worker covered in many short, fine, white, erect setae, then gaster at least is pubescent or mandible 6-toothed 33

32. Occipital sector of head around foramen produced as a short tube; seen in profile, petiolar node low, strongly inclined anteriorly; its posterior face sloping towards its junction with gaster, the first gastral tergite with a peduncle; ant glossy, dark crimson with black gaster (Figure 326) *johnclarki* Taylor

[<https://www.antweb.org/specimenImages.do?name=jdm32-001230>]

Occipital sector of head around foramen carinate, and not produced as short tube; seen in profile, petiolar node about as high as wide, its anterior face only slightly shorter than its dorsal face; first gastral tergite without peduncle; ant matt, black or blackish (Figure 327)..... *molossus* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0910411>]

33. Uniform and conspicuous microsculpture present on head and body, this mainly tending to areolate-rugulose; head, body and appendages with short, erect, white setae, these mostly bristly but can be fine; petiolar node short and thick, with vertical anterior and posterior surfaces and often a flattened dorsum (*C. leae* group)..... 34

Without this combination of body microsculpture, erect setae over body surfaces and appendages and thick, vertical petiolar node..... 36

34. Appressed setae on gaster well-spaced, pubescence absent (Figure 328) *whitei* Wheeler

[<https://www.antweb.org/specimenImages.do?name=casent0172140>]

Appressed setae on gaster thick and overlapping forming a white or yellowish-white pubescence..... 35

35. Seen in profile, petiolar node square with a flat dorsum; seen in full-face view, head generally strongly domed; antennal scape longer, exceeding vertex by about half of its length (Figure 329)..... *leae* Wheeler

[<https://www.antweb.org/specimenImages.do?name=antweb1041145>]

Seen in profile, petiolar node thick but not square, its dorsum convex; seen in full-face view, head weakly convex; antennal scape shorter, exceeding vertex by ~0.33 × its length (Figure 330)..... *leae* group sp. JDM 764

[<https://www.antweb.org/specimenImages.do?name=antweb1041144>]

36. Very compact species; in dorsal view, sides of pronotum strongly produced so that they project beyond remaining mesosoma; head and mesosoma with weak olive or violet iridescence; head, body and appendages covered with very many thick, white, erect setae (apparent *Calomyrmex* mimic) (Figure 331) *Camponotus* sp. JDM 693

[<https://www.antweb.org/specimenImages.do?name=antweb1041152>]

Seen in dorsal view, sides of pronotum not so produced; iridescence (usually absent) not as above, otherwise ant not *Calomyrmex*-like 37

37. Seen in profile, mesosoma sinuous with a concavity or angle at metanotal groove, propodeum weakly concave anteriorly and flattened posteriorly, rarely almost straight (some workers of *C. fieldellus*); mandibular teeth nearly always 7 or 8, much more rarely 6 or 9 mandibular teeth on one or both mandibles; head typically square with eyes set near angles of vertex; body usually hairy or with thick pubescence (*C. ephippium* group) 38

Seen in profile, mesosoma often convex, straight or with complex outline (e.g. with medial 'saddle' or transverse notch) but not sinuous as above, if ant approaching the



FIGURES 327–336

327) *Camponotus molossus* minor syntype (CASENT0910411); 328) *Camponotus whitei* minor 'cotype' (AntWeb) (CASENT0172140); 329) *Camponotus leae* minor (ANTWEB1041145); 330) *Camponotus leae* group sp. JDM 764 minor (ANTWEB1041144); 331) *Camponotus* sp. JDM 693 minor (ANTWEB1041152); 332) *Camponotus perjurus* minor holotype (CASENT0172161); 333) *Camponotus sponsorum* minor syntype (CASENT0910402); 334) *Camponotus longifacies* minor holotype (CASENT0172130); 335) *Camponotus pawseyi* minor (JDM32-001300); 336) *Camponotus bigenus* minor syntype (CASENT0911752).

- above in profile (*C. aeneopilosus* group) then propodeum raised at propodeal angle and mandible always with 5 or 6 teeth; body rarely thickly pubescent 53
- 38. Seen in profile, vertex of head tapered to a blunt angle; body with pinkish iridescence, gaster with additional bluish iridescence (meat ant mimic) (Figure 332)
*perjurus* Shattuck & McMillan
 [https://www.antweb.org/specimenImages.do?name=casent0172161]
- Seen in profile, vertex of head not tapered to a blunt angle; body lacking pink and bluish iridescence as above, ant not meat-ant like 39
- 39. Small species (HW ≤ 1 mm)..... 40
 Larger species (HW ≥ 1.5 mm)41
- 40. Non-gracile species; seen in full-face view, head less than two thirds as long as wide; anterior margin of clypeus straight (Figure 333).....*sponsorum* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0910402]
- Gracile species; seen in full-face view, head less than two thirds as wide as long; anterior margin of clypeus strongly and evenly convex (Figure 334)..... *longifacies* McArthur
 [https://www.antweb.org/specimenImages.do?name=casent0172130]
- 41. Antennal scape with several to many tiny, erect setae (note: these are often difficult to see and may be abraded or confused with appressed setae that are slightly raised — several specimens may need to be examined) 42

- Antennal scape lacking erect setae 44
42. Erect setae on hind tibia raised to angle of ~60° (Figure 335).....*pawseyi* McArthur
[<https://www.antweb.org/specimenImages.do?name=jdm32-001300>]
- Setae on hind tibia raised to angle of ≤ 20° 43
43. Seen in full-face view, outline of vertex between the eyes planar, the eyes set on the posterior angles of the head; seen in profile, dorsal and declivous surfaces of the propodeum indistinguishable as separate entities and virtually confluent (Figure 336) *bigenus* Santschi
[<https://www.antweb.org/specimenImages.do?name=casent0911752>]
- Seen in full-face view, outline of vertex of head between the eyes convex, without a distinct angle between the vertex and the genae; seen in profile, dorsal and declivous surfaces of propodeum separate and distinct (Figure 337).....*cinereus notterae* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0217628>]
44. Erect setae absent from underside of head (mainly northern species)..... 45
- Erect setae present on underside of head (mainly southern species)..... 48
45. Setae on hind tibia dense, raised to about 20°; erect setae on mesosoma plentiful (> 50 setae) (Figure 338)
.....*ephippium narses* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910375>]
- Setae on hind tibia not raised; erect setae on mesosoma more scattered (≤ 25 setae)..... 46
46. Appressed setae on hind tibia short, of the same length and well-spaced, mostly their own length apart; seen in profile, pronotum and mesonotum strongly arched with a marked mesosomal concavity, giving the ant a humpbacked appearance (Figure 339).....
.....*capito* Mayr
[<https://www.padil.gov.au/barrow-island/pest/main/136695/9702>]
- Appressed setae on hind tibia of different lengths and overlapping; seen in profile, if pronotum and mesonotum arched then propodeum only weakly concave and may be almost straight, the mesosoma arcuate in profile 47
47. Smaller (HW ~1.50 mm); mesosoma brick red and may have weak violet iridescence (Figure 340).....*pellax* Santschi
[<https://www.antweb.org/specimenImages.do?name=casent0911757>]
- Larger (HW > 1.50 mm); mesosoma black (note: some workers, possibly sub-majors, may have a strongly arched pronotum and mesonotum, an almost straight propodeum and a thin, scale-like node) (Figure 341)
.....*fieldellus* Forel
[<https://www.antweb.org/specimenImages.do?name=antweb1008145>]
48. Pubescence lacking on gaster, pilosity consisting purely of well-spaced, tiny, appressed setae (glossy, black or black-and-red) (Figure 342).....
.....*ephippium group sp.* JDM 777
[<https://www.antweb.org/specimenImages.do?name=antweb1041143>]
- White or golden pubescence always present on gaster 49
49. Seen in full-face view, vertex convex, smoothly rounded on to genae 50
- Seen in full-face view, vertex flattened and planar or only weakly convex with visible angle between vertex and genae, the eyes set at the angle.....51
50. Seen in full-face view, genae without erect setae, except for one or two tiny setae near articulation of mandible; glossy, variegated brown ants (Figure 343).....
.....*ephippium group sp.* JDM 1280
[<https://www.antweb.org/specimenImages.do?name=jdm32-001374>]
- Seen in full-face view, genae with > 6 erect setae; ant with black head, pronotum and gaster and red mesonotum and propodeum (Figure 344).....
.....*ephippium group sp.* JDM 775
[<https://www.antweb.org/specimenImages.do?name=jdm32-001186>]
51. Appressed setae on hind tibia consisting of two forms; firstly, fine pubescence and secondly, larger, inconspicuous, appressed setae that do not overlap (Figure 345)
.....*capito ebeninithorax* Forel
[<https://www.antweb.org/specimenImages.do?name=jdm32-000946>]



FIGURES 337–351

337) *Camponotus cinereus notterae* minor (CASENT0217628); 338) *Camponotus ephippium narses* minor syntype (CASENT09103752); 339) *Camponotus capito* minor (Barrow Island, Western Australia); 340) *Camponotus pallax* minor syntype (CASENT0911757); 341) *Camponotus fieldellus* minor syntype (ANTWEB1008145); 342) *Camponotus ephippium* group sp. JDM 777 minor (ANTWEB101143); 343) *Camponotus ephippium* group sp. JDM 1280 minor (JDM32-001374); 344) *Camponotus ephippium* group sp. JDM 775 minor (JDM32-001186); 345) *Camponotus capito ebeninithorax* minor (JDM32-000946); 346) *Camponotus ephippium* minor syntype (CASENT0903540); 347) *Camponotus dromas* minor syntype (CASENT0911755); 348) *Camponotus* group A sp. JDM 26 minor (JDM32-001458-2); 349) *Camponotus evae zeuxis* minor syntype (CASENT0910378); 350) *Camponotus lownei* minor syntype (CASENT0910390); 351) *Camponotus rubiginosus* group sp. JDM 1158 minor (ANTWEB1041149).

- Pubescence on hind tibiae absent; conspicuous appressed setae on hind tibia overlap and may be noticeably raised to give the tibia a shaggy appearance (*C. ephippium*)..... 52
52. On close examination, setae raised to ~10°, forming a thick, white thatch on all surfaces of the tibia (Figure 346).....
.....*ephippium* (F. Smith)
[<https://www.antweb.org/specimenImages.do?name=casent0903540>]
On close examination, setae raised to ≤ 5° mainly on outer tibia, confined to two or three rows on inside of tibia (Figure 347).....
.....*dromas* Santschi
[<https://www.antweb.org/specimenImages.do?name=casent0911755>]
53. Seen in profile, dorsal face of propodeum is interrupted with a broad, transverse depression (similar to unrelated *C. owensae*), the anterior propodeal sector before the depression slightly humped; mandible with 8 teeth (*Camponotus* group A) (Figure 348)*Camponotus* group A sp. JDM 26
[<https://www.antweb.org/specimenImages.do?name=jdm32-001458-2>]
Seen in profile, dorsal face of propodeum without a broad, transverse depression as described above; mandible usually with 5 or 6 teeth 54
54. Mesosoma high with distinct propodeal angle, in dorsal view propodeum weakly laterally compressed, the dorsum of the propodeum not a thin wedge; 5 mandibular teeth; seen in full-face view, head broad, weakly to strongly triangular with vertex either planar or weakly convex, the eyes large and placed near the angles of the vertex; seen in profile, petiolar node scalelike or, if thick at base, then dorsally thin and sharp (*Camponotus* sp. JDM 695) (*C. rubiginosus* group)..... 55
If mesosoma high with distinct propodeal angle and petiolar node scale-like, then in dorsal view propodeum strongly compressed, its dorsum wedge-like in appearance and number of mandibular teeth nearly always 6 (in the similar *C. rudis*, which also has 5 mandibular teeth, the eyes are placed well below the convex vertex when ant is seen in full-face view)..... 69
55. Worker body uniformly black or brown..... 56
Worker body shades of red, orange, or yellow or distinctly bicoloured.....61
56. Hind tibia and antennal scape with whorls of erect and semi-erect setae, length of some of those on tibia ≥ greatest width of tibia (Figure 349)..... *evae zeuxis* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910378>]
If hind tibia and antennal scape with some erect and semi-erect setae, length of those on hind tibia < greatest width of tibia 57
57. Erect and semi-erect setae present on both genae and underside of head; setae on hind tibia raised to ~15° (Figure 350)
.....*lownei* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910390>]
Erect and semi-erect setae absent either from genae or from underside of head or from both parts; setae on hind tibia either as above or flattened 58
58. Head and mesosoma finely and evenly foveate-reticulate, ant matt or only weakly shining (Figure 351)
..... *rubiginosus* group sp. JDM 1158
[<https://www.antweb.org/specimenImages.do?name=antweb1041149>]
Head and mesosoma glossy with only superficial sculpture..... 59
59. Seen in profile, dorsum of propodeum passing over on to its declivous face in a smooth arc, without a distinct angle between the two surfaces; body of ant medium brown, not uniformly black (Figure 352).....
..... *woodroffeensis* McArthur
[<https://www.antweb.org/specimenImages.do?name=casent0915777>]
Seen in profile, distinct though blunt angle present between propodeal dorsum and its declivous face; body of ant dark brown to black (pronotum may be slightly lighter in colour than rest of mesosoma)..... 60
60. Seen in dorsal view, erect setae scattered across upper frons but absent from underside of head; setae on antennal scape and hind tibia mostly raised to ~15°, a few more erect; seen in full-face view, erect setae present on lower genae (except in north Kimberley samples); mesosoma generally very hairy, often > 30 erect setae (Figure 353).....
.....*simpsoni* McArthur
[<https://www.antweb.org/specimenImages.do?name=antweb1008622>]

Seen in dorsal view, erect setae on head confined (sometimes with an additional seta) to pairs that straddle the midline; setae on antennal scape and hind tibia appressed and not raised; erect setae present or absent on underside of head, absent from genae; mesosoma generally with < 30 well-spaced erect setae, these concentrated on the pronotum and around the propodeal angle (Figure 354).....

..... *rubiginosus* group sp. JDM 296

[<https://www.antweb.org/specimenImages.do?name=jdm32-001249-2>]

61. Head, gaster black, mesosoma, petiolar node and legs red, antenna black or brown (Figure 355)..... *armstrongi* McAreavey

[<https://www.antweb.org/specimenImages.do?name=casent0172151>]

Without this colour combination..... 62

62. Ant completely red, including the legs (Figure 356).....*macareaveyi* Taylor

[<https://www.antweb.org/specimenImages.do?name=casent0172139>]

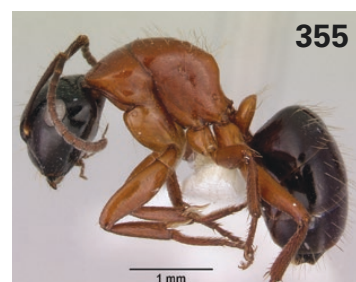
Ant otherwise coloured 63

63. Anterior half of gaster, petiolar node and middle and hind legs brownish-orange, forelegs dark brown, rest of body black (Figure 357).....*rubiginosus* Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0280218>]

Worker shades of yellowish-orange or light orange-brown..... 64

64. Head and mesosoma largely or wholly with impressed foveate-reticulate sculpture 65



FIGURES 352–361

352) *Camponotus woodroffeensis* minor paratype (CASENT0915777); 353) *Camponotus simpsoni* minor (ANTWEB1008622); 354) *Camponotus rubiginosus* group sp. JDM 296 minor (JDM32-001249-2); 355) *Camponotus armstrongi* minor (CASENT0172151); 356) *Camponotus macareaveyi* minor (CASENT0172139); 357) *Camponotus rubiginosus* minor (CASENT0280218); 358) *Camponotus rubiginosus* group sp. JDM 695 minor (JDM32-001462); 359) *Camponotus rubiginosus* group sp. JDM 771 minor (JDM32-001466); 360) *Camponotus rubiginosus* group sp. JDM 1038 minor (JDM32-001467); 361) *Camponotus rubiginosus* group sp. JDM 1219 minor (ANTWEB1041150).

- Head and mesosoma with other sculpture, mainly finely imbricate or punctate-microreticulate, but superficial.....67
65. Seen in profile, declivous face of propodeum deeply concave, the dorsum near the propodeal angle overhanging the concavity; seen in profile, petiolar node thick at base, attenuated to a sharp point above (Figure 358)..... ***rubiginosus* group sp. JDM 695**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001462>]
- Seen in profile, declivous face of propodeum not concave, the propodeal angle of normal appearance; seen in profile, petiolar node a thin scale throughout..... 66
66. Sides of mesopleuron and propodeum evenly foveate-reticulate as per the head and remaining mesosoma (Figure 359).....
..... ***rubiginosus* group sp. JDM 771**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001466>]
- Sides of mesopleuron and propodeum finely striolate, contrasting with sculpture of head and rest of mesosoma (Figure 360).....
..... ***rubiginosus* group sp. JDM 1038**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001467>]
67. Seen in profile, eye very large (eye length 0.40 × length of side of head) (tiny, yellowish species) (Figure 361).....
..... ***rubiginosus* group sp. JDM 1219**
[<https://www.antweb.org/specimenImages.do?name=antweb1041150>]
- Seen in profile, eye smaller, (eye length < 0.30 × length of side of head)..... 68
68. Head and mesosoma largely smooth and shining, with superficial imbricate sculpture only; larger species (HW ~0.90 mm) (Figure 362)..... ***andyyoungi* McArthur**
[<https://www.antweb.org/specimenImages.do?name=casent0915747>]
- Head and mesosoma matt with fine punctate-reticulate sculpture; smaller species (HW ~0.70 mm) (Figure 363).....
..... ***rubiginosus* group sp. JDM 1224**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001253>]
69. Mesosoma high (length of propodeal dorsum about length of propodeal declivity); seen in dorsal view, propodeum strongly laterally compressed and wedge-like, its dorsal and declivous surfaces distinguishable; seen in profile, petiolar node a scale terminating in a sharp apex; nearly always 6 mandibular teeth (5 in *C. rudis* and very rarely reduced to 5 in small workers of *C. tristis* and possibly *Camponotus* sp. JDM 229); head and body black (*C. michaelsoni* group)..... 70
- If propodeum narrowly compressed in dorsal view as above, then propodeum smoothly rounding on to its declivous face so dorsal and declivous surfaces are not distinguishable and head and body not completely black76
70. Ant dull, matt, head and body completely covered with fine, alveolate sculpture, this also present on first two gastral tergites; black with dark brown legs (Figure 364).....
..... ***michaelsoni* group sp. JDM 1080**
[<https://www.antweb.org/specimenImages.do?name=antweb1041147>]
- If ant dull, matt and black in colour then head and body not completely covered with fine alveolate sculpture; other sculpture (usually fine shagreening or imbricate) on gaster.... 71
71. Legs and antennae black, concolorous with body (body surface usually matt but varies; some specimens can be quite glossy) (Figure 365)..... ***tristis* Clark**
[<https://www.antweb.org/specimenImages.do?name=casent0903539>]
- Legs and antennae pale, conspicuously lighter-coloured than body 72
72. Seen in full-face view, head inversely triangular with genae strongly divergent; mesosoma usually glabrous (a pair of short, erect setae occasionally present on mesonotum) (Figure 366)..... ***oetkeri* Forel**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001285>]
- Seen in full-face view, head a rounded rectangle, genae straight; some erect pilosity always present on mesosoma 73
73. Seen in full-face view, vertex convex, weakly sloping towards eyes, occipital carina not visible; erect setae on mesosoma plentiful (≥ 20); sculpture of head finely alveolate (Figure 367)..... ***rudis* McArthur**
[<https://www.antweb.org/specimenImages.do?name=casent0172129>]

- Seen in full-face view, vertex broad and sloping towards eyes, occipital carina visible; erect setae on mesosoma sparse (< 10); sculpture of head with weak, superficial imbricate sculpture only74
74. Seen in profile, propodeal angle absent, dorsal surface of propodeum rounded smoothly over into its declivous surface (Figure 368) ***michaelseni* group sp. JDM 229**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001419-2>]
- Seen in profile, dorsal and declivous surfaces of propodeum separated by a distinct angle 75
75. Seen in profile, dorsal surface of propodeum interrupted by a small notch near to propodeal angle (Figure 369) ***tumidus* Crawley**
[<https://www.antweb.org/specimenImages.do?name=casent0910404>]
- Seen in profile, dorsal surface of propodeum uninterrupted before propodeal angle (Figure 370) ***michaelseni* Forel**
[<https://www.antweb.org/specimenImages.do?name=casent0910391>]
76. Seen in profile, propodeum straight or weakly to strongly concave, the propodeal angle in the latter case being prominent and bluntly acute; seen in profile, eye small (eye length $\leq 0.20 \times$ length of side of head) and placed well in front of midline; sculpture of head typically densely foveolate, this reduced to surface sculpture only in some species, that of gaster finely foveolate to finely strigulate, posterior membrane of the tergite may be bright golden, the gaster itself having a yellowish sheen (*C. aeneopilosus* group)..... 77
- Seen in profile, if propodeum straight or emarginate (some *C. claripes* group species; *C. andrewsi*), then eye large (eye length $\geq 0.30 \times$ length of side of head), and sculpture of head not as above (head usually glossy with superficial imbricate or microstriolate sculpture; alveolate in one species but in this case propodeum is convex) 86
77. Seen in profile, propodeum distinctly concave, its dorsal and declivous surfaces meeting in a distinct raised angle 78
- Seen in profile, propodeum straight or only weakly concave, dorsal surface of propodeum more-or-less smoothly passing over to its declivous surface 80
78. Smaller ants (HW ~ 0.80 mm); appressed setae on gaster long and overlapping, forming a downy pubescence (Figure 371) ***aeneopilosus* group sp. JDM 1374**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001371>]
- Larger ants (HW ≥ 1 mm); appressed setae on gaster short and well-spaced and not forming pubescence 79
79. Seen in profile, head and body of ant uniformly covered in short, erect, bristly setae; head and body black (Figure 372) ***aeneopilosus* group sp. JDM 1031**
[<https://www.antweb.org/specimenImages.do?name=antweb1041130>]
- Seen in profile, erect setae on head and body sparser and often well-separated; propodeum dark red, remainder of head and body black (Figure 373)..... ***chalceus* Crawley**
[<https://www.antweb.org/specimenImages.do?name=casent0910366>]
80. Head and body variegated black, brown and orange; overlapping appressed setae on head and mesosoma long, golden and conspicuous81
- If bicoloured, then whole body part is red or black and is not variegated as above; overlapping appressed setae on head and mesosoma usually separated by more than their own length and never a conspicuous golden colour 82
81. Head and mesosoma shining, even glossy; cuticle of head mainly imbricate (Figure 374) ***scotti* McArthur**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001340>]
- Head and mesosoma matt, dull; cuticle of head evenly and finely areolate (Figure 375) ***aeneopilosus* group sp. JDM 430**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001080>]
82. Erect setae absent from both underside of head and genae; sculpture on head and gaster reduced and mostly superficial, gaster with a weak grey sheen (Figure 376)..... ***cinereus amperei* Forel**
[<https://www.antweb.org/specimenImages.do?name=casent0910367>]

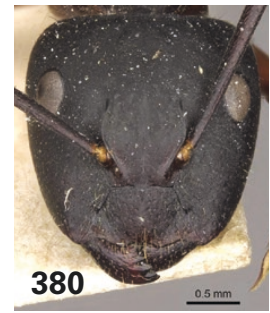
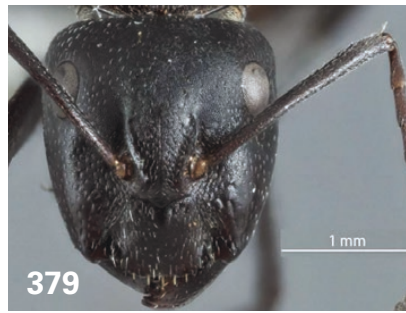


FIGURES 362–377

362) *Camponotus andyyoungi* minor paratype (CASENT0915747); 363) *Camponotus rubiginosus* group sp. JDM 1224 minor (JDM32-001253); 364) *Camponotus michaelsoni* group sp. JDM 1080 minor (ANTWEB1041147); 365) *Camponotus tristis* minor syntype (CASENT0903539); 366) *Camponotus oetkeri* minor (JDM32-001285); 367) *Camponotus rudis* minor holotype (CASENT0172129); 368) *Camponotus michaelsoni* group sp. JDM 229 minor (JDM32-001419-2); 369) *Camponotus tumidus* minor syntype (CASENT0910404); 370) *Camponotus michaelsoni* minor syntype (CASENT0910391); 371) *Camponotus aeneopilosus* group sp. JDM 1374 minor (JDM32-001371); 372) *Camponotus aeneopilosus* group sp. JDM 1031 minor (ANTWEB1041130); 373) *Camponotus chalceus* minor syntype (CASENT0910366); 374) *Camponotus scotti* minor (JDM32-001340); 375) *Camponotus aeneopilosus* group sp. JDM 430 minor (JDM32-001080); 376) *Camponotus cinereus amperei* minor syntype (CASENT0910367); 377) *Camponotus inflatus* minor (CASENT0172172).

- Erect setae present on both underside of head and on genae; sculpture on head and gaster often more well-developed and the gaster has a yellowish sheen due to interference colours 83
83. Erect setae on mesosoma numerous (> 30); completely back ants with broad and spectacular golden bands on the gaster (Figure 377).....*inflatus* Lubbock
[<https://www.antweb.org/specimenImages.do?name=casent0172172>]
Erect setae on mesosoma less numerous (≤ 20); golden bands formed by posterior tergal membrane (if present) are narrow 84
84. Worker with black head, gaster and legs and red mesosoma; seen in full-face view, head longitudinally rectangular, the sides of the genae straight (Figure 378).....
..... *aeneopilosus* group sp. JDM 1108
[<https://www.antweb.org/specimenImages.do?name=jdm32-001228>]
Worker not presenting above colour combination; head and body usually black; seen in full-face view, head either trapezoidal or oval with convex sides 85
85. Seen in full-face view, head trapezoidal, widest at vertex; microsculpture on gaster strigulate, the gaster with a moderate black sheen only; gaster without prominent yellow bands (Figure 379).....*pitjantjatarae* McArthur
[<https://www.antweb.org/specimenImages.do?name=jdm32-001303-2>]
Seen in full-face view, head broadly oval; microsculpture on gaster minutely foveolate, the gaster with a dull, yellowish sheen; yellow bands prominent on gaster (similar to Figure 380).....*hartogi* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910385>]
86. Seen in profile, pair of erect pronotal setae positioned close to mesonotal suture; mesosomal outline simple, broadly arcuate to varying degrees, rather high in some cases, or with propodeum planar but without a distinct angle posteriad; seen in full-face view, head an elongate rectangle with eyes large and rather flattened; vertex not narrowed behind eyes; antennal scape relatively short, exceeding vertex by $< 0.50 \times$ its length; among smallest *Camponotus* (HW ≤ 0.60 mm) (*C. insipidus* group) 87
- Seen in profile, pair of erect pronotal setae positioned near the middle of the sclerite and well anterior of mesonotal suture; if otherwise similar then, in full-face view, vertex narrowed behind eyes and antennal scape long (exceeding vertex by $\geq 0.50 \times$ its length); usually larger ants..... 90
87. Seen in profile, propodeal dorsum planar, dorsal, and declivous faces separated by a slight bend (Figure 381)
..... *darlingtoni* Wheeler
[<https://www.antweb.org/specimenImages.do?name=casent0217640>]
Seen in profile, propodeal dorsum convex without separation of the dorsal and declivous faces 88
88. Sparse erect setae present on underside of head (Figure 382).....*scratius* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910400>]
Erect setae absent from underside of head 89
89. Eye smaller, eye length $\sim 0.25 \times$ length of side of head and eye separated from frontal carina by about half its width; darker, head and mesosoma variably brown to black, or brown with lighter ochre colouring around clypeus, lower genae and mesopleuron (Figure 383)..... *insipidus* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0912082> (as *C. 'minimus'*)]
Eye larger, eye length $\sim 0.33 \times$ length of side of head and eye separated from frontal carina by much less than half its width; generally depigmented yellow (very similar to Figure 384)..... *insipidus* group sp. JDM 1256
[<https://www.antweb.org/specimenImages.do?name=casent0915770>]
90. Seen in dorsal view, junction of mesonotum and propodeum evident as a transverse line or ridge, sides of propodeum strongly laterally compressed in most species, so that the dorsal surface of the propodeum is a thin ridge; eyes large (eye width $\geq 0.25 \times$ length of side of head); seen in full-face view, head much longer than wide, sides of genae parallel or weakly convergent posteriad, outline of head above the eyes more strongly convergent towards the vertex; antennal scape long (antennal scape exceeds vertex by $>$ half its length) (*C. claripes* group, *C. claripes* complex)91

- If with narrow head, large eyes and long antennal scape (some members of *C. discors* complex), then in dorsal view junction of mesonotum and propodeum obsolete or unclear and propodeum less strongly laterally compressed 101
91. Mandible long, number of well-defined teeth and denticles ≥ 7 (Figure 385)
..... ***claripes* complex sp. JDM 63**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001093>]
- Mandible shorter with 6 teeth (except in *C. claripes* sp. JDM 939, where very occasionally an additional minute denticle may be present)..... 92
92. Very gracile, pale yellow ants with a straight propodeum; seen in full-face view, head behind eyes much attenuated; seen in profile, petiolar node a low symmetrical cone terminating in a small denticle (that, and head shape reminiscent of the *C. subnitidus* group) (Figure 386)
..... ***claripes* complex sp. JDM 939**
[<https://www.antweb.org/specimenImages.do?name=antweb1041134>]
- If with straight propodeum in dorsal view, then head not strongly attenuated behind eyes and appearance of node not short and conical..... 93
93. Seen in profile, propodeal dorsum straight; seen in dorsal view propodeum not strongly laterally compressed; seen in full-face view, eyes smaller (eye length $\sim 0.25 \times$ length of side of head); head and mesosoma with only superficial sculpture, shining (Figure 387)
..... ***elegans* Forel**
[<https://www.antweb.org/specimenImages.do?name=casent0910372>]
- Seen in profile, propodeal dorsum distinctly convex, in dorsal view, propodeum strongly laterally compressed; eyes usually larger (eye length $\geq 0.30 \times$ length of side of head) if eyes relatively small, then head and mesosoma with fine alveolate sculpture, matt or only weakly shining..... 94
94. Bright yellow ants, last two gastral tergites black (Figure 388)..... ***marcens* Forel**
[<https://www.antweb.org/specimenImages.do?name=casent0910374>]
- Colouration not as above..... 95
95. On close inspection, frons of head and dorsal surface of pronotum with uniform, fine, impressed alveolate microsculpture, appearance of ant matt or weakly shining; eyes (especially in dark specimens) smaller, eye length $\sim 0.25 \times$ length of side of head (possibly two species) (Figure 389).....
..... ***claripes* complex sp. JDM 779**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001087-2>]
- On close inspection, frons of head and dorsal surface of pronotum with superficial imbricate microsculpture only, appearance of ant glossy; eyes larger, eye length $\geq 0.30 \times$ length of side of head..... 96
96. Hirsute species with many short, erect and sub-erect setae on antennal scapes and on sides of head (Figure 390)
..... ***claripes* complex sp. JDM 767**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001084>]
- Less hirsute species, antennal scape lacking erect setae, these less dense also on sides of head 97
97. Seen in full-face view, genae lacking short, erect setae; on close inspection appressed setae on hind tibia short and well-separated from the setae behind and in front of them; basal tooth sometimes split into two small denticles (largish brown species with pale yellow legs that is known to nest in tree-trunks and wooden structures) (Figure 391)
..... ***peseshus* Bolton**
[<https://www.antweb.org/specimenImages.do?name=focol2255>]
- If genae lacking short, erect setae, then, on close inspection, appressed setae on hind tibia longer and clearly overlapping the setae behind them and in front of them; six distinct teeth..... 98
98. Large (HW ~ 0.90 mm), bicoloured species with dark brown head and gaster and gamboge to light brown mesosoma; propodeal angle with ≥ 4 erect setae (Figure 392)
..... ***claripes* complex sp. JDM 1345**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001012>]
- Smaller (HW ≤ 0.80 mm) species; propodeal angle with ≤ 3 erect setae, usually a pair of erect setae..... 99



FIGURES 378–386 378) *Camponotus aeneopilosus* group sp. JDM 1108 minor (JDM32-001228); 379) *Camponotus pitjantjaratae* minor (JDM32-001303-2); 380) *Camponotus hartogi* minor syntype (CASENT0910385); 381) *Camponotus darlingtoni* minor (CASENT0217640); 382) *Camponotus scratius* minor syntype (CASENT0910400); 383) *Camponotus insipidus* minor syntype ('*C. minimus*') (CASENT0912082); 384) *Camponotus insipidus* group sp. JDM 1256 minor (CASENT0915770); 385) *Camponotus claripes* complex sp. JDM 63 minor (JDM32-001093); 386) *Camponotus claripes* complex sp. JDM 939 minor (ANTWEB1041134).

99. Seen in full-face view, clypeus broadly emarginate anteromedially; mostly brown without distinctly bicoloured head (clypeus may be yellowish) (Figure 393).....
 *claripes* Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0915751>]

Seen in full-face view, anteromedial margin of clypeus planar; either head bicoloured with yellowish clypeus and lower genae, frons brown or head generally yellowish, darker posteriad100

100. Seen in full-face view, short erect setae lacking on genae; seen in profile, dorsal face of propodeum evenly convex throughout its

length; generally lighter in colour, yellowish or honey-coloured (Figure 394).....
 *claripes* complex sp. JDM 288

[<https://www.antweb.org/specimenImages.do?name=jdm32-001101>]

Seen in full-face view, short, erect setae usually present on genae; seen in profile, dorsal face of propodeum weakly convex anteriorly, thereafter more-or-less straight; generally darker in colour with brown frons that, in dorsal view, is slightly darker than the light brown or honey-coloured mesosoma (Figure 395).....*inverallensis* Forel

[<https://www.flickr.com/photos/myrmecian/3618985378/in/album-72157619695775517>]



FIGURES 387–400

387) *Camponotus elegans* minor syntype (CASENT0910372); 388) *Camponotus marcens* minor syntype (CASENT0910374); 389) *Camponotus claripes* complex sp. JDM 779 minor (JDM32-001087-2); 390) *Camponotus claripes* complex sp. JDM 767 minor (JDM32-001084); 391) *Camponotus peseshus* minor 'type' (AntWeb) (FOCOL2255); 392) *Camponotus claripes* complex sp. 1345 minor (JDM32-001012); 393) *Camponotus claripes* minor syntype (CASENT0915751); 394) *Camponotus claripes* complex sp. JDM 228 minor (JDM32-001101); 395) *Camponotus inverallensis* minor, Toodyay, Western Australia; 396) *Camponotus discors* complex sp. 599 minor (ANTWEB1041138); 397) *Camponotus discors* complex sp. 1104 minor (ANTWEB1041140); 398) *Camponotus consecrator* minor syntype ('*Camponotus discors angustinodus*') (CASENT0910293); 399) *Camponotus discors* complex sp. 772 minor (JDM32-001154); 400) *Camponotus discors* minor syntype (CASENT0910291).

101. Minor worker generally similar to species discussed in couplets 90–100, but in dorsal view, the line of demarcation between mesonotum and propodeum indicating a vestigial metanotal groove is not visible and, in general, the propodeum is not strongly laterally compressed; seen in full-face view, anterior clypeal margin evenly convex or weakly arched, may be feebly crenulate with a minute denticle or protuberance at the midpoint where the longitudinal clypeal carina meets the anterior margin, but never emarginate or planar; colour predominantly ochre or brown or a blend of these colours (*C. claripes* group, *C. discors* complex).....102
- Seen in profile, minor worker not *claripes*-like; either with very large eyes placed near the angles of the vertex, or, humped with a very broad pronotum (best seen in dorsal view), or, in profile, propodeal dorsum concave107
102. Seen in profile, mesonotal angle present, mesonotum on a higher plane than propodeum; antennal scapes with many small, erect setae; setae also present on genae (Figure 396).....
.....*discors* complex sp. JDM 599
- [<https://www.antweb.org/specimenImages.do?name=antweb1041138>]
- Seen in profile, mesonotal angle absent, mesonotum and propodeum confluent so that, in profile, outline of mesosoma is convex and uninterrupted; antennal scape without many small, erect setae (semi-erect setae may be present along scape)103
103. Seen in full-face view, genae with small, erect setae104
- Seen in full-face view, genae lacking small, erect setae.....105
104. Seen in full-face view, small erect genal setae numerous and extending all the way up the sides of the head; seen in profile, mesosoma strongly and evenly convex (Figure 397)*discors* complex sp. JDM 1104
- [<https://www.antweb.org/specimenImages.do?name=antweb1041140>]
- Seen in full-face view, small erect genal setae confined to area between articulation of the mandible and the anterior margin of the eye; mesosomal profile asymmetrical, pronotum and mesonotum more-or-less on same plane but curving strongly over into the propodeum (note: a few minor workers lack the genal setae and major workers may be required to distinguish them from the very similar *C. gibbinotus*) (Figure 398).....
..... *consectator* (F. Smith) (part)
- [<https://www.antweb.org/specimenImages.do?name=casent0910293>]
105. Worker very small (HW ≤ 0.80 mm); 5 mandibular teeth; head dark brown or black and, in full-face view, sides of head convergent behind the eyes towards the convex vertex (Figure 399).....
.....*discors* complex sp. JDM 772
- [<https://www.antweb.org/specimenImages.do?name=jdm32-001154>]
- Generally, with 6 mandibular teeth; if worker very small with 5 mandibular teeth (a few very small *C. gibbinotus* workers), then sides of head not convergent behind the eyes and colour of head yellow106
106. Head mainly brown to dark brown, especially towards vertex, in dorsal view, head forms a strong contrast with pale pronotum; dorsum of pronotum often also paler than mesonotum (Figure 400)..... *discors* Forel
- [<https://www.antweb.org/specimenImages.do?name=casent0910291>]
- Head mainly yellow or orange though frons may have a tawny tinge, in dorsal view head colour forms only a weak contrast with colour of pronotum or is concolorous with pronotum; dorsum of pronotum usually concolorous with mesonotum (possibly two species of *C. gibbinotus*) (Figure 401)
..... *gibbinotus* Forel/
consectator (F. Smith) (part)
- [<https://www.antweb.org/specimenImages.do?name=casent0910384>]
107. Very similar to some members of *C. claripes* complex with elongate propodeum that is straight in profile, and in possessing large eyes and elongate antennal scapes, but differ in the eyes being placed near the angles of the vertex, the lack of a distinct separation of the mesonotum from the propodeum and in the less pronounced lateral compression of the propodeum (*C. claripes* group complex A)108
- Very dissimilar to members of the *Camponotus claripes* group; seen in profile either with mesosoma outline arcuate or humped or propodeum concave109

108. Species with black head, gaster and legs and dark red mesosoma; seen in full-face view, eyes moderately convex, not protruding beyond outline of head (Figure 402)
..... *claripes* group complex A sp. JDM 448

[<https://www.antweb.org/specimenImages.do?name=antweb1041135>]

Brown species with pale coxae and proximal femora, distal femora, tibiae and tarsi brown; seen in full-face view eyes strongly convex, protruding beyond outline of head (Figure 402)
..... *claripes* group complex A sp. JDM 1243

[<https://www.antweb.org/specimenImages.do?name=antweb1041137>]

109. Seen in profile, pronotum and mesonotum gently convex, propodeum raised above mesonotum anteriorly, and thereafter concave; seen in full-face view, the genae very convex, head rounded (*C. reticulatus* group) (Figure 491)
..... *andrewsi* Donisthorpe

[<https://www.antweb.org/specimenImages.do?name=casent0903579>]

Seen in profile, mesonotum and propodeum broadly arcuate, and may descend almost vertically; seen in full-face view, head narrowly to broadly triangular, its sides straight, divergent posteriorly (*C. arcuatus* group).....110

110. Seen in profile, propodeal declivous face very short and concave; seen in full-face view, head an inverted triangle, the eyes placed near the angles of the vertex; seen in profile, vertex of head folded into the genae through a blunt angle (Figure 404)
..... *arcuatus aesopus* Forel

[<https://www.antweb.org/specimenImages.do?name=jdm32-000931>]

Seen in profile, mesonotum and propodeum evenly convex, the dorsal face of the propodeum evenly descending at a much more moderate angle and its declivous face not concave; head oval; vertex of head not folded into the genae through an angle.....111

111. Ant with black head and gaster, mesosoma reddish-orange (Figure 405)
..... *arcuatus* group sp. JDM 996

[<https://www.antweb.org/specimenImages.do?name=antweb1041128>]

Ant completely black (Figure 406)
.....cf. *cameratus* Viehmeyer

[<https://www.antweb.org/specimenImages.do?name=focol2328>]

EXCURSUS 1

The identity of *Camponotus claripes nudimalis* Forel and *C. marcens* Forel.

The current situation regarding these ants is highly confused, even though type specimens and their label data have been Automontaged and placed on AntWeb.

1. *Camponotus marcens* Forel 1907b.

The problem here is that the Automontaged major worker and the minor worker described as syntypes are two separate species. The minor worker has conventionally been regarded as *Camponotus marcens* (formerly *C. claripes marcens*) and appears under that name in the recent ant literature. A separate label states the latter was collected 'from a nest under a stone in loamy soil' [transl.]. The major worker is discussed in Heterick (2009) as '*Camponotus claripes* group sp. JDM 288'. The minor worker of the nominal major worker of the species is now known but does not appear to have been described elsewhere. When he revised the species, McArthur (2009) appears to have examined another, correctly associated syntype major worker. (The label data concludes '...Mundaring Weir 9. VII.' The major worker syntype appearing on AntWeb concludes '...Mundaring Weir 9. VIII.')

2. *Camponotus claripes nudimalis* Forel 1913.

If anything, the situation is even more confused in this case. One of the purported syntype specimens is a major worker of *Camponotus marcens* Forel. This is the specimen associated with the Bridgetown label. This would seem to be a simple case of making '*claripes nudimalis*' a junior synonym of '*marcens*'. However, Forel's description clearly does not apply to this ant. The description mentions that the ant looks like *C. claripes*, the genae are glabrous, the clypeus has elongate, coarse pits, the ant is generally very shiny, the gaster is dark brown and the head and mesosoma are light brown with yellowish tones and the legs are yellowish. This description matches very closely what is here tentatively called *C. peseshus*, which is very common throughout the south-west, but certainly not the *C. marcens* major worker pictured. Possibly, the label has been wrongly associated by the people working on AntWeb, but it is far more likely that the label was wrongly associated by the author of the name (Forel) when this and other ants were being described. Another supposed syntype major worker, also Automontaged, was collected in Liverpool, NSW. This specimen appears to be *C. claripes* itself.

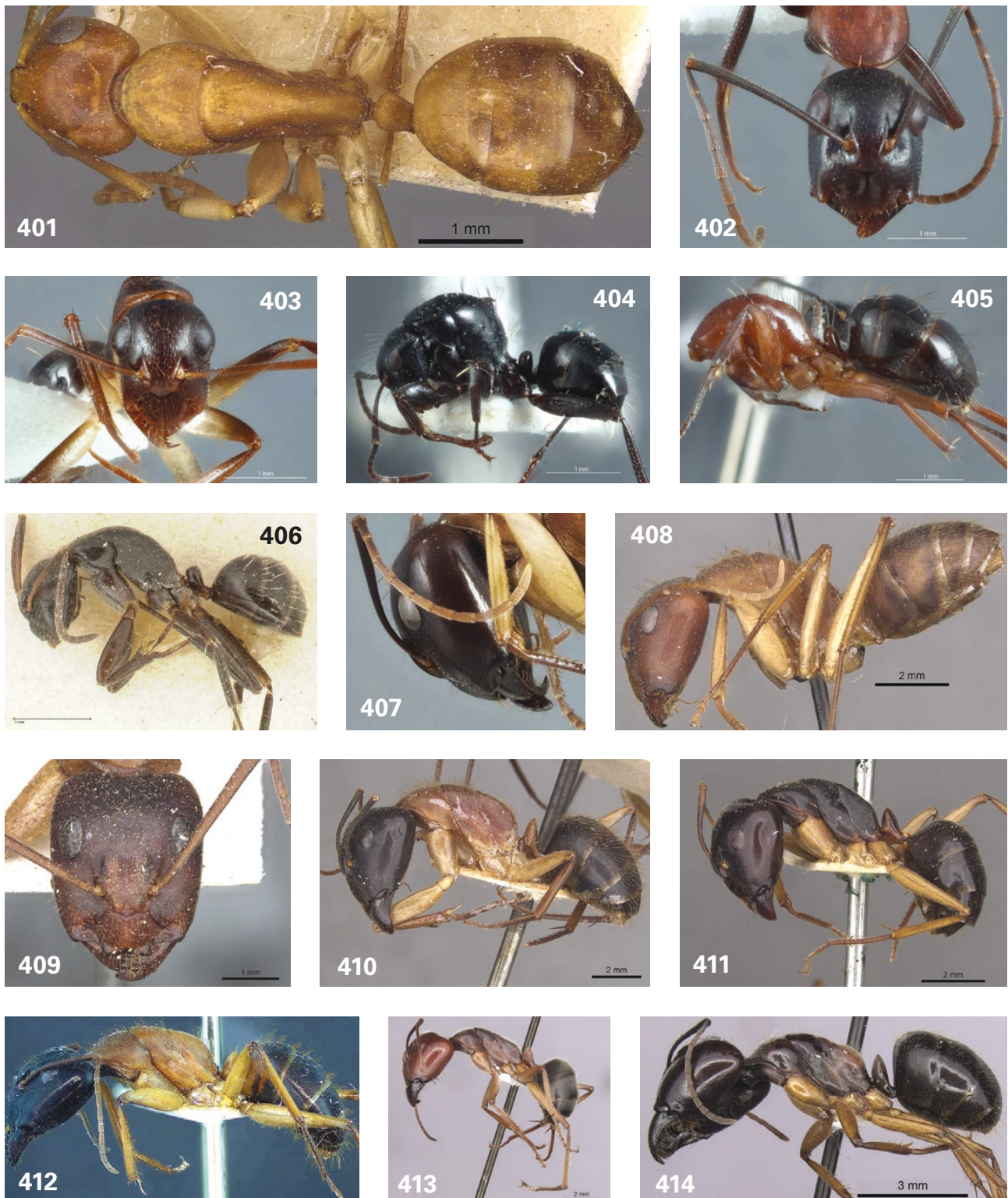
One solution would be to fix the name '*marcens*' by making the *C. marcens* minor worker a lectotype. The other material in the type series, including the correctly identified major worker and the species incorrectly associated with that name, would become paralectotypes. This leaves the issues surrounding '*C. claripes nudimalis*'. Perhaps the best way around this would be to first check to see if any of the existing syntypes (i.e. in addition to those Automontaged) match the description given by Forel. If not, then perhaps the latter name could become a species inquirenda until such time as likely type material came to light.

Camponotus (major workers)

Note: major workers are unknown for a number of taxa. Particularly is this the case for undescribed species.

1. Seen in full-face view, clypeus extended as a square apron, anteromedially notched and the clypeal angles acute and sharp (*C. nigriceps* group)..... 2
 Seen in full-face view, if clypeus extended as a square apron, then not with combination of an anteromedially notched clypeus whose projecting angles are acute and sharp..... 7
2. Erect setae absent from underside of head (Figure 407).....
 *longideclivis* McArthur & Adams
 [https://www.antweb.org/specimenImages.do?name=antweb1041180]
 Erect setae present on underside of head..... 3
3. Dorsum of propodeum with > 10 erect setae, setae distributed over propodeum..... 4
 Dorsum of propodeum with < 10 erect setae, setae concentrated on or near propodeal angle 6
4. Head, mesosoma, node and most of gaster uniformly honey-coloured (Figure 408).....
 *clarior* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0910305]
 Head black or brown, mesosoma yellow or reddish-brown 5
5. First two gastral tergites yellow, the remainder black (Figure 409).....*nigriceps* (F. Smith)
 [https://www.antweb.org/specimenImages.do?name=casent0903532]

- First gastral tergite black, as for the remaining gastral tergites (Figure 410).....
 *nigriceps* (F. Smith) ('*perthianus*')
 [https://www.antweb.org/specimenImages.do?name=casent0910309]
6. Erect setae on underside of head < 20, or erect setae covering less than half of underside of head; head and mesosoma typically concolorous dark brown or black (Figure 411) *prostans* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0910311]
 Erect setae on underside of head > 20, or erect setae covering more than half of underside of head; head typically dark brown or black contrasting with yellowish to dark red mesosoma (Figure 412)
 *dryandrae* McArthur & Adams
 [https://www.antwiki.org/wiki/Camponotus_dryandrae]
 7. Ant with tuft of coarse J-shaped bristles at base of labium, these bristles noticeably stouter and different in texture to adjacent setae (*C. wiederkehri* group)..... 8
 Tuft of coarse J-shaped bristles absent from labium.....17
 8. Antennal scape and tibiae with many erect, bristly setae..... 9
 Antennal scape and tibiae lacking erect, bristly setae11
 9. Seen in profile, dorsum of petiolar node bluntly rounded; node thick; pubescence on gaster abundant, individual setae overlapping (Figure 413) *gouldianus* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0280203]
 Seen in profile, dorsum of petiolar node acuminate; node thin and scale-like; pubescence on gaster less abundant, individual setae usually not overlapping 10
 10. Mesosoma shades of light to medium brown, gaster dark brown to black (Figure 414)
 *terebrans* (Lowne) (dark morph)
 [https://www.antweb.org/specimenImages.do?name=casent0280205]
 Mesosoma and gaster yellowish (Figure 415)....
 *terebrans* (Lowne) (light morph)
 [https://www.antweb.org/specimenImages.do?name=jdm32-001382]



FIGURES 401–414

401) *Camponotus gibbinotus* minor syntype (CASENT0910384); 402) *Camponotus claripes* group complex A sp. 448 minor (ANTWEB1041135); 403) *Camponotus claripes* group complex A sp. 1243 minor (ANTWEB1041137); 404) *Camponotus arcuatus aesopus* minor (JDM32-000931); 405) *Camponotus arcuatus* group sp. JDM 996 minor (ANTWEB1041128); 406) *Camponotus cameratus* minor 'type' (AntWeb) (FOCOL2328); 407) *Camponotus longideclivis* major (ANTWEB1041180); 408) *Camponotus clarior* major syntype (CASENT0910305); 409) *Camponotus nigriceps* major holotype (CASENT0903532); 410) *Camponotus nigriceps* 'perthianus' major syntype ('*C. nigriceps dimidiatus perthiana*') (CASENT0910309); 411) *Camponotus prostans* major syntype (CASENT0910311); 412) *Camponotus dryandrae* major (ANIC; S.O. Shattuck); 413) *Camponotus gouldianus* major (CASENT0280203); 414) *Camponotus terebrans* major (CASENT0280205).



FIGURES 415–429

415) *Camponotus 'terebrans'* major (JDM32-001382); 416) *Camponotus postcornutus* major (JDM32-001305); 417) *Camponotus aurocinctus* major (CASENT0172173); 418) *Camponotus versicolor* major syntype (ANTWEB1008153); 419) *Camponotus wiederkehri* major syntype ('*C. wiederkehri lucidior*') (CASENT0910299); 420) *Camponotus ceriseipes* complex sp. JDM 774 major (JDM32-001316); 421) *Camponotus ceriseipes* major syntype (ANTWEB1008143); 422) *Camponotus prosseri* major paratype (CASENT0172147); 423) *Camponotus rufus* major (ANTWEB1041151); 424) *Camponotus subnitidus* major (CASENT0906927); 425) *Camponotus tricoloratus* major (JDM32-001409); 426) *Camponotus molossus* major syntype (CASENT0910410); 427) *Camponotus johnclarki* major (ANTWEB1041163); 428) *Camponotus whitei* major (CASENT0172132); 429) *Camponotus extensus* major syntype (CASENT0915758).

11. Seen in profile, posterior angle of vertex acute, relatively sharp; outline of mesosoma almost circular (Figure 416)..... *postcornutus* Clark
[<https://www.antweb.org/specimenImages.do?name=jdm32-001305>]
Seen in profile, posterior angle of vertex obtuse, smoothly rounded; outline of mesosoma not as above (pronotum is convex; mesonotum and dorsal surface of propodeum from a straight line, except for impression of metanotal groove)..... 12
12. Seen in profile, vertex of petiolar node broadly rounded; metanotal groove distinctly impressed.....13
Seen in profile, vertex of petiolar node tapering to a sharp or blunt point; metanotal groove feebly impressed.....14
13. Propodeum and anterior of first gastral tergite gaster similar in colour; gaster often with golden bands (Figure 417)
.....*aurocinctus* (F. Smith)
[<https://www.antweb.org/specimenImages.do?name=casent0172173>]
Propodeum darker than anterior gaster; gaster never with golden bands (Figure 418)
.....*versicolor* Clark
[<https://www.antweb.org/specimenImages.do?name=antweb1008153>]
14. Seen in full-face view, anteromedial sector of clypeus produced as a square apron that is broadly emarginate (Figure 419)
.....*wiederkehri* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910299>]
Seen in full-face view, anteromedial sector of clypeus feebly convex and barely extending beyond the lateral sectors of the clypeus15
15. Head and gaster both black (Figure 420).....
.....*ceriseipes complex sp.* JDM 774
[<https://www.antweb.org/specimenImages.do?name=jdm32-001316>]
Head reddish, lighter than gaster.....16
16. Seen in profile, petiolar node strongly tapering, scale-like and acuminate; seen in profile, propodeum descending through a blunt angle to its declivous face; antennal scape shorter (SI 68) (Figure 421) *ceriseipes* Clark
[<https://www.antweb.org/specimenImages.do?name=antweb1008143>]
- Seen in profile, petiolar node thick and not scale-like, its anterior face convex; seen in profile, propodeum smoothly descending through a gentle arc without distinct dorsal and declivous faces; antennal scape longer (SI 70) (Figure 422)
.....*prosseri* Shattuck & McArthur
[<https://www.antweb.org/specimenImages.do?name=casent0172147>]
17. Very large ants (HW \geq 4 mm); upper vertex glabrous, its outline planar to weakly convex; antennal scapes glabrous; mandibles densely punctate-striolate, their external margin strongly curved and may be circular; mandibles with \geq 8 teeth and denticles (*C. subnitidus* group)18
Ant usually smaller; If ant very large as above, then upper vertex with many erect, white setae and its outline deeply concave; antennal scapes with many erect setae (*C. intrepidus* group) 20
18. Seen in full-face view, head triangular, divergent towards vertex; external margin of mandibles convex but not circular in outline (Figure 423)*rufus* Crawley
[<https://www.antweb.org/specimenImages.do?name=antweb1041151>]
Seen in full-face view, head rectangular with straight sides (may even be slightly indented beside eyes); external margin of mandibles circular or nearly so.....19
19. Seen in full-face view (AntWeb Automontaged major worker) median sector of clypeus laterally extended on each side as acute angle to give the appearance of top half of a hexagon, anteromedial clypeal margin convex (Figure 424).....*subnitidus* Mayr
[<https://www.antweb.org/specimenImages.do?name=casent0906927>]
Seen in full-face view, median sector of clypeus rectangular or only weakly produced laterally without obvious angle, anteromedial margin of clypeus broadly and weakly emarginate (Figure 425).....
.....*tricoloratus* Clark
[<https://www.antweb.org/specimenImages.do?name=jdm32-001409>]
20. Seen in full-face view, head with deeply emarginate vertex, the sides strongly convex and convergent behind the eyes; head, body and appendages with very many short, white, erect setae; large to very large ants (HW to 4.6 mm) (*C. intrepidus* group)21

- Seen in full-face view, head without this combination of characters; generally smaller ants (HW \leq 3.5 mm)..... 22
21. In profile petiolar node relatively thin, vertical and tapered towards to its vertex; white setae very thick, length of those on antennal scape > greatest width of scape; seen in full-face view, anteromedial sector of clypeus produced as a square or broadly convex apron well beyond its lateral sectors (Figure 426)..... *molossus* Forel
- [<https://www.antweb.org/specimenImages.do?name=casent0910410>]
- Seen in profile, petiolar node elongate and low, strongly inclined anteriorly; erect setae more sparsely distributed over body and appendages, length of those on antennal scape < greatest width of scape; seen in full-face view, anteromedial sector of clypeus narrowly produced beyond its lateral sectors (Figure 427)..... *johnclarki* Taylor
- [<https://www.antweb.org/specimenImages.do?name=antweb1041163>]
22. Cuticle with dense microstructure (various: mostly areolate or punctate over underlying microreticulation); seen in profile mesonotum abruptly descending to propodeum, which is truncate; seen in full-face view, mandible small and compact, scarcely longer than broad; dorsal surface of body with many yellow, bristly setae (*C. leae* group) (Figure 428)..... *whitei* Wheeler
- [<https://www.antweb.org/specimenImages.do?name=casent0172132>]
- Without dense microsculpture as above; mesonotum not abruptly descending to propodeum..... 23
23. Seen in full-face view, sides of head strongly convex, convergent behind the eyes, vertex deeply emarginate; anterior clypeal sector produced as a square apron ahead of its lateral sectors, the anteromedial clypeal margin planar or weakly emarginate, anterior angles of anteromedial sector of clypeus usually distinct and $\sim 90^\circ$ (*C. novaehollandiae* group).....24
- Without combination of strongly convex sides of head, deeply emarginate vertex and well-formed anteromedial clypeal apron 28
24. Seen in profile, mesonotum and dorsal face of propodeum forming a conspicuously planar continuum; dorsal face of propodeum meets its declivous face at a blunt angle (Figure 429)..... *extensus* Mayr
- [<https://www.antweb.org/specimenImages.do?name=casent0915758>]
- Seen in profile, mesonotum and propodeum forming an even, gentle curve throughout their length; dorsal face of propodeum rounds on to its declivous face over an almost imperceptible angle..... 25
25. Head and body uniformly dark brown (Figure 430)..... *fieldeae* Forel
- [<https://www.antweb.org/specimenImages.do?name=casent0910096>]
- Uniformly pale or bicoloured, if bicoloured then gaster and (usually) head darker than lighter-coloured mesosoma..... 26
26. Seen in full-face view, sides of head strongly and evenly convex; vertex weakly concave (Figure 431) *humilior* Forel
- [<https://www.antweb.org/specimenImages.do?name=casent0910181>]
- Seen in full-face view, sides of head weakly tapered anteriorly; vertex moderately to deeply concave 27
27. Tawny orange to yellow head concolorous with or only slightly darker than mesosoma (gaster mostly pale) (Figure 432) *novaehollandiae* Mayr
- [<https://www.antweb.org/specimenImages.do?name=casent0910177>]
- Head and gaster both dark brown to blackish in most specimens, strongly contrasting with yellowish or brownish-yellow mesosoma (rarely, head may be lighter in colour above but still brownish, and gaster is always dark) (Figure 433)..... *crozieri* McArthur & Leys
- [<https://www.antweb.org/specimenImages.do?name=antweb1041383>]
28. In full-face and dorsal views, head blocky, semi-phragmotic with posterior angles of vertex rounded to form small lobes, the outline of the head between them straight; antennal scape short, not reaching vertex; anteromedial margin of clypeus protruding, bidentate or at least broadly emarginate; mandible strongly sculptured with six teeth and denticles; outline of mandible strongly convex (*C. ephippium* group) 29

Without the above combination of blocky, semi-phragmotic head, protruding, bidentate or broadly emarginate anteromedial clypeal margin, lobate vertex, and convex mandible41

29. Seen in profile, node very thick, truncated, and inclined anteriorly; dorsal face of propodeum planar, long and low, much longer than its declivous face (Figure 434) *pellax* Santschi

[<https://www.antweb.org/specimenImages.do?name=casent0911756>]

Without the combination of low, truncated petiolar node and elongate, low, planar dorsal propodeal face (petiolar node vertical and tapered to a blunt or sharp vertex, and

dorsal propodeal face usually high and about the same length as the declivous face) 30

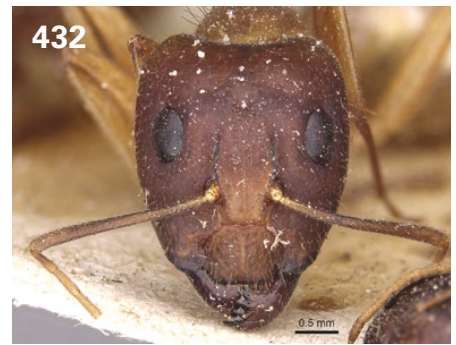
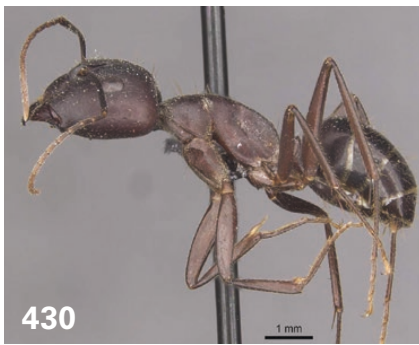
30. On close inspection, short, erect setae present along antennal scape.....31

Antennal scape without erect setae (occasional minute semi-erect setae may be present)... 34

31. Erect setae found on all surfaces of antennal scape, especially towards end of scape (Figure 435).....*pawseyi* McArthur

[<https://www.antweb.org/specimenImages.do?name=jdm32-001301>]

Erect setae confined to outer surface of antennal scape..... 32



FIGURES 430–437

430) *Camponotus fieldeae* major syntype (CASENT0910096); 431) *Camponotus humilior* major syntype (CASENT0910181); 432) *Camponotus novaehollandiae* major syntype (CASENT0910177); 433) *Camponotus crozieri* major (ANTWEB1041383); 434) *Camponotus pellax* major syntype (CASENT0911756); 435) *Camponotus pawseyi* major (JDM32-001301); 436) *Camponotus bigenus* major syntype (CASENT0911751); 437) *Camponotus cinereus notterae* major (JDM32-000990).

32. Larger ant (HW ~3 mm); in dorsolateral view, occipital lobes strongly developed and slightly flattened (Figure 436)
 *bigenus* Santschi
 [https://www.antweb.org/specimenImages.do?name=casent0911751]
 Smaller ants (HW ≤ 2.5 mm); in dorsolateral view, occipital lobes less strongly developed and not flattened..... 33
33. Mesosoma with fine, white pubescence throughout; on close inspection, punctation on medial sector of clypeus and surrounding genae dense and strongly impressed; anteromedial clypeal margin strongly emarginate, its angles developed as weak denticles (Figure 437).....
 *cinereus notterae* Forel
 [https://www.antweb.org/specimenImages.do?name=jdm32-000990]
 Mesosoma with well-spaced appressed setae only except around lower propodeum, white pubescence absent; on close inspection, punctation on medial sector of clypeus and surrounding genae sparse and superficial; anteromedian clypeal margin variable but often only moderately emarginate, its angles tending not to be developed as denticles (Figure 438) .. *ephippium* group sp. JDM 775
 [https://www.antweb.org/specimenImages.do?name=antweb1041141]
34. Smaller majors (HW < 1.7 mm)..... 35
 Larger majors (HW > 2 mm) 36
35. Seen in full-face view, head triangular with sides divergent, broadest behind eyes; seen in profile, mesosoma strongly and evenly arcuate throughout its length (Figure 439)
 *longifacies* McArthur
 [https://www.antweb.org/specimenImages.do?name=casent0172131]
 Seen in full-face view, head rectangular or ovate with sides planar or convex; seen in profile, pronotum and mesonotum evenly convex, propodeum planar, sloping towards its posterior angle (Figure 440).....
 *sponsorum* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0910401]
36. Appressed setae on hind tibia thick, white, raised to ~15°; seen in profile, pronotum and mesonotum smoothly convex and dorsal surface of propodeum concave, giving a sinuous outline (as for the minor worker) (Figure 441) *ephippium* (F. Smith)
 [https://www.antweb.org/specimenImages.do?name=jdm32-001165]
 Appressed setae on hind tibia flat; seen in profile, appearance of mesosoma noticeably bulkier than that of corresponding minor worker, dorsal surface of the propodeum planar as it descends to its posterior angle 37
37. Major worker completely black (Figure 442)
 *fieldellus* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0910379]
 Major worker with at least partially red or orange head and mesosoma and black gaster 38
38. Erect setae absent from underside of head (Figure 443)..... *capito* Mayr
 [https://www.antweb.org/specimenImages.do?name=casent0915754]
 Erect genae present on underside of head 39
39. Short, erect setae absent from lower genae and sparse on medial sector of clypeus and mostly limited to its margins (Figure 444)
 *ephippium* group sp. JDM 777
 [https://www.antweb.org/specimenImages.do?name=antweb1041142]
 Short, erect setae present on lower genae and well-distributed on medial clypeal sector 40
40. Mesonotum gently convex as its slopes towards the propodeum; mesosoma tan with darker infuscation (Figure 445)..... *dromas* Santschi
 [https://www.antweb.org/specimenImages.do?name=casent0911754]
 Mesonotum humped posteriad; mesosoma black (Figure 446)..... *capito ebeninithorax* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0910364]
41. Mandible with 7 teeth; seen in profile, dorsal surface of propodeum interrupted by a weak transverse impression at about its midpoint (Figure 447).....
 *Camponotus* group A sp. JDM 26
 [https://www.antweb.org/specimenImages.do?name=jdm32-001458-1]

- Mandible with 5 or 6 teeth; seen in profile, dorsal surface of propodeum may be generally concave but not impressed about its midpoint as above 42
42. Seen in profile, propodeum high; seen in dorsal view propodeal dorsum short and not laterally compressed; mandibles compact, barely longer than broad, with 5 mandibular teeth; seen in full-face view, anteromedial margin of clypeus barely extending beyond its lateral sectors and emarginate, and usually weakly bidentate (*C. rubiginosus* group) 43
- Seen in profile, if propodeum high, then in dorsal view propodeum strongly laterally compressed and mandibles less compact and with 6 mandibular teeth 53
43. Colour of head and body of major worker shades of red, brown or orange, alone or in combination 44
- Head and body of major worker either completely black or at least predominantly blackish brown with a few lighter brown tones on head and pronotum 49
44. Head and gaster black, mesosoma bright red (Figure 448) *armstrongi* McAreavey
- [<https://www.antweb.org/specimenImages.do?name=casent0172150>]
- Combination of colours not as above 45
45. Major worker partially or completely red or dark red 46
- Major worker bright orange, brown or brownish-orange, never with reddish colouration 47
46. Colour variable but first two gastral tergites are orange or brownish-orange contrasting with dark red or reddish-black head and pronotum (Figure 449) *rubiginosus* Mayr
- [<https://www.antweb.org/specimenImages.do?name=casent0915769>]
- Ant very similar to the above, but head, mesosoma and first two gastral tergites uniformly red (Figure 450) *macareaveyi* Taylor
- [<https://www.antweb.org/specimenImages.do?name=casent0172138>]
47. Major worker with bulbous head and finely microreticulate sculpture; bright, glossy orange *rubiginosus* group sp. JDM 1038
- Major worker with convex, triangular but not bulbous head, or with elongate, rectangular head with straight sides; glossy with only very superficial imbricate sculpture 48
48. Seen in full-face view, head longitudinally rectangular, blackish or variegated blackish and orange in colour; anteromedial clypeal margin barely produced beyond its lateral sectors and noticeably bidentate (Figure 451) *woodroffeensis* McArthur
- [<https://www.antweb.org/specimenImages.do?name=antweb1041385>]
- Seen in full-face view, head convex, light brown in colour; anteromedial clypeal margin generally convex, only weakly bidentate (Figure 452) *andyyoungi* McArthur
- [<https://www.antweb.org/specimenImages.do?name=antweb1041382>]
49. Hind tibia and antennal scape with whorls of erect and semi-erect setae, length of some of those on tibia \geq greatest width of tibia (Figure 453) *evae zeuxis* Forel
- [<https://www.antweb.org/specimenImages.do?name=antweb1041162>]
- If hind tibia and antennal scape with some erect and semi-erect setae, length of those on hind tibia $<$ greatest width of tibia 50
50. Head with lighter brown patches on occipital lobes, clypeus and lower genae; pronotum slightly lighter in shade than mesonotum; appressed setae on hind tibia flat, individual setae well separated (Figure 454) *rubiginosus* group sp. JDM 296
- [<https://www.antweb.org/specimenImages.do?name=jdm32-001249-1>]
- Head and body more-or-less uniformly black or blackish; appressed setae on hind tibia raised to $\sim 10^\circ$ and overlapping 51
51. Seen in full-face view, several to a few small, erect setae present on lower genae; erect setae also on underside of head (Figure 455) *lownei* Forel
- [<https://www.antweb.org/specimenImages.do?name=casent0280215>]
- Seen in full-face view, erect setae absent from genae; also, setae often absent from underside of head 52
52. Seen in full-face view, antennal scape longer, reaching vertex; side of head weakly and evenly convex (Figure 456) *simpsoni* McArthur
- [<https://www.antweb.org/specimenImages.do?name=jdm32-001354>]



FIGURES 438–453

438) *Camponotus ephippium* group sp. JDM 775 major (ANTWEB1041141); 439) *Camponotus longifacies* major paratype (CASENT0172131); 440) *Camponotus sponsorum* major syntype (CASENT0910401); 441) *Camponotus ephippium* major (JDM32-001165); 442) *Camponotus fieldellus* major syntype (CASENT0910379); 443) *Camponotus capito* major syntype (CASENT0915754); 444) *Camponotus ephippium* group sp. JDM 777 major (ANTWEB1041142); 445) *Camponotus dromas* major syntype (CASENT0911754); 446) *Camponotus capito ebeninithorax* major syntype (CASENT0910364); 447) *Camponotus* group A sp. JDM 26 major (JDM32-001458-1); 448) *Camponotus armstrongi* major (CASENT0172150); 449) *Camponotus rubiginosus* major syntype (CASENT0915769); 450) *Camponotus macareaveyi* major holotype (CASENT0172138); 451) *Camponotus woodroffeensis* major (ANTWEB1041385); 452) *Camponotus andyyoungi* major (ANTWEB1041382); 453) *Camponotus evae zeuxis* major (ANTWEB1041162).

- Seen in full-face view, antennal scape shorter, not reaching vertex; sides of head weakly concave, the greatest concavity next to eyes (Figure 457).....
..... ***rubiginosus* group sp. JDM 1158**
[<https://www.antweb.org/specimenImages.do?name=antweb1041148>]
53. Mesosoma high; seen in dorsal view propodeum weakly narrowed posteriad and metanotum often indicated and bounded by a transverse impression anteriorly and posteriorly; seen in profile propodeum much higher than wide; seen in full-face view, head with moderately to strongly convex sides, the anteromedial clypeal sector hexagonal, its anterior margin more-or-less planar or only with hint of emargination (except *C. oetkeri* major) and narrowly projecting beyond the lateral clypeal sectors or confluent with them; mostly black ants with pale legs (one species is blackish-brown with a brown gaster); 6 mandibular teeth (*C. michaelsoni* group)..... 54
- If mesosoma high and ant dark (some *C. claripes* group majors), then in full-face view, anteromedial clypeal sector projecting well beyond lateral clypeal sectors with its anterior margin distinctly emarginate, or even bidentate, and sides of head usually planar or only very feebly convex..... 59
54. Pronotum, gaster and legs brown, rest of ant blackish-brown (Figure 458)
..... ***michaelsoni* group sp. JDM 1080**
[<https://www.antweb.org/specimenImages.do?name=antweb1041146>]
- Body of ant, at least, completely black 55
55. Legs black, concolorous with body; seen in full-face view, sides of head extremely convex, almost semi-circular, giving the head a bloated appearance (Figure 459)
..... ***tristis* Clark**
[<https://www.antweb.org/specimenImages.do?name=antweb1008152>]
- Legs varying in colour with species, from reddish through orange to pale yellow, but always contrasting with black body; sides of head moderately convex (except *C. oetkeri* major)..... 56
56. Seen in full-face view, head ovate, its side strongly convex throughout; anteromedial clypeal margin broadly emarginate; mesosoma nearly always glabrous (Figure 460)..... ***oetkeri* Forel**
[<https://www.antweb.org/specimenImages.do?name=casent0910395>]
- Seen in full-face view, head triangular or roughly square; anteromedial clypeal margin planar or very feebly emarginate; mesonotum always with a pair of setae, other mesosomal setae usually present..... 57
57. Smaller major worker (HW ~2 mm); mesosoma with numerous (≥ 20) erect setae (Figure 461)
..... ***rudis* McArthur**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001296-1>]
- Larger major worker (HW ≥ 2.5 mm); mesosoma with few (< 12) erect setae 58
58. Seen in full-face view, anteromedial clypeal margin confluent with anterior borders of lateral clypeal sectors and very feebly emarginate; seen in profile, metanotal groove barely indicated, the propodeum not rising before it descends in a smooth arc; smaller (HW ~2.5 mm) (Figure 462).....
..... ***michaelsoni* group sp. JDM 229**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001419-1>]
- Seen in full-face view, anteromedial clypeal margin not confluent with but projecting beyond anterior borders of lateral clypeal sectors, planar; seen in profile, metanotal groove impressed so that anterior propodeum rises before descending in a smooth arc; larger (HW ~3–3.5 mm) (Figure 463)
..... ***michaelsoni* Forel/*tumidus* Crawley**
[<https://www.antweb.org/specimenImages.do?name=jdm32-001257>]
59. Seen in profile, pronotum and mesonotum most commonly arcuate (more rarely, pronotum may be flattened), propodeum long (longer than high), usually planar, more rarely weakly convex or concave, steeply sloping towards its declivous surface; dorsal surface of propodeum meets its declivous surface through a blunt angle; seen in full-face view, anteromedial margin of clypeus barely extended beyond lateral sectors of clypeus, anteromedian margin of clypeus usually either incised, or with incised impression at its midpoint, more rarely broadly emarginate, weakly convex only in *C. inflatus*; mandibles 6-toothed, compact, barely longer than broad, heavily pitted or with rugulose sculpture in some species (*C. aeneopilosus* group)..... 60
- If profile and appearance of head similar, then propodeum shorter, about as high as long or higher than long; ant may have 5 teeth.....67
60. Seen in full-face view, head of ant matt or with dull sheen, finely and evenly alveolate;

anteromedial clypeal margin deeply incised; head and body with very many short, white, erect setae (black, hairy major worker with greenish-yellow sheen to gaster) (Figure 464) *aeneopilosus* group sp. JDM 1031

[<https://www.antweb.org/specimenImages.do?name=antweb1041129>]

If head matt with similar sculpture and ant black and hairy, then clypeus not deeply and narrowly incised and erect setae thick and yellowish.....61

- 61. Head matt or with very dull sheen, sculpture as for couplet 60; mandibles typically with deeply impressed elongate pits and other rugulose sculpture, particularly towards the masticatory margin 62

Head with moderate sheen, alveolate sculpture (if present) very superficial and complemented with other sculpture;

mandibles mainly smooth with sculpture restricted to evenly spaced hair pits 65

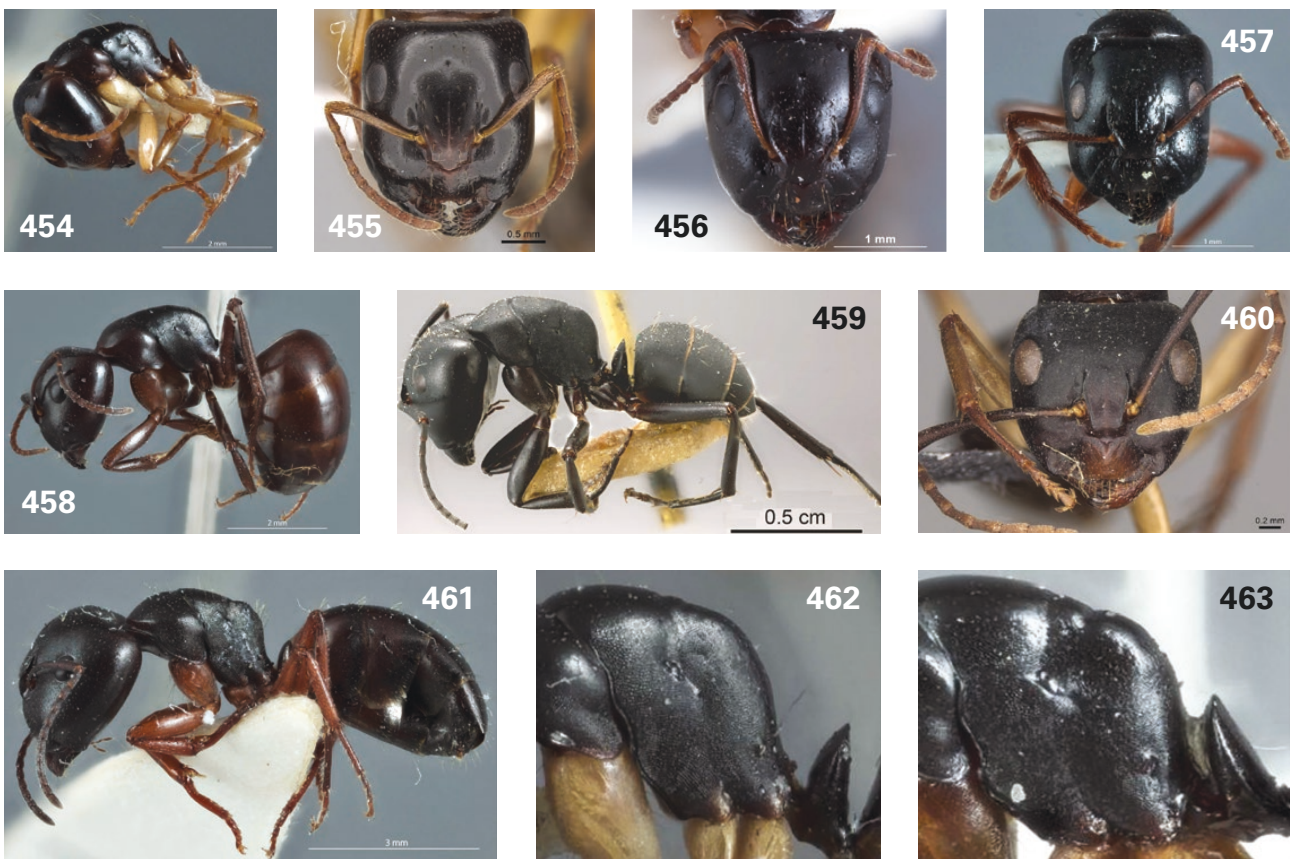
- 62. Seen in full-face view, anteromedial sector of clypeus weakly and evenly convex (black ants with many yellowish erect setae on head and body) (Figure 465) *inflatus* Lubbock

[<https://www.antweb.org/specimenImages.do?name=casent0172172>]

Seen in full-face view, anteromedial sector of clypeus emarginate to varying degrees..... 63

- 63. Seen in profile, propodeum distinctly concave and red, contrasting with rest of body, which is black (legs are also red) (Figure 466) *chalceus* Crawley

[<https://www.antweb.org/specimenImages.do?name=jdm32-000957>]



FIGURES 454–463 454) *Camponotus rubiginosus* group sp. JDM 296 major (JDM32-001249-1); 455) *Camponotus lownei* major syntype (CASENT0280215); 456) *Camponotus simpsoni* major (JDM32-001354); 457) *Camponotus rubiginosus* group sp. JDM 1158 major (ANTWEB1041148); 458) *Camponotus michaelsoni* group sp. JDM 1080 major (ANTWEB1041146); 459) *Camponotus tristis* major 'type' (AntWeb) (ANTWEB1008152); 460) *Camponotus oetkeri* major syntype (CASENT0910395); 461) *Camponotus rudis* major (JDM32-001296-1); 462) *Camponotus michaelsoni* group sp. JDM 229 major (JDM32-001419-1); 463) *Camponotus michaelsoni* major (JDM32-001257).

- Seen in profile, if propodeum is concave then that part is black, as for the rest of the body 64
64. Seen in profile, propodeum weakly concave; head and body uniformly black (Figure 467) *hartogi* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910385>]
- Seen in profile, propodeum weakly convex anteriorly, thereafter planar, pronotum variegated orange, brown and black, mesonotum and propodeum orange, head and gaster black (Figure 468)
..... *aeneopilosus* group sp. JDM 430
[<https://www.antweb.org/specimenImages.do?name=jdm32-001079>]
65. Short, erect setae present on underside of head and on lower genae; ant usually black, but head may be reddish (Figure 469)
..... *pitjantjatarae* McArthur
[<https://www.antweb.org/specimenImages.do?name=jdm32-001303-1>]
- Short, erect setae absent from underside of head and lower sides of head (a few minute semi-erect setae may be present near antennal insertions) 66
66. Major completely black or red with black gaster (Figure 470) *cinereus amperci* Forel
[<https://www.antweb.org/specimenImages.do?name=jdm32-000973>]
- Colour pattern not as above, mesosoma variegated orange and brown to varying degrees, gaster and often head may be darker than mesosoma (Figure 471)
..... *scotti* McArthur
[<https://www.antweb.org/specimenImages.do?name=jdm32-001342>]
67. Frons and profile outline of mesosoma similar to that of *C. aeneopilosus* group, but mandible with 5 teeth (dark brown ant with pale yellow legs) (Figure 472)
..... *darlingtoni* Wheeler
[<https://www.antweb.org/specimenImages.do?name=jdm32-001120>]
- Profile outline of mesosoma high or otherwise unlike that of *C. aeneopilosus* group 68
68. Seen in full-face view, head lacking erect setae on the lower genae, that area smooth and unsculptured; also in full-face view, head triangular, its sides weakly to strongly divergent with the head at its widest towards the vertex; seen in profile mesosoma high, propodeum short (length of dorsal face of propodeum < 0.5 × length of declivous face) and steeply declivous at angle of ~90° (*C. insipidus* group [part]) 69
- If mesosoma high and propodeum steeply declivous, then in full-face view, head of major worker more-or-less rectangular, its sides roughly parallel, head usually with many small, erect and semi-erect setae on lower genae and lower genae roughly sculptured with much pitting 70
69. Major worker very small (HW ≤ 1.3 mm); erect setae present underneath head; seen in full-face view, anteromedial sector of clypeus projecting, its anterior margin smoothly planar without crenulations (stout marginal setae absent) (Figure 473) *scratius* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910399>]
- Major worker larger (HW 1.9–2.5 mm); erect setae absent under head; seen in full-face view, projecting anteromedial clypeal margin of large major workers with small indentation or flattening at its midpoint, and small crenulations or pits around roots of stout marginal setae may be present (Figure 474) *insipidus* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0903542>]
70. Seen in full-face view, head oval, rectangular or broadly triangular, sides of head usually with many short, erect setae (always present if head is triangular); also in full-face view, anteromedial clypeal margin emarginate or bidentate to varying degrees, planar (but not crenulate) only in one species that has ≥ 7 mandibular teeth; antennal scapes relatively long, always exceeding vertex; 6 mandibular teeth, except as mentioned above; seen in profile, mesosoma broadly arcuate, the dorsal and declivous faces of propodeum ascending at angle > 45° but < 90° (*C. claripes* group; *claripes* complex) 71
- Seen in full-face view, head not combining features of emarginate or bidentate anteromedial clypeal margin, antennal scapes that exceed the vertex (the *discors* complex is similar but the anteromedial clypeal margin is weakly convex and crenulate and often with a feeble protuberance at the midpoint) and 6 mandibular teeth 80



FIGURES 464–479

464) *Camponotus aeneopilosus* group sp. JDM 1031 major (ANTWEB1041129); 465) *Camponotus inflatus* major (CASENT0172172); 466) *Camponotus chalceus* major (JDM32-000957); 467) *Camponotus hartogi* major syntype (CASENT0910385); 468) *Camponotus aeneopilosus* group sp. JDM 430 major (JDM32-0001079); 469) *Camponotus pitjantjatarae* major (JDM32-001303-1); 470) *Camponotus cinereus amperei* major (JDM32-000973); 471) *Camponotus scotti* major (JDM32-001342); 472) *Camponotus darlingtoni* major (JDM32-001120); 473) *Camponotus scratius* major syntype (CASENT0910399); 474) *Camponotus insipidus* major holotype (CASENT0903542); 475) *Camponotus claripes* complex sp. JDM 63 major (JDM32-001092); 476) *Camponotus peseshus* major 'type' (AntWeb) ('*C. (Myrmophyma) nitidiceps*') (FOCOL2257); 477) *Camponotus claripes* complex sp. JDM 288 major (syntype of '*marcens*' [AntWeb]) (CASENT0910373); 478) *Camponotus claripes* complex sp. JDM 939 major (ANTWEB1041133); 479) *Camponotus claripes* complex sp. JDM 767 major (JDM32-001083).

71. Mandible with ≥ 7 teeth; seen in profile gracile, length of dorsal face of propodeum $> 1.5 \times$ its declivous face (pale yellowish ants) (Figure 475)..... *claripes complex sp.* JDM 63
[<https://www.antweb.org/specimenImages.do?name=jdm32-001092>]
Mandible with 6 teeth, in profile more compact, length of dorsal face of propodeum \leq length of its declivous face or dorsal propodeal face confluent with declivous propodeal face; ants usually darker or bicoloured 72
72. Seen in full-face view, lower genae smooth and shining; sides of head lacking erect setae (Figure 476) *peseshus* Bolton
[<https://www.antweb.org/specimenImages.do?name=focol2257>]
Head with erect genal setae or head bulbous with frank sculpture present on lower genae 73
73. Head bulbous, in full-face view almost circular in outline; clypeus and lower genae with granulate rugosity superimposed on fine alveolate microsculpture; erect setae absent from sides of head (Figure 477)
..... *claripes complex sp.* JDM 288
[<https://www.antweb.org/specimenImages.do?name=casent0910373>]
Head not bulbous, erect setae present on sides of head 74
74. Major worker largely yellowish or yellowish orange, including the head (Figure 478).....
..... *claripes complex sp.* JDM 939
[<https://www.antweb.org/specimenImages.do?name=antweb1041133>]
Major uniformly dark in colour or bicoloured but always with a dark head that is brown to black or variegated brown with patches of lighter colour 75
75. Antennal scapes with few to numerous erect setae; underside of head with very many small, erect setae (often > 50); mesosoma glossy with superficial imbricate sculpture (Figure 479)....*claripes complex sp.* JDM 767
[<https://www.antweb.org/specimenImages.do?name=jdm32-001083>]
Antennal scape with erect setae only in *C. claripes complex sp.* JDM 779 but that ant has a mostly matt mesosoma with a dense mixture of imbricate and microreticulate sculpture; underside of head typically with fewer erect setae (often < 30).....76
76. Gaster distinctly bicoloured, yellow anteriorly, blackish posteriorly (Figure 480).....
..... *marcens* Forel
[<https://www.antweb.org/specimenImages.do?name=jdm32-001017>]
Gaster uniformly dark..... 77
77. Ant visibly gracile, dorsal face of propodeum slightly longer than its declivous face, smoothly rounded declivous face of propodeum inclined at angle of near 45° (blackish species with very pale legs) (Figure 481) *elegans* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910371>]
Ant less gracile, length of dorsal face of propodeum \leq length of its declivous face; declivous face of propodeum inclined at angle of $\geq 60^\circ$ 78
78. Mesosoma rather matt, on close inspection mesopleuron and side of propodeum densely and minutely microreticulate-imbricate; seen in profile dorsal face of propodeum and its declivous face meeting at a distinct, though blunt angle (compact black ant with yellow-and-brown legs) (Figure 482)
..... *claripes complex sp.* JDM 779
[<https://www.antweb.org/specimenImages.do?name=jdm32-001087-1>]
Mesosoma glossy, on close inspection mesopleuron and side of propodeum with imbricate or superficial microreticulate sculpture; seen in profile, dorsal face of propodeum and its declivous face confluent without a distinct propodeal angle..... 79
79. Seen in dorsal view and in full-face view, head uniformly brown or blackish; seen in full-face view anteromedial clypeal margin with a weak, broadly V-shaped notch (Figure 483)
..... *claripes* Mayr
[<https://www.antweb.org/specimenImages.do?name=casent0915750>]
Seen in dorsal view and in full-face view, head brown with lighter orange patches, these mainly to be seen on clypeus, lower genae, area between frontal carinae and the occipital lobes; seen in full-face view, anteromedial clypeal margin very feebly emarginate without the hint of a V-shaped notch (Figure 484)*inverallensis* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910368>]

80. Appearance of head and mesosoma as for *C. claripes* complex, but antennal scape barely reaching vertex, and outline of vertex strongly convex; seen in full-face view, head parallel sided and anteromedial clypeal sector a slightly protrusive apron with crenulate anterior margin; genae glabrous (*C. claripes* complex A) (Figure 485).....
.....**complex A sp. JDM 1243**

[<https://www.antweb.org/specimenImages.do?name=antweb1041136>]

If frons and profile of mesosoma otherwise similar to the above, then antennal scape extending well beyond outline of vertex; seen in full-face view, vertex concave.....81

81. Appearance generally as for *C. claripes* complex, but anteromedial clypeal margin crenulate and planar (and may have a tiny, central protuberance) and, in full-face view, head typically triangular, concave above; colour always ochre, brown or blackish, alone or in combination (*C. discors* complex)..... 82

Appearance not as above, head of known major workers somewhat rounded and vertex convex..... 85

82. Sides of head, lower genae and underside of head with very many tiny, erect setae (Figure 486).....
.....**discors complex sp. JDM 1104**

[<https://www.antweb.org/specimenImages.do?name=antweb1041139>]

Erect setae on these areas (if present) few, those on side of head confined to a handful near to articulation of mandible 83

83. Colour of head yellowish or light ochre; colour of mandible uniform reddish-brown (Figure 487).....**gibbinotus** Forel

[<https://www.antweb.org/specimenImages.do?name=jdm32-001137>]

Colour of head brown with or without a few lighter patches, especially on the occipital lobes; mandible dark brown with lighter brown in a strip along the masticatory margin..... 84

84. Seen in profile, pronotum distinctly lighter coloured than rest of mesosoma; seen in full-face view, sides of head glabrous (Figure 488).....**discors** Forel

[<https://www.antweb.org/specimenImages.do?name=casent0910290>]

Seen in profile, pronotum and rest of mesosoma share same colour pattern (usually variegated ochre with brownish patches); sides of head and lower genae typically with sparse, short, erect setae, but these may be lacking (Figure 489).....
.....**consectator** (F. Smith)

[<https://www.antweb.org/specimenImages.do?name=casent0910292>]

85. Ant black; seen in profile, mesosoma strongly arcuate; seen in full-face view, lower head with very many white, erect setae (*C. arcuatus* group) (Figure 490).....
.....cf. **cameratus** Viehmeyer

[<https://www.antweb.org/specimenImages.do?name=focol2326>]

Ant brown-and-black; seen in profile pronotum and mesonotum gently curved, propodeum concave; seen in full-face view, head glabrous (*C. reticulatus* group) (Figure 491).....
.....**andrewsi** Donisthorpe

[<https://www.antweb.org/specimenImages.do?name=casent0903579>]

Colobopsis (minor worker)

1. Seen in dorsal view, propodeum smoothly rounded; mesosoma without erect setae or pubescence; propodeal spiracle near midpoint of propodeum (Figure 492).....**gasseri** Forel

[<https://www.antweb.org/specimenImages.do?name=casent0280186>]

Seen in dorsal view, propodeum tapered to a ridge dorsally; mesosoma pubescent and with erect setae on all body surfaces; propodeal spiracle near declivous face of propodeum (Figure 493).....
.....**Colobopsis(?) sp. JDM 927**

[<https://www.antweb.org/specimenImages.do?name=jdm32-001255>]

Colobopsis (major worker)

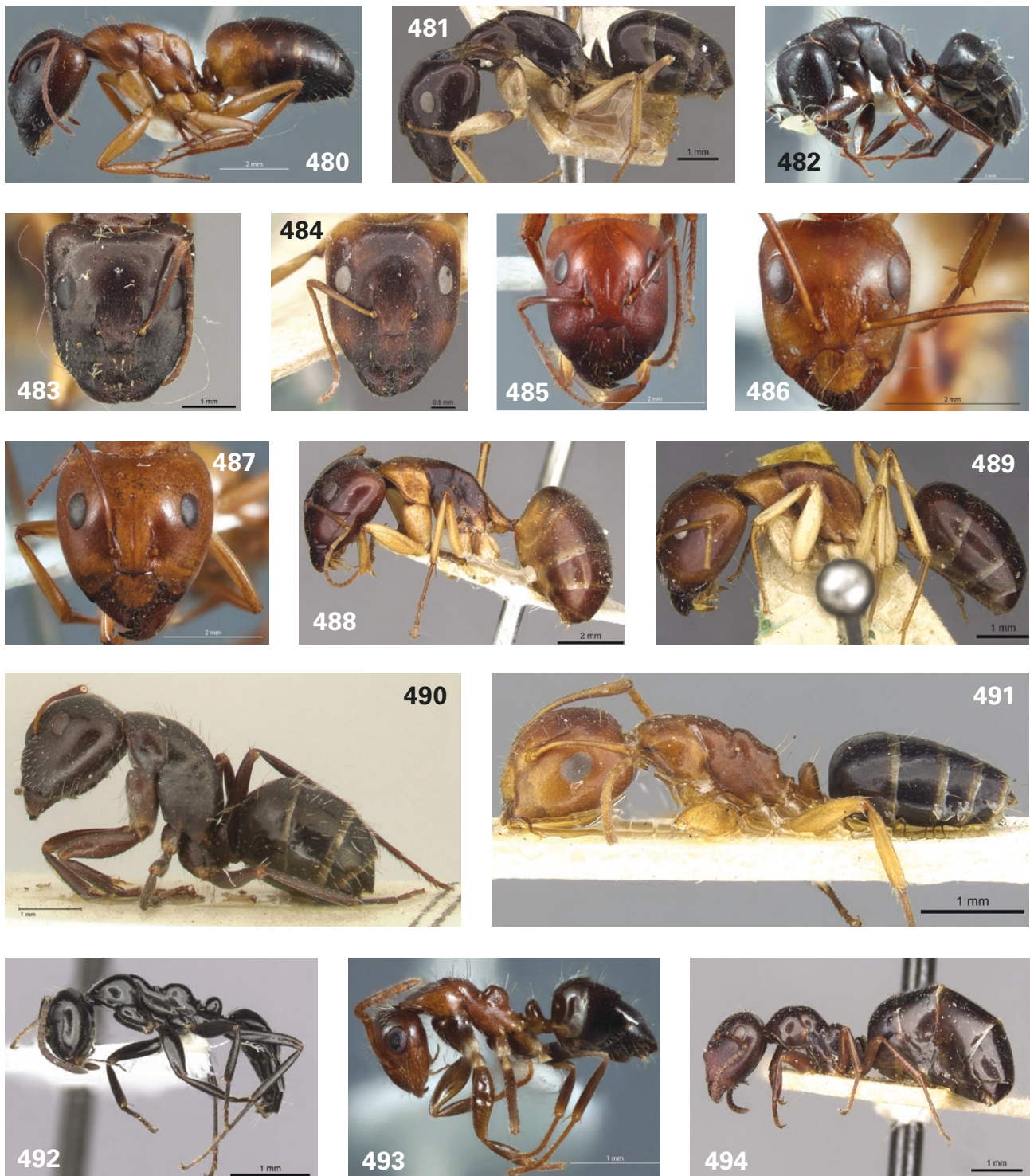
Known only for *Colobopsis gasseri* Forel (Figure 494).

[<https://www.antweb.org/specimenImages.do?name=casent0910599>]

Lepisiota

One species (*Lepisiota frauenfeldi* [Mayr 1855]) (see Figure 51).

[<https://www.antweb.org/specimenImages.do?name=casent0909884>]



FIGURES 480–494 480) *Camponotus marcens* major (JDM32-001017); 481) *Camponotus elegans* major syntype (CASENT0910371); 482) *Camponotus claripes* complex sp. JDM 779 major (JDM32-001087-1); 483) *Camponotus claripes* major syntype (CASENT0915750); 484) *Camponotus inverallensis* major syntype (CASENT0910368); 485) *Camponotus claripes* group complex A sp. JDM 1243 major (ANTWEB1041136); 486) *Camponotus discors* complex sp. JDM 1104 major (ANTWEB1041139); 487) *Camponotus gibbinotus* major (JDM32-001137); 488) *Camponotus discors* major syntype (CASENT0910290); 489) *Camponotus consecrator* major ('*Camponotus discors angustinodus*') (CASENT0910292); 490) *Camponotus* cf. *cameratus* major 'type' (AntWeb) ('*C. cameratus*') (FOCOL2326); 491) *Camponotus andrewsi* major holotype (CASENT0903579); 492) *Colobopsis gasseri* minor (CASENT0280186); 493) *Colobopsis*(?) sp. JDM 927 minor (JDM32-001255); 494) *Colobopsis gasseri* major syntype ('*Camponotus gasseri*') (CASENT0910599).

Melophorus

1. Large, oblique propodeal spiracle situated well before declivous face of propodeum, the spiracle bisecting much of the propodeum; mandible modified in two of the three species (either securiform, its masticatory margin with small to minute, blunt, evenly-sized teeth (except for the long, sharp, apical tooth), or edentate); PF reduced to 3,4 in two species (*M. potteri* group) 2

Spiracle not as above, generally situated on declivous face of propodeum; mandible and mandibular teeth not modified as above, teeth usually pointed; pf 6,4 in WA species 4

2. Mandible edentate or with minute crenulations along its masticatory margin; head elongate-rectangular; anterior margin of clypeus straight; PF 3,4 (Figure 495) *pelecygnathus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=jdm32-001576>]

Mandible not edentate, mandibular teeth large enough to be easily distinguished; head square, rectangular or oval, if rectangular then anteromedial clypeal margin protrusive 3

3. General appearance glossy; head capsule square or rectangular; anteromedial clypeal margin protrusive, square in shape; basal margin of mandible denticulate and expanded distally (Figure 496) *potteri* McAreavey

[<https://www.antweb.org/specimenImages.do?name=antweb1008199>]

General appearance matt; head oval; anterior clypeal margin broadly convex but not protrusive; basal margin of mandible not denticulate and evenly curved throughout its length (Figure 497) *macroschismus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900028>]

4. Propodeum armed with short, acute denticles; pronotum, mesonotum and propodeum flattened and delimited by blunt carinae in minor worker; antennal lobes raised, the sector between them recessed and oval-longitudinal in shape; metatibial spur absent (*M. majeri* group) (Figure 498) *majeri* Agosti

[<https://www.antweb.org/specimenImages.do?name=casent0172019>]

Propodeum always unarmed; mesosoma never carinate as above, usually with rounded surfaces; if antennal lobes raised then sector contained within them triangular or hemispherical; metatibial apical spur well-developed in most groups 5

5. Head and mesosoma extensively covered with short, peg-like bristles; in outline, pronotum and mesonotum flattened; metatibial spur stout but very short (*M. fulvihirtus* group) (Figure 499) *barbellulatus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900080-1>]

Head and pronotum not extensively covered with stout, peg-like bristles; pronotum and mesonotum generally sinuous in outline 6

6. Maxillary palp segments very short (not reaching neck sclerite), narrow and terminating in a subulate (awl-shaped) segment; metatibial apical spur absent; seen in full-face view, masticatory margin of mandible strongly oblique with four teeth in known major workers (except *chrysus*) and four to six teeth in minor worker (*M. anderseni* group) 7

Maxillary palp of variable length, but often extending beyond neck sclerite and always with lobiform terminal segment; metatibial apical spur nearly always present and elongate; seen in full-face view, masticatory margin of mandible in major worker usually not strongly oblique, but if so, then almost always with at least five teeth; minor workers with \geq five teeth 9

7. Seen in profile, petiolar node thick and quadrate or broadly rectangular in appearance (Figure 500) *andersenioides* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900082-1>]

Seen in profile, petiolar node a thickened scale 8

8. Seen in profile, pronotum smoothly rounded and inclined at angle $> 30^\circ$; head and body strongly shining to glossy, with superficial microreticulation only; seen in profile, clypeus evenly convex or more strongly convex posteriorly, but not bulbous; yellow; 'pillipes' condition (whorls of fine, erect setae on appendages) in some populations (Figure 501) *chrysus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900127-1>]

Seen in profile, pronotum more-or-less flattened, only very weakly inclined anteriorly; head and body weakly to moderately shining, the sculpture ranging from superficial microreticulation to evident shagreenation or minutely striate sculpture; seen in profile, clypeus strongly convex, tending to bulbous (major worker unknown); ochraceous; 'pillipes' condition not seen (Figure 502).....
*subulipalpus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900128>]

9. Setae of clypeal psammophore fine and placed at around the midpoint of clypeus; anterior of margin of clypeus a moderately flattened curve in all workers and not covering the base of the mandibles; five to seven mandibular teeth; major worker with same mandibular structure as minor worker; seen in profile, mesosoma long

and gracile, with obliquely descending propodeum (*M. aeneovirens* species-group [part] *M. nemophilus* complex) (Figure 503)
*nemophilus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900077>]

- If with fine clypeal psammophore set at midpoint of clypeus and number of mandibular teeth more than five, then largest major worker with short, massive, elbowed mandible directed posteriorly, mesosoma usually not long and gracile, and declivous face of propodeum not as above10

10. Seen in full-face view, anterior clypeal margin convex, apron-like and covering whole or part of the retracted mandible, the medial clypeal sector often produced so that it is protrusive when seen in profile; psammophore frequently with coarse and



FIGURES 495–502

495) *Melophorus pelecynathus* paratype (JDM32-001576); 496) *Melophorus potteri* syntype (ANTWEB1008199); 497) *Melophorus macroschismus* paratype (ANIC32-900028); 498) *Melophorus majeri* holotype (CASENT0172019); 499) *Melophorus barbellulatus* holotype (ANIC32-900080-1); 500) *Melophorus andersenioides* holotype (ANIC32-900082-1); 501) *Melophorus chrysus* paratype (ANIC32-900127-1); 502) *Melophorus subulipalpus* paratype (ANIC32-900128).

well-separated ammochaetae, these always placed on or just above anterior margin; seen in profile, propodeum elongate and oblique or broadly rounded (*M. aeneovirens* species-group [part]) (*M. aeneovirens* and *M. bagoti* complexes).....11

Seen in full-face view, anterior clypeal margin variable, but not covering whole or part of the retracted mandible, the medial clypeal sector not narrowly protrusive, although it may be broadly protuberant; psammophore often placed along the midpoint of the clypeus or even above it; seen in profile, propodeum typically truncate or narrowly rounded (*M. biroi* and *M. ludius* species-groups) 28

- 11. Seen in full-face view, psammophore in a row slightly above anterior clypeal margin; anterior margin of clypeus acuminate at its midpoint; metatibia may have more than two rows of preapical spines (*M. bagoti* complex)..... 12

Seen in full-face view, psammophore ranged along or just above anterior margin of clypeus and following the curve of the margin; anterior margin of clypeus broadly medially produced, and often with central notch that may be deeply impressed, but is never acuminate at its midpoint; metatibia with maximum of two rows of preapical spines (*M. aeneovirens* complex).....13

- 12. Metatibia armed with five rows of preapical spines (Figure 504)..... *bagoti* Lubbock
[<https://www.antweb.org/specimenImages.do?name=casent0280499>]

Metatibia armed with two rows of preapical spines (Figure 505).....
.....*gracilipes* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=antweb1008984>]

- 13. Main teeth of mandible supplemented with small or indistinct denticles, total number of teeth and denticles ≥ 6 ; seen in full-face view, head of minor worker indented below the eye, giving a bell-shaped appearance to the head capsule; workers matt, shagreenate, with very many long, flexuous setae over silvery pubescence (Figure 506).....
.....*canus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900003-1>]

Teeth of mandible not as above, total number of teeth usually five; head of minor worker

(weakly) laterally indented only in *M. griseus*, which has five distinct mandibular teeth; seen in full-face view head shape square with rounded posterior angles, rectangular or oval, often with domed posterior margin of head; workers with or without erect setae, where present these usually short and bristly and never long and flexuous.....14

- 14. Seen in profile, head capsule very strongly compressed dorsoventrally, especially in minor worker; maxillary palps short, not reaching neck; seen in profile, dorsum of mesosoma more-or-less linear after weak anterior pronotal incline, the metanotal groove vestigial in minor worker and weakly impressed in media and major workers; anterior clypeal margin weakly convex; bicoloured (Figure 507).....
.....*platyceps* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900117-1>]

Seen in profile, if head capsule very strongly compressed dorsoventrally (*M. tenuis*), then mesosoma not more-or-less linear, although it may be generally elongate, and maxillary palps longer, reaching to neck sclerite15

- 15. Minor worker very small (HW ≤ 0.50 mm); metafemur of minor worker of peculiar appearance, being attenuated to the midpoint and thereafter of uniform width to its junction with the tibia (media worker with similar condition, but attenuation more gradual and less conspicuous); head of minor worker rather elongate and very strongly domed; anteromedial sector of clypeus of major worker flattened towards its anterior margin and not extending beyond flanks of clypeus (Figure 508).....
.....*attenuipes* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=jdm32-002000-1>]

Minor worker larger (HW > 0.50 mm); metafemur of normal appearance, i.e. gradually attenuating towards its junction with the tibia; head of minor worker generally roundly rectangular or square with a domed or planar posterior margin of head; anteromedial section of clypeus of known major workers protrusive to varying degrees and often also projecting when seen in profile.....16

- 16. Tibiae with fine, appressed pubescence in addition to stout, socketed, appressed to subdecumbent setae.....17



FIGURES 503–518

503) *Melophorus nemophilus* holotype (ANIC32-900077); 504) *Melophorus bagoti*, detail of leg (CASENT0280499); 505) *Melophorus gracilipes* paratype (ANTWEB1008984); 506) *Melophorus canus* holotype (ANIC32-900003-1); 507) *Melophorus platyceps* holotype (ANIC32-900117-1); 508) *Melophorus attenuipes* holotype (ANIC32-002000-1); 509) *Melophorus sulconotus* paratype (ANIC32-900071); 510) *Melophorus curtus* syntype (CASENT0903265); 511) *Melophorus griseus* paratype (JDM32-004555); 512) *Melophorus gibbosus* paratype (ANIC32-900191-1); 513) *Melophorus teretnotus* paratype (ANTWEB1008665); 514) *Melophorus aeneovirens* syntype ('*Formica aeneovirens*') (ANTWEB1038563); 515) *Melophorus kuklos* holotype (ANIC32-900095); 516) *Melophorus clypeatus* holotype (JDM32-001497-1); 517) *Melophorus tenuis* holotype (ANIC32-900210); 518) *Melophorus mullewaensis* holotype (ANIC32-066621).

- Tibiae with stout, socketed, appressed to subdecumbent setae only, fine, appressed pubescence lacking..... 20
17. In profile, minor worker (major worker unknown) with pronotum flattened posteriad and mesonotum also flattened before descending steeply to metanotal groove; minor worker larger (HW ~1.50 mm); bright, light orange with brown gaster (Figure 509).....*sulconotus* Heterick et al.
[https://www.antweb.org/specimenImages.do?name=anic32-900071]
- Seen in profile, posterior pronotum and mesonotum of minor worker weakly to strongly convex; minor worker smaller (HW ≤ 0.90 mm); colour variable but not as above18
18. Antennal scapes and tibiae without bristly erect and semi-erect setae, and short, erect setae normally sparse on dorsum of mesosoma; head of minor worker oval or squared and frontal triangle triangular; seen in profile, mesosoma of minor worker usually gracile, pronotum and mesonotum forming a gentle curve (non-gracile populations also lack bristly erect or semi-erect setae on antennal scapes or tibiae); upper frons of major worker partially shagreenate (very variable morphology, possibly two or more species represented here) (Figure 510)*curtus* Forel
[https://www.antweb.org/specimenImages.do?name=casent0903265]
- Antennal scapes and tibiae with bristly erect and semi-erect setae normally present on all surfaces, and short, erect setae moderately abundant on dorsum of mesosoma; if bristly erect setae abraded or absent from antennal scapes and tibiae, then head of minor worker bell-shaped in full-face view and frontal triangle narrowly semi-oval (some workers of *M. griseus*); seen in profile, pronotum and mesonotum may form a strong convexity; frons of major worker (only known for *M. gibbosus*) uniformly distinctly microreticulate19
19. Frontal carinae of minor worker (major worker unknown) raised and laminiform at edges; frontal triangle narrowly semi-oval; sides of head concave below eyes, giving it a bell-shaped appearance; seen in profile, pronotum and mesonotum form a gentle curve (Figure 511) *griseus* Heterick et al.
[https://www.antwiki.org/wiki/Melophorus_griseus]
- Frontal carinae of workers not raised or laminiform at edges; frontal triangle triangular; sides of head of minor worker not divergent below eyes; seen in profile, pronotum and mesonotum form a strong convexity (Figure 512).....
..... *gibbosus* Heterick et al.
[https://www.antweb.org/specimenImages.do?name=anic32-900191]
20. Seen in profile, mesosoma of minor worker with a compact appearance, its dorsal outline describing a pronounced arc due to shape of the mesonotum and mesopleuron (mesosternal outline and dorsum of mesonotum strongly convergent anteriorly)21
- Seen in profile, mesosoma of minor worker with an elongate, gracile appearance, its dorsal outline straight or describing a weak arc (mesosternal outline and dorsum of mesonotum weakly convergent to subparallel anteriorly)..... 23
21. Mesonotum and propodeum of minor worker confluent, metanotal groove completely lacking (major worker unknown) (Figure 513) *teretinotus* Heterick et al.
[https://www.antweb.org/specimenImages.do?name=antweb1008665]
- Metanotal groove present in minor worker, albeit may be shallow, mesonotum and propodeum clearly separated..... 22
22. Seen in profile, clypeus distinctly recurved at about midpoint, produced over mandible as small ledge; seen in full-face view, anterior margin of major and minor worker clypeus a broadly convex, sometimes crenulate curve that does not protrude over apical curve of mandible; seen in profile, dorsum of minor worker mesosoma moderately arcuate (Figure 514)*aeneovirens* (Lowne)
[https://www.antweb.org/specimenImages.do?name=antweb1038563]
- Seen in profile, clypeus straight or weakly and broadly convex, produced over mandible as a very pronounced ledge; seen in full-face view, anteromedial margin of major and minor worker clypeus produced as a narrow flange that is distinctly notched or even forked at its midpoint; dorsum of minor worker mesosoma strongly arcuate, almost elliptical (Figure 515)..... *kuklos* Heterick et al.
[https://www.antweb.org/specimenImages.do?name=anic32-900095]

23. Seen in full-face view, anteromedial margin of clypeus produced as a narrow, rectangular flange with a straight or weakly indented edge (otherwise, anatomically identical with *M. praesens*) (Figure 516).....
.....*clypeatus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=jdm32-001497-1>]
Seen in full-face view, anteromedial margin of clypeus not produced as a narrow, rectangular flange24
24. Head of minor worker conspicuously dorsoventrally compressed (seen in profile, HW < 0.5 × head length); anterior clypeal margin evenly convex (Figure 517).....
.....*tenuis* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900210>]
Head of minor worker not conspicuously dorsoventrally compressed (seen in profile, HW > 0.5 × head length); anterior clypeal margin with a medial notch or crenulation 25
25. Seen in profile, pronotum of minor worker flattened; seen in dorsal view, pronotum of minor worker moderately attenuated anteriorly; black, very gracile species (one pin only of two damaged minor workers from Mullewa, WA) (Figure 518).....
.....*mullewaensis* Heterick et al.
[<https://www.antweb.org/specimenImages.do?code=anic32-066621>]
Seen in profile, pronotum of minor worker convex; seen in dorsal view, pronotum of minor worker with globose outline, that sclerite not or only very weakly attenuated anteriorly 26
26. Major and minor workers with medial sector of clypeus produced broadly as a flange that projects over the basal half of the mandibles; larger species (HW of large major workers ≥ 3 mm); head and mesosoma light tan or orange to dark crimson (never brown), gaster brown (Figure 519).....
.....*rufoniger* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-066663-1>]
Major and minor workers with clypeus broadly and gently convex, projecting over base of mandibles only; smaller species (HW of large major workers ≤ 2.3 mm); head and mesosoma mostly brown but can be black to light reddish-brown 27
27. Minor and media worker with slight medioccipital protuberance (best seen in full-face view with head tilted down slightly); pronotum and gaster of all workers with appressed setae overlapping or at least much closer to neighbouring setae than their own length; seen in profile, propodeum of minor worker with flattened, elongate dorsum, a barely discernible propodeal angle and often a sharp anterior peak (Figure 520)
.....*praesens* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900179-1>]
Minor and media worker without medioccipital protuberance, posterior margin of head broadly and weakly convex tending to planar when seen in full-face view, pronotum (and, often, gaster) of all worker castes with very short, often inconspicuous appressed setae, these separated from one another by much more than their own length; seen in profile, propodeum of minor worker without a sharp anterior peak, and commonly with a gently rounded dorsum and weak but discernible propodeal angle (Figure 521) *castaneus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900180-1>]
28. Seen in full-face view, area around frontal carinae and medial sector of clypeus deeply recessed in major worker; in major, media and minor workers of one species, torulus (antennal sclerite) produced to form a pronounced and sometimes pedunculate flange that encircles the antennal carinae; psammophore generally placed on or just above anterior margin of clypeus; minor workers hairy with thick, longish, unmodified erect setae (pedunculate torulus present; clypeal psammophore placed at midpoint) or with bristly, short erect setae (pedunculate torulus absent; clypeal psammophore placed at or just above anterior clypeal margin)..... 29
Seen in full-face view in major and media worker, area around frontal carinae and medial sector not noticeably recessed and torulus not expanded and pedunculated, torulus inconspicuous in all subcastes; most minor workers without the combination of anteriorly placed psammophore and hairiness with bristly, unmodified erect setae (minor workers of *M. sericothrix* may key out here as they are hairy with bristly setae, but these setae are longer, i.e. diameter of eye ≥, whereas, in *M. mjobergi* and *M. postlei* the bristly, erect setae are much shorter, i.e. diameter of eye <).....31

29. Midline of head capsule between frontal carinae with a short, vertical flange in major and media workers; clypeal psammophore placed at around midpoint of clypeus; workers with thatch-like distribution of long white setae on pronotum, erect setae on mesosoma tend to be coarse and relatively long (one rare population from the Pilbara region) (generally similar to Figure 522).....
..... *lanuginosus* Heterick et al. (part)
[<https://www.antweb.org/specimenImages.do?name=anic32-900145-1>]
- Midline of head capsule between frontal carinae without a short flange in major and media workers; clypeal psammophore placed on or just above anterior border of clypeus; workers with short, bristly, erect, unmodified setae on head, body and antennal scape..... 30
30. Appressed setae in all workers fine and forming pubescence that largely obscures underlying cuticle, which is matt in appearance (Figure 523).....
..... *postlei* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900181>]
- Appressed setae in all workers loose and relatively thick and not obscuring underlying cuticle, which is moderately shining in appearance (northern Australia, apparently sympatric with above species) (Figure 524) *mjobergi* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0909819>]
31. Major and minor workers with combination of long mandibles (i.e. apical tooth of retracted mandible reaching to at least the tentorial pit on the opposite side of head capsule), similar appearance of head capsule in major and minor workers and short maxillary palps, segments four to six combined barely longer than segment three, in profile the entire palp reaching only to middle of head capsule in minor worker when head is moderately inclined; head of major worker without short, massive, elbowed mandible directed posteriad; all workers with five mandibular teeth; median sector of clypeus uniformly convex and moderately protuberant, anterior clypeal midpoint a small, blunt angle (*M. oblongiceps* complex) (Figure 525)
..... *oblongiceps* Heterick et al.
[<https://www.antweb.org/specimenImages.do?code=anic32-900057-1>]
- Major and minor workers without combination of long mandibles, similar appearance of head in major and minor workers and short palps; if head of major worker similar to that of minor worker, then mandible short (i.e. apical tooth of retracted mandible reaching at most to antennal insertion on opposite side of head) (remaining *M. biroi* and *M. ludius* species-group members)..... 32
32. Gaster with curved erect, semi-erect setae and a few decumbent setae only, genuine appressed setae lacking; body generally strongly sculptured and hirsute, antennal scapes and legs with whorls of many fine, straight setae (several hairy members of the *M. fieldi* complex)..... 33
- If legs and antennal scapes with whorls of many fine, straight setae, then gaster with at least well-spaced appressed setae between the longer, erect or semi-erect pilosity 35
33. Mesonotum and propodeum globose, mesonotum, mesopleuron and propodeum separated from each other by a deep sulcus (Figure 526) *incisus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900170>]
- Mesonotum and propodeum not globose; mesonotum separated from mesopleuron and propodeum by weak groove or indentation 34
34. Seen in profile, petiolar node of major and media workers narrow, squamiform, scale-like in appearance; (petiolar node of minor worker not so distinctive, but ant can be distinguished by more shining appearance of head and anterior mesosoma and the rounded propodeum); head of major worker shining in appearance (Figure 527)
..... *ankylochaetes* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=antweb1008994>]
- Seen in profile, petiolar node of media and minor worker a low, rounded tubercle, that of major worker erect and not narrowly squamiform or scale-like in appearance; minor worker matt or with dull sheen only and with broadly truncate propodeum; head of major worker distinctly matt and may be rugulose (Figure 528)
..... *hirsutipes* Heterick et al. (part)
[<https://www.antweb.org/specimenImages.do?name=anic32-900093>]



FIGURES 519–534

519) *Melophorus rufoniger* holotype (JDM32-066663-1); 520) *Melophorus praesens* holotype (JDM32-900179-1); 521) *Melophorus castaneus* holotype (ANIC32-900180-1); 522) *Melophorus lanuginosus* holotype (ANIC32-900145-1); 523) *Melophorus postlei* holotype (ANIC32-900181); 524) *Melophorus mjobergi* syntype (CASENT0909819); 525) *Melophorus oblongiceps* holotype (ANIC32-900057-1); 526) *Melophorus incisus* holotype (ANIC32-900170); 527) *Melophorus ankylochaetes* paratype (ANTWEB1008994); 528) *Melophorus hirsutipes* (matt, sculptured) (ANIC32-900093); 529) *Melophorus translucens* holotype (JDM32-001966-1); 530) *Melophorus pusillus* holotype (JDM32-004668-1); 531) *Melophorus sericothrix* holotype (ANIC32-900174-1); 532) *Melophorus lissotriches* holotype (ANIC32-900148-1); 533) *Melophorus graciliceps* holotype (ANIC32-900175-1); 534) *Melophorus cuneatus* holotype (ANIC32-001958-1).

35. Small (HW of small minor workers ≤ 0.50 mm, HW of known major workers ≤ 0.80 mm) species; weakly sculptured overall, with cuticle of mesosoma visibly thin, the mesonotum translucent to varying degrees; mesopleuron either smooth or with vestigial sculpture only (note: taxa in couplet 36 are members of the *M. ludius* complex)..... 36

Usually larger species but, if small, then cuticle of mesosoma thick and opaque (including the mesonotum), and mesopleuron generally with pronounced microreticulate or other impressed sculpture. *Melophorus ludius* minor workers may be confused with minor workers of the following two taxa but can be distinguished from them by virtue of the combination of a moderate-sized eye and truncate (but not elongate) propodeum. In this case, however, the mesosoma is opaque though glossy 37

36. Seen in profile, propodeum of all worker castes narrow and obliquely elongate, with a declivous face that descends at an angle near 45° , minor worker propodeal spiracle elongate ($\geq 0.67 \times$ length of propodeum, measured along the spiracle); eye moderate-sized (EL 0.12–0.15; EI 20–36) (Figure 529)
..... *translucens* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=jdm32-001966-1>]

Seen in profile, propodeum of all worker castes not narrow and obliquely elongate as above; minor worker propodeal spiracle shorter (≤ 0.50 length of propodeum, measured dorsoventrally); eye generally larger (EL 0.15–0.21; EI 31–40) (Figure 530).....
..... *pusillus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=jdm32-004668-1>]

37. Seen in profile, head of minor worker weakly to moderately dorsoventrally compressed; seen in profile, eye set above midpoint of gena; clypeal psammophore set at around midpoint of clypeus to halfway between midpoint and anterior margin (major worker) and below midpoint to just above anterior margin (media and minor worker); head, body and legs of minor worker strongly pubescent, all workers with many short, unmodified, prickly, erect setae on head and body with from a couple to a moderate number distributed along antennal scapes, but such setae mainly or wholly absent from tibiae; propodeum with

obliquely declivous face; major worker with several preapical metatibial spines (Figure 531) *sericothrix* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900174-1>]

If minor and major worker similar in profile to the above and generally pubescent, then at least some short, erect setae modified (spatulate or thickened distally)..... 38

38. Minor and major workers worker clothed with fine, appressed silvery setae that form pubescence in minor worker, at least, in conjunction with multiple scattered, modified erect setae (modified setae varying from distally slightly flattened to clavate) on head, mesosoma and gaster (*M. biroi* complex [part]) 39

Minor and major workers not clothed with both fine, appressed silvery setae and multiple scattered, modified erect setae (either of these conditions may be individually present)..... 40

39. Seen in full-face view, eye of minor worker moderately convex, bulging well beyond outline of head capsule; seen in profile, mesosoma of minor worker sinuous, the mesonotum dipping towards its junction with the propodeum, forming a weak V-shaped notch; frontal carinae of major worker straight or weakly convex, cuticle of major worker head matt or weakly shining and minutely pitted (Figure 532).....
..... *lissotriches* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900148-1>]

Seen in full-face view, eye of minor worker only weakly convex, barely interrupting outline of head capsule; seen in profile, pronotum of minor worker rising gently, and mesosoma thereafter more-or-less straight, the mesonotum not dipping towards the propodeum, the metanotal groove not demarcated by a V-shaped notch; frontal carinae of major worker concave, cuticle of major worker head smooth and shining (Figure 533)..... *graciliceps* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900175-1>]

40. Metatibia of major worker with only one preapical spur; clypeal psammophore placed anteriorly, at or just above anterior margin of clypeus in minor worker and

- often in major worker; legs compact; head in profile dorsoventrally compressed in minor worker of many taxa, with eyes placed high on sides; mainly smaller species (HW of smallest minor 0.36 mm, average HW of smallest minors 0.46 mm; HW of largest known major 1.29 mm, average HW of largest majors (where known) 1.05 mm) (*M. biroi* complex [part]).....41
- Metatibia of major worker and often minor worker with two or more preapical spurs; clypeal psammophore usually placed just below to above centre point of clypeus (note: clypeus may be folded back giving appearance of anterior margin); legs often spindly with elongate metatibia in minor worker; head in profile usually ovate, rarely visibly dorsoventrally compressed; mainly larger species (HW of smallest minor 0.43 mm, average HW of smallest minors 0.77 mm; HW of largest known major 3.57 mm, average HW of largest majors [where known] 1.85 mm)51
41. Seen in profile, propodeal dorsum of minor and media workers extremely narrow and almost acuminate; metanotal groove in all workers narrowly and deeply impressed; mesonotum of minor worker hypertrophied so that metathoracic spiracle is situated on its underside in a distinctly lateral position; all workers with weak pubescence and a moderate number of erect setae on mesosoma (Figure 534)
..... *cuneatus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=jdm32-001958-1>]
- Propodeal dorsum of minor and media workers mostly moderately truncate, but if narrow then metanotal groove V-shaped; mesonotum of minor worker not hypertrophied as above, the metathoracic spiracle situated on dorsum of ant or nearly so; workers without weak pubescence (except in minor worker of *M. propebiroi*) 42
42. Minor worker with relatively long, partially overlapping appressed setae that form a weak pubescence on mesosoma and gaster; short, bristly, erect mesosomal setae present and plentiful (major worker unknown; south-western WA) (Figure 535).....
..... *propebiroi* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900112>]
- Minor worker with short, non-overlapping appressed setae on mesosoma and gaster that do not form pubescence; short, bristly, erect mesosomal setae sparse or absent in minor worker..... 43
43. Profile of minor worker (major worker unknown) bimodal, with smooth, glabrous, rounded pronotum and propodeum, and scalloped mesopleuron; petiolar node thickly squamiform, almost tubercular (Figure 536)..... *argus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-066597-1>]
- Profile of minor worker not as above, specifically never bimodal and glabrous with a smooth rounded propodeum; propodeum most commonly truncate to varying degrees and propodeal angle may be raised; petiolar node more narrowly squamiform, and may strongly flattened, especially in the major and media workers 44
44. Head and mesosoma of minor worker strongly matt, dull, with uniform, minute, net-like microreticulation; a transverse row of short, stout unmodified setae placed across centre of pronotum; seen in profile, propodeum weakly rounded or forming a slight angle between dorsal and declivous faces (major worker unknown) (Figure 537).....
..... *latinotus* Heterick et al.
[https://www.antwiki.org/wiki/Melophorus_latinotus]
- Head and mesosoma of minor worker with moderate to strong sheen and without transverse row of short, erect pronotal setae as described above; microreticulate sculpture, where present, mainly confined to mesopleuron, except in *M. microreticulatus* 45
45. Seen in full-face view, major worker with posterior clypeal margin not arched or falling away between antennal insertion and tentorial pit; anterior clypeal margin straight and not protuberant; seen in profile, major worker mesosoma elongate, smoothly bimodal; first gastral tergite of both major and minor worker with line of erect marginal setae and with other erect setae present, and workers very small (major worker HW ≤ 0.65 mm, minor worker HW ≤ 0.40 mm); minor worker with a pair or several long, erect setae at midpoint of pronotum; major and minor worker mesosoma glossy, with superficial sculpture only (Figure 538) *gracilis* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900209-1>]

Seen in full-face view, major worker often with posterior clypeal margin arched and falling away between antennal insertion and tentorial pit; anterior clypeal margin usually weakly convex, protuberant or with anteromedial dimple indicated; if major worker with posterior clypeal margin not arched or falling away between antennal insertion and tentorial pit and with glossy, unsculptured appearance (*M. ludius*), then profile compact with raised mesonotum and narrow, rounded propodeum; if minor worker small and with glossy, unsculptured mesosoma, then usually glabrous and always without erect marginal setae on first gastral tergite..... 46

46. Seen in profile, propodeum of minor and major worker protuberant, strongly truncate, with elevated dorsal surface which is much shorter than declivous surface; larger ants (HW of minor worker ≥ 0.65 mm, HW of major worker ≥ 1.25 mm); metanotal groove characteristically a deep V-shaped notch; most workers with long, flexuous setae but these may be short and bristly (Figure 539) *dicyrtos* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900177-1>]

Seen in profile, propodeum of minor and major worker not of above appearance, propodeum either rounded or truncate, but if truncate then not narrowly produced with elevated dorsal surface; minor worker much smaller (HW ≤ 0.50 mm) and known major workers usually smaller, except for *M. biroi*; metanotal groove of minor worker usually weakly impressed (see figure below); minor workers often glabrous or nearly so 47

47. Minor worker with combination of large eye (EI $40 \geq$), small size (HW ≥ 0.40 mm), lack of erect setae on mesosoma and first gastral tergite and distinct microreticulate sculpture over mesosoma (may be weaker on pronotum in some specimens); major worker with posterior clypeal margin not arched or falling away between antennal insertion and tentorial pit; anterior clypeal margin straight and not protuberant; major worker pronotum tending to bulbous and in profile breaking the mesosoma outline by protruding above the mesonotum; mesosomal sculpture as for minor worker (Figure 540)..... *microreticulatus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900172>]

Minor worker without combination of large eye, small size and distinct microreticulate

sculpture over mesonotum; erect marginal setae may be present; if major worker with clypeal conformation as above, then major worker mesosoma glossy and unsculptured or with vestigial microreticulation on mesopleuron and propodeum only, and pronotum does not protrude above the mesosomal outline when seen in profile..... 48

48. Smaller species (minor worker HW ≤ 0.40 mm, largest major worker HW ≤ 1.05 mm); seen in profile, minor worker head ovate without distinct dorsoventral flattening; major worker with posterior clypeal margin not arched or falling away between antennal insertion and tentorial pit; anterior clypeal margin straight and not protuberant 49

Larger species (minor worker HW ≥ 0.47 mm, largest major worker HW ≥ 1.10 mm); seen in profile, minor worker head weakly to strongly dorsoventrally flattened, with eye placed high on side; major worker with posterior clypeal margin arched, falling away between antennal insertion and tentorial pit; anterior clypeal margin convex, protuberant and may be dimpled 50

49. Seen in profile, minor worker propodeum weakly truncate or rounded, descending into its declivous face at an angle of $\sim 45^\circ$; minor worker eye moderate (EI 19–30); minor worker antennal scape longer (SI to 120); mesosoma and first gastral tergite occasionally with one or a couple of erect setae; major worker morphologically similar to the following, but larger (HW of measured major worker 1.05 mm) (Figure 541)..... *ludius* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0903266>]

Seen in profile, minor worker propodeum strongly truncate and cuboidal, descending into its declivous face at an angle approaching 90° ; minor worker eye large (EI 40–41); minor worker antennal scape shorter (SI as little as 94); mesosoma and first gastral tergite always glabrous; major worker similar to the above but minute (HW of measured major worker 0.47 mm) (Figure 542)..... *minus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=antweb1008988>]

50. Minor worker with erect setae on first gastral tergite, including a line of marginal setae; mesosoma also with a couple to a few, usually stout, erect setae (several specimens may need to be seen because of abrasion), these setae rarely modified and abundant;

seen in profile, pronotum, mesonotum and propodeum in all worker casts flattened and on same plane (Figure 543) *biroi* Forel

[<https://www.antweb.org/specimenImages.do?name=anic32-900113-1>]

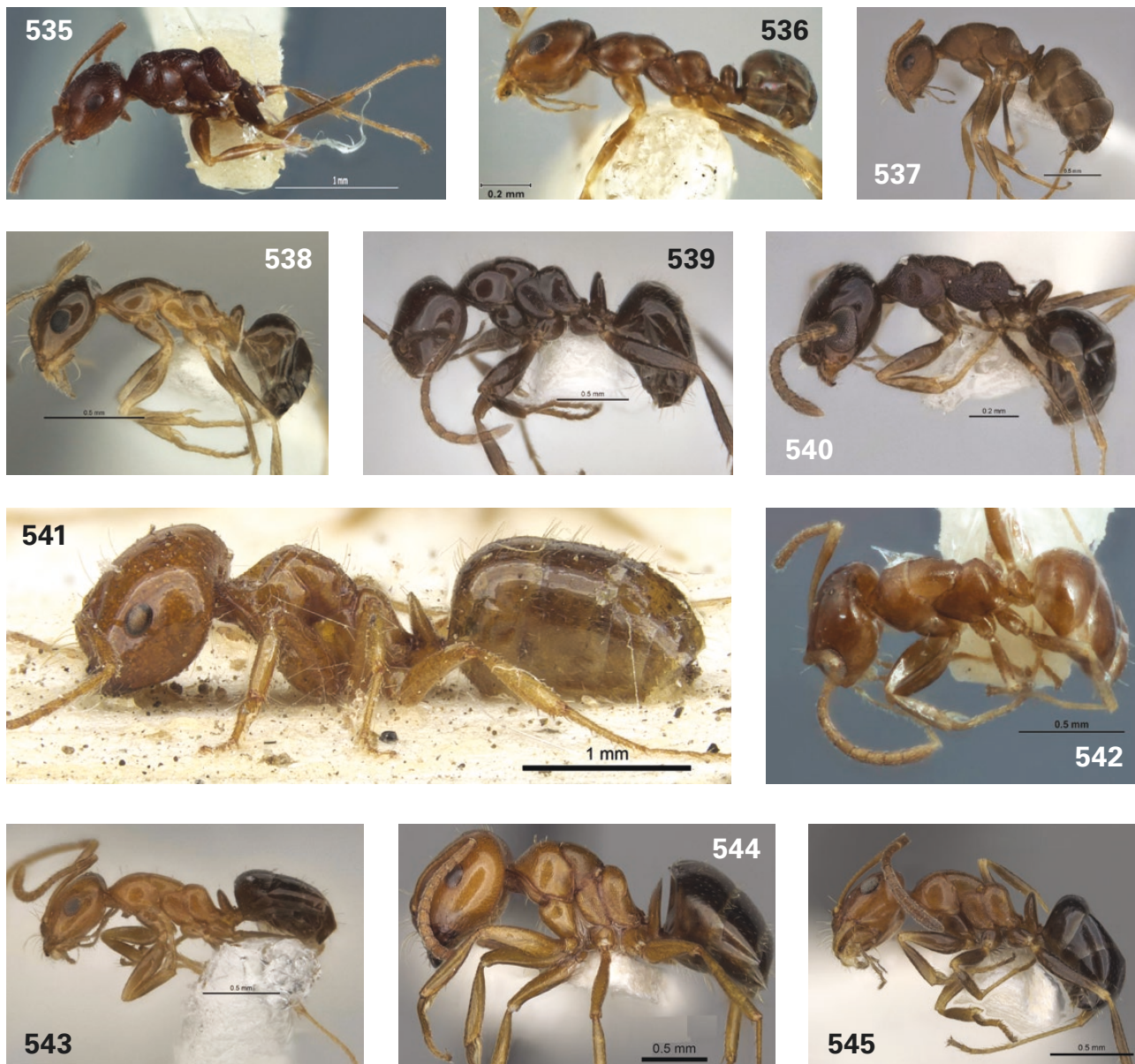
Minor worker lacking erect setae on first gastral tergite; mesosoma also glabrous in minor worker; seen in profile, pronotum and mesonotum of minor worker tending to bimodal and rounded; mesosoma of major

worker compact and rounded (similar to *M. ladius*); propodeum truncate (in which case it is below level of mesonotum) or rounded, the dorsal face much shorter than the declivous face (Figures 544–545)

..... *marius* Forel

[major: <https://www.antweb.org/specimenImages.do?name=casent0280488>]

[minor: <https://www.antweb.org/specimenImages.do?name=casent0280489>]



FIGURES 535–545

535) *Melophorus propebiroi* paratype (ANIC32-900112); 536) *Melophorus argus* holotype (ANIC32-066597-1); 537) *Melophorus latinotus* holotype (JDM32-002004); 538) *Melophorus gracilis* holotype (ANIC32-900209-1); 539) *Melophorus dicyrtos* holotype (ANIC32-900177-1); 540) *Melophorus microreticulatus* holotype (ANIC32-900172); 541) *Melophorus ladius* syntype (CASENT0903266); 542) *Melophorus minimus* holotype (ANTWEB1008988); 543) *Melophorus biroi* holotype ('*M. castanopus*') (ANIC32-900113-1); 544) *Melophorus marius* major (CASENT0280488); 545) *Melophorus marius* minor (CASENT0280489).

51. Seen in full-face view, head capsules of major, media and minor worker square; seen in profile, eyes placed anterior of midline of head capsule; anterior margin of clypeus distinctly sinuate, projecting anteromedially as a bluntly triangular extension or flattened dimple in major and media worker; five-toothed mandible of all workers very narrow, parallel and coarsely striate throughout its length; maxillary palps in all workers short, barely attaining neck sclerite at their greatest extremity and often only reaching midpoint of venter of head capsule when head is moderately inclined (*M. brevignathus* complex) (Figure 546).....

.....*marmar* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900054-1>]

Seen in full-face view, head capsule of major, media and minor workers differing in various respects from the above, which may include shape of head and conformation of clypeus and mandibles; seen in profile, eyes generally placed around midline of head capsule; if mandibles narrow, then elbowed, massive and directed posteriad in large major worker and often finely striate in minor and media worker; maxillary palps usually longer, reaching at least the neck sclerite when head is moderately inclined 52

52. Minor and major worker with five mandibular teeth; major worker with similar mandible to minor worker, not massive, elbowed and directed posteriad; seen in profile, maxillary palps long, at least in minor worker, attaining mesopleuron when head of ant moderately inclined; seen in full-face view, anterior margin of clypeus in all workers usually weakly and evenly convex, commonly with anteromedial dimple or weak protuberance (*M. fieldi* complex) 53

Minor worker often with more than five teeth (up to 15), largest major worker with short, massive, elbowed mandible directed posteriad; seen in profile, maxillary palps shorter in major and generally in minor workers, in minor worker, when head of ant moderately inclined, only attaining neck sclerite at their maximum extent in most species; seen in full-face view, anterior margin of clypeus in large major worker usually planar or weakly concave, other subcastes variable but planar or narrowly protuberant anterior clypeal margins predominate (*M. wheeleri* complex)..... 77

53. Worker thorax with metanotum apparently developed and confluent with mesonotum,

often extending over the propodeum; metanotal suture obsolete, its position indicated only by a superficial, transverse furrow (more pronounced in major worker); propodeum reduced in size and wedge-shaped, with narrow end of wedge often under fold of metanotum; metathoracic spiracle lateral and situated within metanotal sector (Figure 547)

.....*paramorphomenus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=jdm32-004561-1>]

Worker thorax of normal appearance, with metathoracic spiracle situated on or near dorsum of mesosoma..... 54

54. Major, media and minor worker uniformly microreticulate, in profile, petiolar node of minor and media thick and tuberculate in shape, that of major worker squamiform; tibial apical spur absent; mesosoma of minor and media workers matt, glabrous, that of major worker with ~12 short, bristly, erect setae (minor and media workers orange, major worker orange with brown gaster) (Figure 548)..... *fulvidus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900119-1>]

Appearance not as above: specifically, if orange with thick petiolar node, then appearance not uniformly microreticulate, and erect setae, most commonly flexuous, present on mesosoma of all workers; tibial apical spur present..... 55

55. At least lower metafemur (shown here) and all of metatibia with whorls of erect setae directed at 45–90° to surface 56

Metafemur and metatibia without whorls of erect setae directed at 45–90° to surface of extremity, pilosity usually restricted to appressed or subdecumbent setae (where erect setae present, these confined to two or three lines of setae, more commonly several individual setae) 60

56. Tibiae and antennal scape matt, strongly microreticulate; erect setae on metatibia shorter, stout, length of longest setae < greatest width of tibia; appressed metatibial setae thickly distributed and often forming a distinct pubescence, metatibia matt; gaster of minor worker strongly pubescent (Figure 549)..... *microtriches* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900121-1>]

Tibiae and antennal scape moderately to strongly shining and smooth or with superficial microreticulation; erect setae on metatibia longer, fine, length of longest setae \geq greatest width of tibia; appressed metatibial setae not conspicuous, metatibia shining; gaster of minor worker usually without long, overlapping appressed setae that form pubescence 57

57. Mesopleuron smooth and shining in minor and media worker at least, ant very glossy; HW of small minor $0.65 \text{ mm} \leq$ 58

Mesopleuron with at least superficial sculpturing in all workers, ant often shining, but not glossy overall; HW of small minor usually $> 0.65 \text{ mm}$ 59

58. Ant gracile, with outline of mesosternum parallel to outline of mesonotum; seen in profile, outline of clypeus distinctly protuberant; seen in profile, petiolar node lower ($\sim 1.2 \times$ as high as wide) (major worker unknown) (Figure 550)
..... *vitreus* ('pillipes') Heterick et al.

[https://www.antwiki.org/wiki/Melophorus_vitreus]

Ant compact, with outline of mesosternum strongly anteriorly convergent to outline of mesonotum; seen in profile, outline of clypeus weakly convex; seen in profile, petiolar node higher ($\sim 1.4 \times$ as high as wide) (this form mainly Eastern Australian) (Figure 551) *turneri* ('pillipes') Forel

[<https://www.antweb.org/specimenImages.do?name=antweb1038577>]

59. Anteromedial dimple prominent and protruding as a V-shaped lip; gaster and usually pronotum (at least) with overlapping long, appressed setae that form a silvery thatch in between long, curved, erect setae (see Figure 522)
..... *lanuginosus* (part) ('pillipes') Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900145-1>]

Anteromedial dimple weakly developed or vestigial and not protruding as a V-shaped lip; appressed setae between long, curved, erect setae shorter and not forming a silvery thatch (widespread) (Figure 552)
..... *hirsutipes* (part) ('pillipes') Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900147-1>]

60. With combination of: (1) eye relatively large (eye length $0.50 \times$ length of side of head in minor worker, approximately $0.33 \times$ length of side of head in major worker \geq); (2) in full-face view, periphery of upper frons surrounded to about the level of the eyes with short, bristly, erect setae that are often flattened distally; (3) minor worker small (HW $\sim 0.56\text{--}0.59 \text{ mm}$); (4) non-iridescent head of major worker relatively smooth and gleaming; and (5) clypeal psammophore of fine setae placed at or about midpoint of clypeus 61

Without this combination of characters: specifically, if with relatively large eye and modified setae on the periphery of the frons, then minor worker larger (HW $> 0.73 \text{ mm}$) and major worker head with fine microreticulation and pitting or iridescent; in other cases setae on frons long and unmodified, and may be lacking entirely 62

61. Minor worker concolorous blackish-brown, finely shagreenate with a dull silky sheen; seen in profile, pronotum rises gradually to its junction with mesonotum without any obvious convexity, while mesonotum is slightly humped; mesosoma with a few to many short, straight, bristly setae, these often expanded distally, length of longest setae \leq greatest length of antennal scape; appressed setae short, inconspicuous; major worker and media worker concolorous brown (orange-yellow with brown gaster in holotype), with scattered short, sometimes modified setae; appressed setae on gaster well-separated and do not overlap (Figure 553) *fieldi* Forel

[<https://www.antweb.org/specimenImages.do?name=antweb1038566>]

Minor worker variable shades of brown or dark reddish-brown but not blackish-brown with dull, silky sheen; seen in profile, pronotum smoothly convex, mesonotum completes the curve without a median hump; erect setae on mesosoma often numerous and flexuous, length of longer setae \geq greatest width of antennal scape (in relatively glabrous minor workers, appressed setae on mesosoma long and conspicuously pale); major worker similar to the above, but short, sometimes modified setae are far more numerous and give a shaggy appearance to most major workers; appressed setae on gaster longer and overlap (Figure 554)
..... *bruneus* McAreavey (part)

[<https://www.antweb.org/specimenImages.do?name=anic32-053441-1>]



FIGURES 546–560

546) *Melophorus marmor* holotype (ANIC32-900054-1); 547) *Melophorus paramorphomenus* holotype (ANIC32-004561-1); 548) *Melophorus fulvidus* holotype (ANIC32-900119-1); 549) *Melophorus microtriches* holotype (ANIC32-900121-1); 550) *Melophorus vitreus* holotype ('pillipes' phenotype) (JDM32-004585); 551) *Melophorus turneri* syntype ('pillipes') (ANTWEB1038577); 552) *Melophorus hirsutipes* holotype ('pillipes' phenotype) (ANIC32-900147-1); 553) *Melophorus fieldi* holotype (ANTWEB1038566); 554) *Melophorus bruneus* holotype (ANIC32-053441-1); 555) *Melophorus solitudinis* paratype (ANIC32-066647); 556) *Melophorus setosus* holotype (ANIC32-066657-1); 557) *Melophorus sulla* syntype ('*M. ludius sulla*') (CASENT0905127); 558) *Melophorus perthensis* syntype ('*M. turneri perthensis*') (ANTWEB1038575); 559) *Melophorus orthonotus* paratype (JDM32-004589); 560) *Melophorus isaiah* holotype (ANIC32-900184-1).

62. Body of major and minor worker clothed with modified, erect setae (distally thickened, clavate or spatulate) to various degrees in addition to unmodified setae..... 63
True modified, erect setae absent from body of major and minor worker (although some erect setae may be thick and short)..... 64
63. Seen in full-face view, sculpture of major and minor worker head matt with microreticulate sculpture; appressed setae on appendages sparse, thick and mostly separated from each other by more than their own length (Figure 555)
.....*solitudinis* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-066647>]
Seen in full-face view, sculpture of major and minor worker head pitted and weakly gleaming with superficial microreticulation; appressed setae on appendages abundant and fine, individual setae strongly overlapping (Figure 556).....
.....*setosus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-066657-1>]
64. Pale yellow, depigmented ants; seen in full-face view often with clypeus, genae and mandibles paler than frons; mesosoma very often glabrous (Figure 557)
.....*sulla* Forel (*sensu stricto*)
[<https://www.antweb.org/specimenImages.do?name=casent0905127>]
Ants darker or bicoloured, often with some erect pilosity on mesosoma..... 65
65. Seen in profile, pronotum smoothly rounded and mesonotum elongate and broadly convex and strongly developed in all workers, so that pronotum and mesonotum combine to form a near semi-circle; minor worker with truncate propodeum with a protuberant dorsum that usually rises above metanotal groove; colour of minor worker uniformly brown or brown with slightly darker gaster, major worker brown or orange-brown with dark brown gaster (Figure 558)*perthensis* Wheeler
[<https://www.antweb.org/specimenImages.do?name=antweb1038575>]
Seen in profile, mesonotal outline not as above, if mesonotum strongly convex then pronotum with flattened dorsum and/or mesonotum not elongate; propodeal dorsum of minor worker usually planar or weakly convex though may be high; colour variable, but often with gaster much darker than head and mesosoma in minor worker 66
66. Seen in profile, major and media worker with smooth, elongate propodeum, propodeal angle indicated by only a faint curve; metanotal groove a weak impression so that mesonotal and propodeal outline is barely interrupted; mesonotum and mesopleuron not separated by impression or suture; mesosternal outline strongly convergent anteriorly with outline of mesonotum (media and major workers only known; bicoloured orange-and-dark-brown ants) (Figure 559)
.....*orthonotus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=jdm32-004589>]
Seen in profile, propodeum of major and minor worker not elongate as above, and usually with at least a rounded propodeal angle; metanotal groove distinct and mesonotum and propodeum not nearly confluent as above; mesonotum and mesopleuron indicated by distinct impression if not a suture; mesosternal outline usually more-or-less parallel with outline of mesonotum67
67. Seen in full-face view, eye of all workers placed very high on capsule, and slightly above imaginary horizontal line separating head capsule (excluding mandibles) into equal upper and lower sectors; workers reddish-brown with pale tibiae and distal femur (Figure 560)*isaiah* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900184-1>]
Seen in full-face view, eye placed lower on head capsule, at least its bottom eighth intersected by an imaginary horizontal line separating head capsule (excluding mandibles) into equal upper and lower sectors 68
68. Seen in profile, clypeal psammophore in minor worker placed just behind anterior clypeal margin in the minor worker and well below midpoint of clypeus in major worker; eye in most specimens large (eye length 0.20 to 0.25 × length of side of head in major worker, 0.33–0.50 × length of side of head in minor worker); propodeum in major worker narrow with an oblique dorsal face; shining brown with gaster slightly darker (Figure 561)*major* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0909812>]

Seen in profile, clypeal psammophore placed just below midpoint to above midpoint of clypeus; eye variable but often smaller 69

- 69. Appressed setae on the gaster in all workers very small and inconspicuous when gaster is moderately distended, separated from one another by at least their own length, these appressed setae also inconspicuous on mesosoma and never long and silvery; mesosoma glabrous in minor worker or with one or a few flexuous, erect setae; node of minor worker often squamiform; most commonly cuticle shining or even glossy with vestigial or weak shagreenation..... 70

Appressed setae on gaster of all workers longer and overlapping when gaster is moderately distended, and may form a silvery thatch, appressed setae on mesosoma also overlapping and may be long and cross-linked forming a silvery thatch; mesosoma most frequently with numerous setae, if these sparse then often shorter and stout; node of minor worker characteristically not squamiform, and may be bent distally; most commonly cuticle distinctly shagreenate with weak to moderate sheen..... 73

- 70. Minor worker very small (HW < 0.55 mm); frons of head capsule smooth and shining; eye large (eye length approximately 0.40 × length of side of head capsule); mesopleuron with distinct, wrinkled or scalloped sculpture that may extend to the mesonotum; propodeum a rounded cube; major worker also very small (HW ≤ 0.73 mm) with large eye (eye length approximately 0.38 × length of side of head capsule); mesopleural sculpture as for minor worker (Figure 562) *eumorphus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900173>]

Ant larger (minor worker HW ≥ 0.57 mm; known major workers HW > 1.50 mm); if minor worker smooth and shining and generally similar (smallest minor workers of *M. vitreus*) then mesopleuron smooth and unsculptured or with very superficial microreticulate pattern 71

- 71. Seen in profile, minor worker gracile, with short, thick petiolar node terminating in a smoothly rounded vertex; clypeus rounded and somewhat protuberant (see Figure 74); eye very large (eye length ≥ 0.50 × length of side of head); cuticle extremely glossy, with

mesopleuron completely smooth or with very superficial microreticulate pattern (see Figure 550) *vitreus* Heterick et al. (*sensu stricto*)

[https://www.antwiki.org/wiki/Melophorus_vitreus]

Seen in profile, minor worker less gracile with generally squamiform node that is often inclined at its vertex; clypeus weakly protuberant and usually with distinct dimple at its midpoint; eye moderate to large (eye length 0.20–0.49 × length of side of head); cuticle less glossy tending to matt in some populations, with mesopleuron weakly shagreenate or microreticulate 72

- 72. Metafemur of minor worker shorter and stouter (0.75 × length of mesosoma ≤); seen in profile, propodeum generally with a weak to strong angle between dorsal and declivous surfaces; major worker difficult to distinguish from that of *M. longipes*, but mesonotum generally moderately convex in profile and metafemur uniformly pale brown ochre to yellowish; tibia same colour as femur (variation across populations and molecular data suggest the possible presence of one or more cryptic species, but these cannot be defined morphologically) (Figure 563) *turneri* Forel (*sensu stricto*)

[<https://www.antweb.org/specimenImages.do?name=casent0909823>]

Metafemur of minor worker longer and attenuated towards its junction with tibia (≥ 0.90 × length of mesosoma); seen in profile, dorsum of propodeum smoothly curved on to its declivous face; mesonotum of major worker flat to weakly convex and metafemur increasingly depigmented towards its articulation with the tibia, and the tibia depigmented yellowish-white (Figure 565) *longipes* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=antweb1041111>]

- 73. Mesosoma glabrous; seen in full-face view, head strongly microreticulate, matt; eye relatively large (EI ~41), appressed setae on gaster elongate and pale *bruneus* McAreavey (minor workers of some populations)

Mesosoma nearly always with some erect setae (usually abundant), where lacking (a few minor workers of *M. inconspicuus*) eye smaller (EI ≤ 37) and, in full-face view, head always with some sheen 74

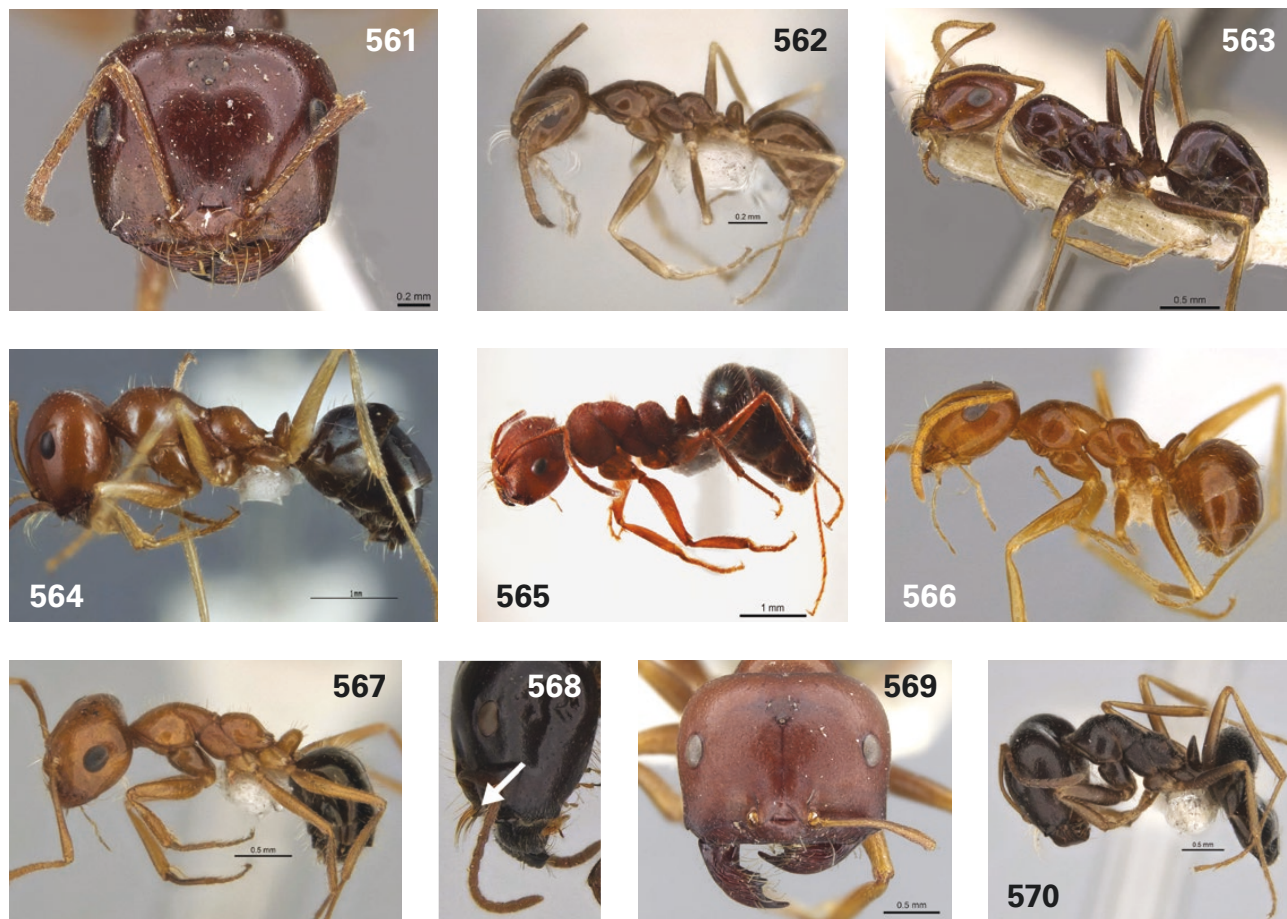
74. Mesosoma with erect setae long, flexuous and curved (pronotal setae and those on anterior mesosoma curved posteriad, setae on posterior mesonotum curved anteriad, those on propodeum also curved in both directions); appressed setae on mesonotum and gaster rather long but not combining to form a silvery pubescence; seen in profile, anterior two-thirds of clypeus often straight or slightly concave, forming an oblique surface, the anteromedial clypeal dimple weak or vestigial; seen in profile, petiolar node in minor worker thick, to about 0.7 × as wide as high, and its dorsum may be noticeably directed posteriad (but legs glabrous) (see Figure 552) *hirsutipes* Heterick et al. (part)

[<https://www.antweb.org/specimenImages.do?name=anic32-900147-1>]

Erect mesosomal setae (where present) not long and flexuous, though they may be curved, however, these setae are frequently stout and bristly; appressed setae on mesonotum and gaster may be long and silvery in appearance forming a thick, thatch-like pubescence; seen in profile, clypeus evenly convex or weakly concave in its anterior third, but not as above; petiolar node thinner, much less than 0.7 × as wide as high and either straight or weakly bent posteriad..... 75

75. In dorsal view, pronotum globose; mesosoma areolate-rugose; appressed setae on gaster sparse; reddish-brown with darker gaster (Figure 565)..... *hirsutipes* Heterick et al. (part) ('hispidus' most morphs)

[<https://www.antweb.org/specimenImages.do?name=antweb1008664>]



FIGURES 561–570 561) *Melophorus major* syntype ('*M. fieldi major*') (CASENT0909812); 562) *Melophorus eumorphus* holotype (ANIC32-900173); 563) *Melophorus turneri* syntype (*M. turneri* [*sensu stricto*]) (CASENT0909823); 564) *Melophorus longipes* paratype (ANTWEB1041111); 565) *Melophorus hirsutipes* ('*hispidus*' phenotype) (ANTWEB1008664); 566) *Melophorus inconspicuus* holotype (ANIC32-006700-1); 567) *Melophorus caeruleoviolaceus* holotype (ANIC32-900183); 568) *Melophorus prominens* paratype (ANIC32-900142-2); 569) *Melophorus wheeleri* syntype (CASENT0903262); 570) *Melophorus parvimolaris* paratype (ANIC32-900134).

In dorsal view, pronotum not globose; Sculpture of mesosoma less pronounced, strongly to weakly shagreenate; appressed setae on gaster moderately plentiful to abundant; colour uniformly light brown to blackish76

76. Appressed setae on mesosoma and gaster long, forming a coarse, silvery pubescence; erect setae on mesosoma longer (longer setae > diameter of eye); cuticle with strong shagreenate sculpture, matt or with weak sheen; petiolar node in minor worker thicker, to about 0.6 × as wide as high, also not a true scale in major worker; 'pillipes' condition present in some populations (see above) (see Figure 522, but legs glabrous).....
..... *lanuginosus* Heterick et al. (part)

[<https://www.antweb.org/specimenImages.do?name=anic32-900145-1>]

Appressed setae on mesosoma and gaster shorter, silvery pubescence limited to small areas of the pronotum or entirely absent; erect setae on mesosoma generally fewer and more bristly in appearance (often < diameter of eye) and entire mesosoma may be glabrous; cuticle generally with weak shagreenate sculpture, except for mesopleuron, and head and mesosoma commonly moderately shining; petiolar node in minor worker essentially squamiform, that of major worker a true scale; 'pillipes' condition always absent (Figure 566)..... *inconspicuus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-006700-1>]

77. Mandibular margin with very many teeth, up to 15, in all sub-castes (black or blackish-red Kimberley species).....
..... *Melophorus* 'Group K' (TERC)

Mandibular margin with nine or fewer teeth; a maximum of five in the major worker..... 78

78. Strongly bicoloured, relatively smooth species with black, brown or variegated brown head, orange mesosoma and black gaster; gaster and often head (in darker morphs) with distinct bluish to violet iridescence; frontal carinae divergent posteriad; seen in full-face view, modified setae on frons expanded mainly at their tip (Figure 567).....
..... *caeruleoviolaceus* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900183>]

Not strongly bicoloured and iridescent as above; setae not modified 79

79. Anterior margin of clypeus in major and media workers a prominent rim that is produced anteromedially as a broadly angulate projection, this projection directed anteriorly at angle of about 90° to head capsule when seen in profile; mandible of major worker usually with three distinct teeth (fourth tooth reduced to an angle in most cases); mandible of minor workers minutely striate with six or more teeth on masticatory margin (Figure 568).....
..... *prominens* Heterick et al.

[<https://www.antweb.org/specimenImages.do?name=anic32-900142-2>]

If mandible of minor worker minutely striate with six or more teeth on masticatory margin, then major and media workers without above clypeal configuration (in similar species, anteromedial clypeal projection is directed ventrally); major worker with four or five teeth..... 80

80. Colour pale, depigmented yellow; colour of frons in full-face view often two-tone, colour lighter on lower genae (minor and media workers indistinguishable from *M. sulla* [*sensu stricto*]) cf. *sulla*

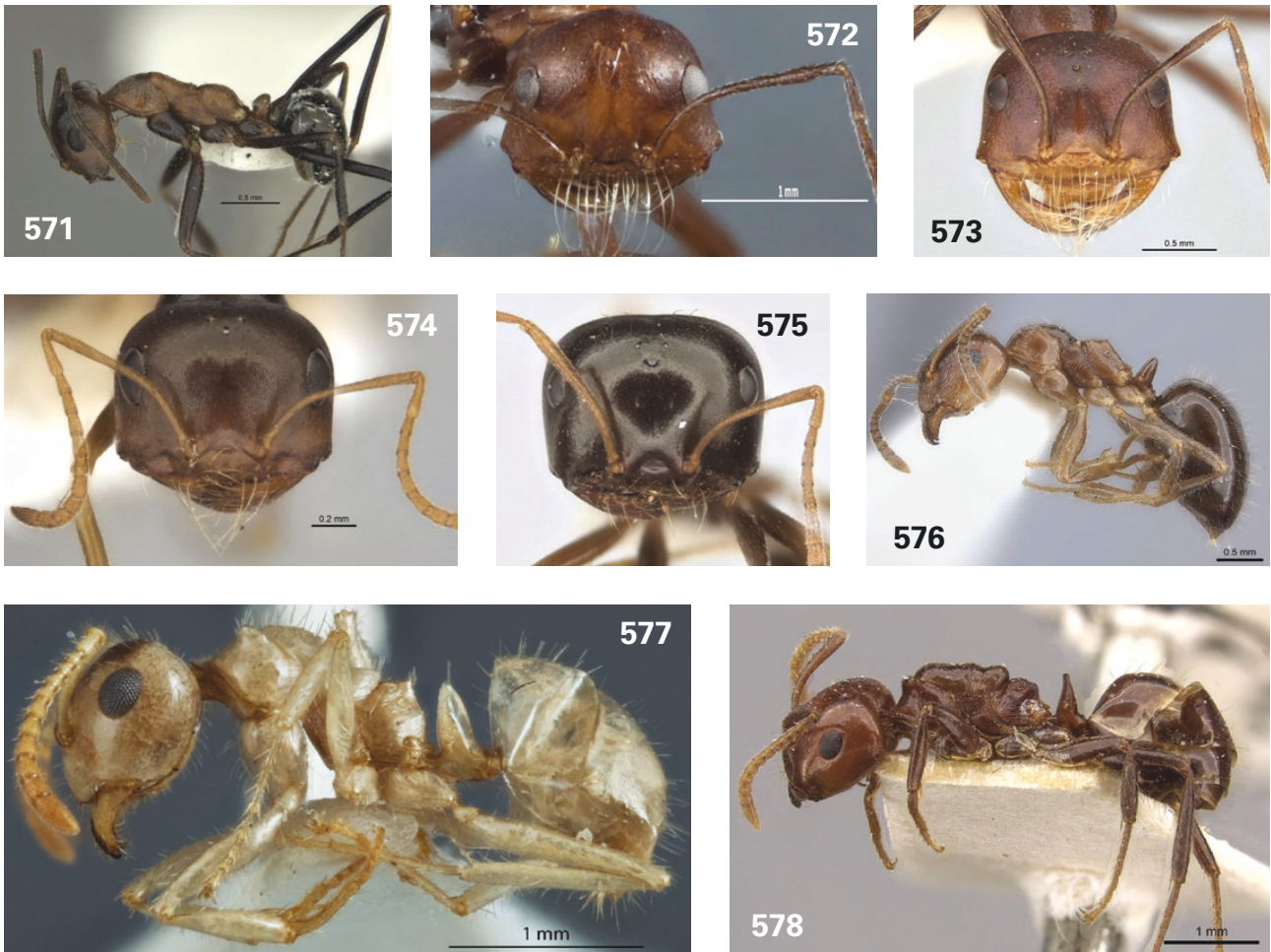
Colour not pale, depigmented yellow81

81. Anterior sector of the clypeus of minor worker strongly folded back towards the mandible, and clypeal psammophore placed on a distinct ledge that may be carinate, minor worker mandible with 5–9 teeth and denticles; head, mesosoma and gaster of all workers with short, inconspicuous appressed setae that are usually separated by more than their own length on the gaster (if more elongate, as in some small minor workers, then ant is glossy and weakly sculptured); media and major workers larger (HW of large major worker ≥ 2.60 mm) (Figure 569)
..... *wheeleri* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0903262>]

If clypeus distinctly folded back towards the mandible and clypeal psammophore placed on a ledge in minor worker, then head, mesosoma and gaster with relatively long, whitish, appressed setae that overlap and form a weak pubescence on the gaster and ant has distinct microreticulate or shagreenate sculpture and is matt or has a weak sheen (in such cases, minor worker

- with five mandibular teeth and HW of known major worker smaller than above [HW ~1.45 mm]) 82
82. Clypeus distinctly folded back towards mandible and clypeal psammophore placed on a ledge in minor worker (carina may be present or absent in a given individual—if absent, check for long, appressed setae); head, mesosoma and gaster with relatively long, whitish, appressed setae that overlap and form a weak pubescence on the gaster in minor and known major workers; cuticle conspicuously shagreenate or microreticulate and matt or with a weak sheen 83
- Clypeus variable in appearance (flattened or weakly protuberant or depressed anteriorly) but not distinctly folded back as above; head, mesosoma and gaster with short, inconspicuous appressed setae that are usually separated by more than their own length on the gaster (if more elongate, as in some small minor workers, then ant is glossy and weakly sculptured) 84
83. Ant uniformly brown; minor worker smaller (HW ~0.70 mm) (Figure 570)
..... *parvimolaris* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900134>]
- Ant bicoloured, with tawny orange head, antennae and mesosoma, and black gaster and legs (legs have a bluish iridescent sheen); minor worker larger (HW ~0.90 mm) (major worker unknown) (Figure 571)
..... *xouthos* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900211>]
84. Seen in full-face view, broad head capsule of minor worker expanded towards mandibular insertions giving it a slight to strongly accentuated trapezoidal shape; basal margin of known major worker mandible a carinate ledge set at 90° to the rest of the mandible throughout its length, the (slightly) offset basal tooth horizontal and the sub-basal tooth with a horizontal and a vertical plane; mandibular carina present to varying degrees in media and minor workers; workers with glabrous mesosoma 85
- Seen in full-face view, sides of head capsule of minor worker convex, straight or even slightly concave, head square; apical margin of major worker mandible not completely carinate throughout its length; carina absent or reduced to a blunt edge in mandible of minor worker; erect setae present on mesosoma of nearly all *M. purpureus* workers (a few minor workers glabrous) and some *M. chauliodon* major workers 86
85. Seen in full-face view, genae of minor and media worker strongly divergent towards anterior angles of head capsule, the latter noticeably trapezoidal, an imaginary perpendicular line drawn from the base of the eye excluding a section of the anterior clypeal margin whose width is greater than the width of the eye seen from in front; masticatory margin of mandible strongly oblique; head brown above lighter below, upper frons distinctly darker than mesosoma (large major worker not seen) (Figure 572) *pelorocephalus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=jdm32-004852-1>]
- Seen in full-face view, genae of minor worker weakly divergent towards anterior angles of head capsule, the latter basically square, an imaginary line drawn from the base of the eye excluding a section of the anterior clypeal margin whose width is about that of the eye seen from in front; masticatory margin of mandible weakly oblique; head and mesosoma of the same shade (i.e. tan to orange-tan) (Figure 573) *laticeps* Wheeler
[<https://www.antweb.org/specimenImages.do?name=anic32-900187>]
86. Eye of minor worker an elongated ellipse, length of eye $\geq 0.3 \times$ length of side of head; at least minor and media workers glabrous; major and media workers with basal mandibular tooth strongly offset to varying degrees, often tusk-like (Figure 574)
..... *chauliodon* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=anic32-900189-1>]
- Eye of minor worker spheroidal, length of eye $\leq 0.25 \times$ length of side of head; minor and media workers often with two or more bristly erect setae, especially on pronotum; offset basal tooth of major and media workers not prominent and never tusk-like (Figure 575)
..... *purpureus* Heterick et al.
[<https://www.antweb.org/specimenImages.do?name=jdm32-001885-1>]
- Myrmecorhynchus*
One species (*Myrmecorhynchus emeryi* André 1896) (see Figure 65).
[<https://www.antweb.org/specimenImages.do?name=casent0913670>]



FIGURES 571–578 571) *Melophorus xouthos* holotype (ANIC32-900211); 572) *Melophorus pelorocephalus* paratype (JDM32-004852-1); 573) *Melophorus laticeps* (ANIC32-900187); 574) *Melophorus chauliodon* holotype (ANIC32-900189-1); 575) *Melophorus purpureus* holotype (JDM32-001885-1); 576) *Notoncus hickmani* (CASENT0217731); 577) *Notoncus* sp. JDM 487 (JDM32-002051); 578) *Notoncus gilberti* syntype (CASENT0909837).

Notoncus

1. Scutellum absent or at least not differentiated and not forming any prominent process dorsad apart from a low ridge in some individuals; humeri rounded, not projecting (Figure 576) *hickmani* Clark
 [https://www.antweb.org/specimenImages.do?name=casent0217731]
 Scutellum enlarged and projecting dorsally as a rounded or oval process from between the mesonotum and propodeum; pronotal humeri strongly developed and angular 2
2. Depigmented yellow species with frons of head darker; seen in dorsal view, dorsal face of propodeum narrow with pair of small denticles at propodeal angles (Figure 577)
*Notoncus* sp. JDM 487
 [https://www.antweb.org/specimenImages.do?name=jdm32-002051]

3. Brown or reddish-brown species; seen in dorsal view, dorsal face of propodeum broad, propodeal angles present or absent, but denticles usually absent..... 3
3. Propodeum completely smooth and shining or, at most, very finely and superficially sculptured; first gastral tergite with sparse punctation and appressed pubescence; mandibles very finely striate over most of dorsal surface (Figure 578)*gilberti* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0909837]
 Propodeum distinctly coarsely striate over much of its surface; propodeum subopaque; first gastral tergite generally densely punctate (may be reduced in some cases) and with dense appressed pubescence; mandibles largely smooth and shining with coarse hair pits 4

4. Smaller species, maximum HW < 1.6 mm; appressed pubescence present on body, almost as thick on propodeum as on gaster, density gradually diluted anteriorly; head and mesosoma relatively finely sculptured, width of individual cephalic striae < diameter of an eye facet; propodeum rounded (Figure 579).....*capitatus* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0909832>]

Larger species, maximum HW > 1.9 mm; appressed pubescence almost entirely restricted to gaster; head and mesosoma much more coarsely sculptured, width of individual cephalic striae clearly > an eye facet; propodeum angular (Figure 580) *enormis* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0280564>]

Nylanderia

1. Small-eyed yellow species 2

Darker brown or blackish species with moderate-sized eyes 3

2. Eye very minute, ≤ 10 facets
..... *Nylanderia* sp. JDM 1163

Eye larger, > 10 facets (Figure 581)
..... *Nylanderia* sp. JDM 1123

[<https://www.antweb.org/specimenImages.do?name=antweb1041165>]

3. Seen in profile, pronotum with fine appressed pubescence; seen in full-face view, patches of appressed pubescence visible on the frons (Figure 582)cf. *obscura* (Mayr)

[<https://www.antweb.org/specimenImages.do?name=casent0915721>]

Seen in profile, appressed pubescence completely lacking on pronotum; seen in full-face view, appressed setae on frons well separated and not forming pubescence 4

4. On close observation, erect setae on antennal scape noticeably of differing lengths, smaller appressed setae raised and orientated at angle to scape; erect setae on mesosoma numerous and also revealing various gradations of length; mesopleuron usually with scattered appressed setae (may be difficult to see) (Figure 583).....*rosae* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0911022>]

On close observation, erect setae on scape all of the same length, smaller appressed setae often flat, if raised at the base then orientated parallel to the scape; erect setae on mesosoma sparser, mainly separated into two size classes with long, erect setae and short, erect setae; mesopleuron always glabrous (Figure 584).....*glabrior* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0903128>]

Oecophylla

One species (*Oecophylla smaragdina* Fabricius 1775) (see Figure 53).

[<https://www.antweb.org/specimenImages.do?name=casent0070232>]

Opisthopsis

1. Head largely black or dark brown 2

Head entirely yellowish or orange or with only the vertex and occiput black 3

2. Mesosoma entirely brown, gaster blackish-brown, head brown, darkening anteriorly (Figure 585).....*Opisthopsis* sp. JDM 1162

[<https://www.antweb.org/specimenImages.do?name=antweb1041154>]

Mesosoma and first two gastral tergites entirely orange, remaining gastral tergites and head black (Figure 586)
.....*rufithorax* Emery

[<https://www.antweb.org/specimenImages.do?name=casent0281146>]

3. Upper vertex and occiput black (Figure 587)
.....*diademata* Wheeler

[<https://www.antweb.org/specimenImages.do?name=casent0281139>]

Entire head yellowish or orange 4

4. Gaster entirely black (Figure 588)
.....*haddoni rufonigra* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0909942>]

First two tergite of gaster yellow, remaining gastral tergites black (Figure 589).....
..... *haddoni* Emery

[<https://www.antweb.org/specimenImages.do?name=casent0905178>]



FIGURES 579–594

579) *Notoncus capitatus* syntype (CASENT0909832); 580) *Notoncus enormis* syntype (CASENT0280564); 581) *Nylanderia* sp. JDM 1123 (ANTWEB1041165); 582) *Nylanderia obscura* syntype ('*Prenolepis obscura*') (CASENT0915721); 583) *Nylanderia rosae* syntype ('*Prenolepis rosae*') (CASENT0911022); 584) *Nylanderia glabrior* syntype ('*Prenolepis braueri glabrior*') (CASENT0903128); 585) *Opisthopsis* sp. JDM 1162 (ANTWEB1041154); 586) *Opisthopsis rufithorax* (CASENT0281146); 587) *Opisthopsis diademata* (CASENT0281139); 588) *Opisthopsis haddoni rufoniger* syntype; (CASENT0909942); 589) *Opisthopsis haddoni* syntype (CASENT0905178); 590) *Paraparatrechina* sp. JDM 916 (Barrow Island, Western Australia); 591) *Paraparatrechina minutula* syntype (CASENT0911017); 592) *Paraparatrechina* sp. JDM 1250 (ANTWEB1041155); 593) *Plagiolepis clarki* syntype (MCZ-21395); 594) *Plagiolepis* sp. JDM 189 (JDM32-002113).

Paraparatrechina

1. Longitudinal pattern of paired erect setae on frons apparently consisting of 5 pairs of setae with a hiatus between the first pair of erect setae (on the vertex) and the second pair; on close inspection, small, appressed setae on frons stout, distinct and barely overlapping, not forming dilute pubescence (Figure 590) *Paraparatrechina* sp. JDM 916

[<https://www.padil.gov.au/barrow-island/pest/main/136732>]

Longitudinal pattern of paired erect setae on frons consisting of 6 to 7 pairs of regularly placed setae; on close inspection, small, appressed setae on frons fine, indistinct and overlapping, forming weak pubescence 2

2. Worker ochre to brownish (Figure 591) *minutula* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0911017>]

Worker bright lemon yellow (Figure 592) *Paraparatrechina* sp. JDM 1250

[<https://www.antweb.org/specimenImages.do?name=antweb1041155>]

Paratrechina

One species (*Paratrechina longicornis* [Latreille 1802]) (see Figure 62).

[<https://www.antweb.org/specimenImages.do?name=casent0104236>]

Plagiolepis

1. Eye smaller (EI < 0.20); generally yellowish species 2

Eye larger (EI ≥ 0.30); generally brown species 3

2. Smaller (HW < 0.45 mm); antennal scape does not attain vertex of head (Figure 593) *clarki* Wheeler

[https://www.antwiki.org/wiki/Plagiolepis_clarki]

Larger (HW ≥ 0.50 mm); antennal scape exceeds vertex of head by > 2 × its greatest width (Figure 594) *Plagiolepis* sp. JDM 189

[<https://www.antweb.org/specimenImages.do?name=jdm32-002113>]

3. Ant with extremely glossy appearance and lack of surface sculpture on the body apart from hair pits; colour dark castaneous brown (Figure 595) *lucidula* Wheeler

[<https://www.antweb.org/specimenImages.do?name=casent0217737>]

If ant relatively unsculptured and shining then colour light yellowish-brown 4

4. Smaller species (HW < 0.30 mm); seen in full-face view, antennal scape barely exceeds vertex of head; relatively smooth and shining; colour pale yellowish-brown (Figure 596) *Plagiolepis* sp. JDM 489

[<https://www.antweb.org/specimenImages.do?name=jdm32-002124>]

Larger species (HW > 0.45 mm); seen in full-face view, antennal scape longer, exceeding vertex of head by ~2 × its greatest width; matt with microreticulate sculpture; colour brown to blackish brown, mandibles bright yellow (Figure 597) *squamulosa* Wheeler

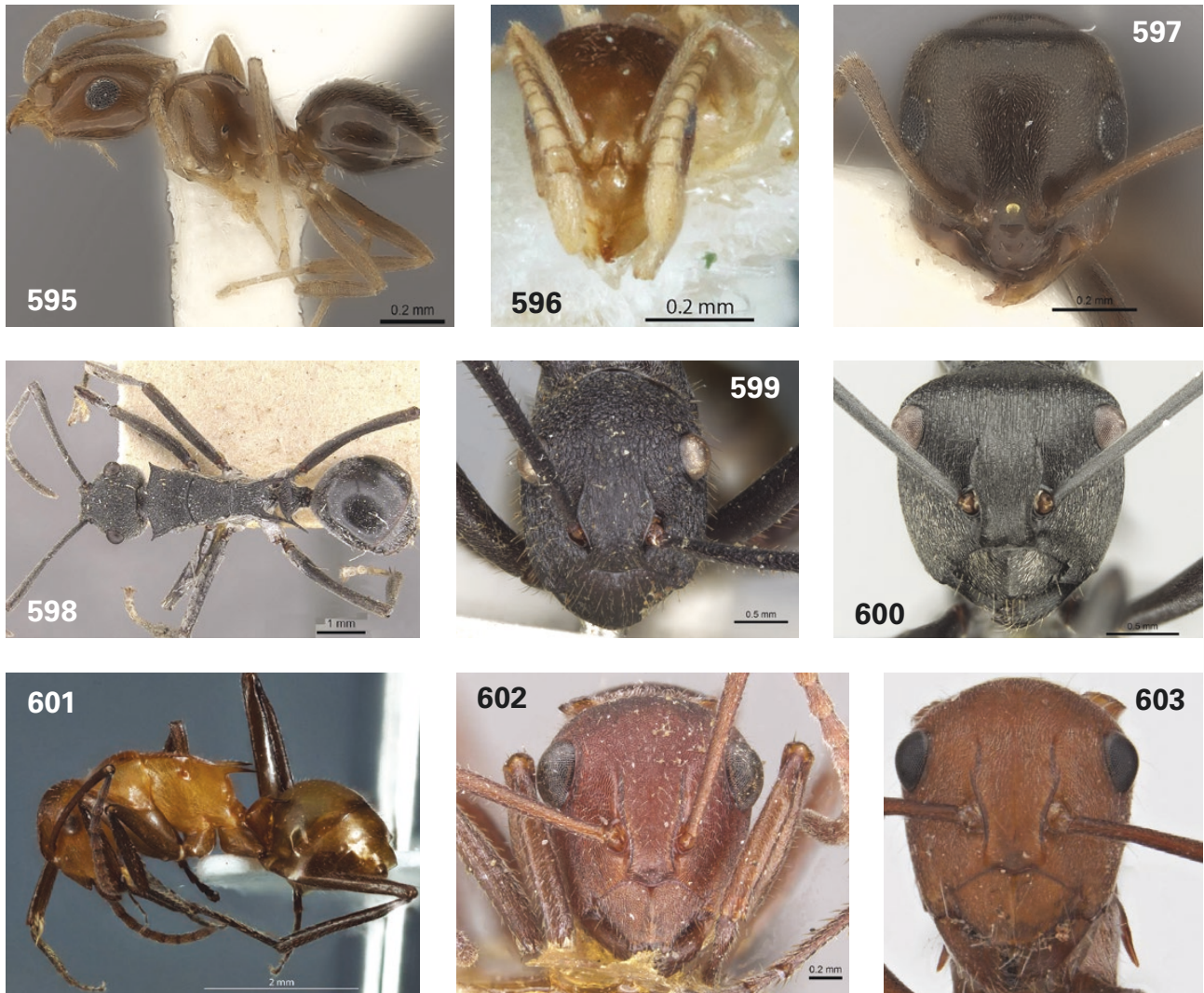
[<https://www.antweb.org/specimenImages.do?name=casent0217738>]

Polyrhachis

Mezger and Moreau (2016) question the monophyly of several sub-genera of *Polyrhachis*, two of which (*Campomyrma* and *Hagiomyrma*) have reference to Western Australia. While the problems with *Hagiomyrma* focus on one taxon, *P. anderseni* Kohout, the problems with *Campomyrma* are far more substantial and the authors suggest the Australian taxa are quite unrelated to Asian members of this subfamily and need to be reassigned to a new taxonomic grouping. The discussion below provisionally treats the subgenera in a conventional way, but places '*Campomyrma*' in apostrophes as an indicator of its debatable status. The selection of morphological characters at the subgeneric level is with a view to distinguishing WA species only, as formal published diagnoses on a universal scale (e.g. Dorow 1995) are no longer deemed adequate.

1. Seen in dorsal view, pronotum much shorter than mesonotum plus proximal sector of propodeum; seen in full-face view, frontal carinae conspicuously flared, sinuate, narrowly separated and convergent anteriorly; seen in dorsal view, promesonotal suture impressed and metanotal suture feebly indicated or lacking completely; short, stout spines present on pronotum, directed anteriorly; two curved spines present on either side of dorsum of petiolar node, these directed posteriorly or at angle to propodeum; appendages long relative to body (*Hedomyrma* subgenus, except *P. sokolova*) 2

If spines present on humeral angles and two curved spines present on dorsum of petiole, then pronotum nearly the same length or

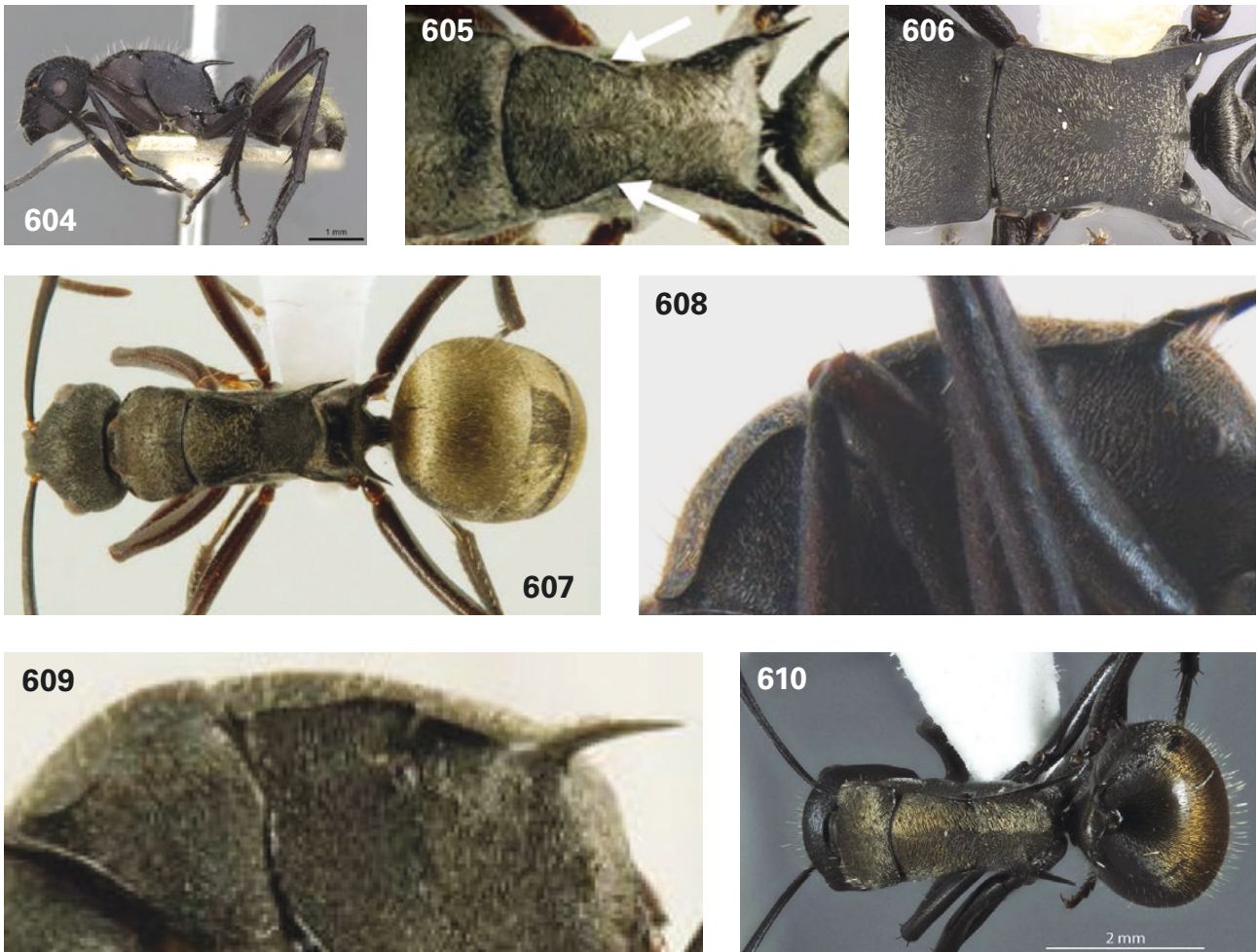


FIGURES 595–603 595) *Plagiolepis lucidula* (CASENT0217737); 596) *Plagiolepis* sp. JDM 489 (JDM32-002114); 597) *Plagiolepis squamulosa* (CASENT0217738); 598) *Polyrhachis sokolova* syntype (CASENT0910810); 599) *Polyrhachis consimilis* holotype (CASENT0903335); 600) *Polyrhachis terpsichore* (CASENT0906605); 601) *Polyrhachis* sp. JDM 1344 (ANTWEB1041173); 602) *Polyrhachis schenkii* syntype ('*schenkii*') (CASENT0910807); 603) *Polyrhachis bohemia* (ANTWEB1008702).

- even longer than mesonotum plus proximal sector of propodeum, and, in full-face view, frontal carinae broadly separated, and not noticeably flared; appendages short and compact (except in some *Hagiomyrma*) 4
- 2. Seen in dorsal view, pronotal humeri armed with broadly triangulate, sharp processes (*Chariomyrma*) (Figure 598)*sokolova* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910810>]
Seen in dorsal view, pronotal humeri armed with distinct spines 3
- 3. Sides of head and antennal scapes with many short, erect, bristly setae; seen in dorsal view, sculpture of mesosoma coarsely rugose-reticulate (Figure 599)
..... *consimilis* (F. Smith)
[<https://www.antweb.org/specimenImages.do?name=casent0903335>]
Sides of head and antennal scapes lacking erect setae; seen in dorsal view, sculpture of mesosoma finely striate (Figure 600)
.....*terpsichore* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0906605>]
- 4. Mesosomal dorsum carinate or otherwise with a distinct margin; pronotal humeri rounded (at least in WA species); propodeal

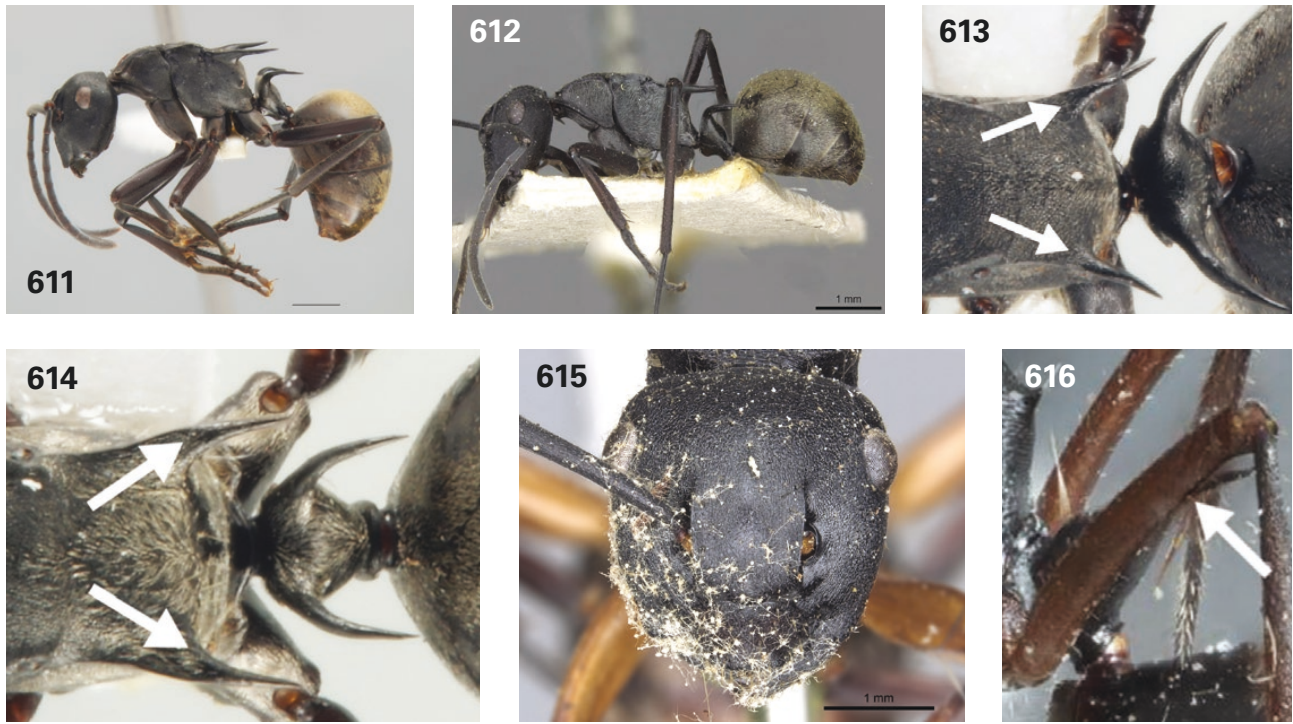
- spines directed posteriad; petiolar node with two well-separated spines arising from the dorsum of the node, these also directed posteriad and may be hooklike (*Hagiomyrma* subgenus) 5
- If with a carinate mesosoma and rounded pronotal humeri then dorsum of petiolar node with two, three or four upwardly directed teeth of various lengths and configurations or petiolar node unarmed; propodeal spines (if present) often reduced to flanges or short denticles19
5. Head and body not all black or dark brown.... 6
- Head and body completely black or dark brown (legs may lighter)..... 8
6. Seen in full-face view, projecting anterior clypeal margin with two conspicuous indentations with a tiny central denticle between them, the corners of the projecting anterior clypeal margin at either side of the indentations in the form of two small, obliquely orientated square serrations; first gastral tergite with well-spaced appressed setae and lacking pubescence; colour pale brownish-yellow, head and gaster slightly darker than mesosoma (Figure 601)
.....*Polyrhachis* sp. JDM 1344
- [<https://www.antweb.org/specimenImages.do?name=antweb1041173>]
- Seen in full-face view, projecting anterior clypeal margin more-or-less crenulate, none of the serrations being prominent; first gastral tergite pubescent; colour reddish-orange or reddish with dark brown gaster 7
7. Antennal scape with whorls of short erect setae; colour reddish-orange (Figure 602).....
.....*schenckii* Forel
- [<https://www.antweb.org/specimenImages.do?name=casent0910807>]
- Antennal scapes smooth, lacking erect setae; colour reddish with dark brown gaster (Figure 603).....*bohemia* Kohout
- [<https://www.antweb.org/specimenImages.do?name=antweb1008702>]
8. Antennal scapes with at least a few short, erect, bristle-like setae along the leading edge..... 9
- Antennal scape without any short, erect, bristle-like setae along the leading edge.....14
9. Petiolar spines downcurved, hook-like (Figure 604).....*ammonoeides* Roger
- [<https://www.antweb.org/specimenImages.do?name=casent0910804>]
- Petiolar spines more-or-less horizontal or obliquely elevated, never hook-like10
10. Lateral margins of mesonotum distinctly converging posteriad (PMI > 190) (Figure 605).....*weiri* Kohout
- [https://www.antwiki.org/wiki/Polyrhachis_weiri]
- Lateral margins of mesonotum less strongly converging posteriad (PMI < 180)11
11. Sculpture of mesosoma consisting of fine, dense, microreticulate-punctuation only (Figure 606).....*melanura* Kohout (part)
- [<https://www.antweb.org/specimenImages.do?name=casent0281367>]
- Sculpture of mesosoma more coarsely striate or striate-reticulate 12
12. Dorsum of gaster with distinct, closely appressed, golden pubescence completely hiding underlying sculpture (Figure 607)
.....*pilbara* Kohout
- [https://www.antwiki.org/wiki/Polyrhachis_pilbara]
- Dorsum of gaster with much diluted silvery or golden, appressed pubescence.....13
13. Dorsum of mesosoma with very short, erect, bristle-like setae (Figure 608).....
.....*seducta* Kohout
- [<https://www.antweb.org/specimenImages.do?name=antweb1008707>]
- Dorsum of mesosoma with distinctly longer setae up to half to three quarters of the greatest diameter of the eyes in length (Figure 609)*tanami* Kohout
- [https://www.antwiki.org/wiki/Polyrhachis_tanami]
14. Petiolar spines downcurved, hook-like (as in *P. ammonoeides*); dorsum of mesosoma with dense, glistening, golden-yellow pubescence, the appressed setae on the left being the oblique mirror image of those on the right and meeting along the midline, and many long, golden, erect setae (Figure 610)
.....*Polyrhachis* sp. JDM 1275
- [<https://www.antweb.org/specimenImages.do?name=jdm32-004514>]

- Petiolar spines more-or-less horizontal or obliquely elevated, never hook-like; appressed pilosity of mesosoma more dilute, and erect setae well-spaced, short, and bristly15
15. Seen in dorsal view, propodeal spines strongly divergent and long, distinctly longer than distance between their bases16
- Seen in dorsal view, propodeal spines less strongly divergent or subparallel, distinctly shorter than distance between their bases17
16. Dorsum of body without erect setae (except on apical gastral tergites); closely appressed pubescence very diluted; larger (HW > 1.7 mm) (Figure 611).....*cracenta* Kohout
[https://www.antwiki.org/wiki/Polyrhachis_cracenta]
- Dorsum of mesosoma with erect setae of various lengths; erect setae on gaster more numerous; appressed, golden pubescence present and particularly dense on gastral tergites; smaller (HW < 1.6 mm) (Figure 612) *crawleyi* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910803>]
17. Dorsum of petiole flat or very weakly concave; bases of petiolar spines separated by wide dorsal petiolar surface (see Figure 606).....
..... *melanura* Kohout (part)
[<https://www.antweb.org/specimenImages.do?name=casent0281367>]
- Dorsum of petiole transversely narrow, rather deeply concave between closely approximated bases of spines.....18
18. Petiolar spines widely divergent, highly obliquely elevated; propodeal spines very slender, divergent; posterior face of petiolar node convex but not distinctly swollen (Figure 613)*clarki* Kohout
[https://www.antwiki.org/wiki/Polyrhachis_clarki]
- Petiolar spines parallel or only weakly divergent, moderately elevated; propodeal spines subparallel; posterior face of petiolar node distinctly swollen towards its base (Figure 614)..... *anderseni* Kohout
[https://www.antwiki.org/wiki/Polyrhachis_anderseni]
19. Seen in dorsal view, dorsum of mesosoma typically flat; seen in profile mesosoma usually weakly but sometimes strongly convex, distinctly laterally carinate (except *P. femorata*); pubescence usually absent from head and body, if present then not obscuring sculpture; humeral angles usually acute or weakly dentate, more rarely rounded but never armed with spines; mesonotal and propodeal margins simple; propodeal angles unarmed or armed with dorsoventrally flattened, horizontal or upwardly curved denticles of varying lengths, but never with stout, rounded spines; petiolar node usually thin and broad but may be narrow and thick, typically armed with two distinct dorsal and two lateral spines but one or more spines may be lost, the petiole unarmed apart from rounded flanges in some species (*'Campomyrma'* subgenus)..... 20
- Seen in profile, dorsum of mesosoma convex, particularly the anterior pronotum; humeral angles nearly always armed with a small, sharp spine; mesonotal and propodeal margins sinuate and may be incised to form small lobes or other protrusions; thick pubescence often present on head and mesosoma; propodeal angles armed with gently sinuate spines, round in cross-section, directed posteriad at an oblique angle to propodeum; seen in dorsal view, petiolar node armed with two long, curved petiolar spines, these confluent and constituting a single uninterrupted arc in all WA species (*Chariomyrma* subgenus) 56
20. Lateral margins of mesonotum and propodeum with an edge that is not sharply carinate; seen in dorsal view, humeri rounded with only the hint of an obtuse angle; seen in full-face view, frontal carinae broadly separated (~0.40 × HW) and virtually parallel (*P. femorata* group) (Figure 615).....*femorata* F. Smith
[<https://www.antweb.org/specimenImages.do?name=casent0903302>]
- Lateral margins of mesonotum and propodeum with distinctly carinate lateral margin; seen in dorsal view, humeri angulate or dentate; seen in full-face view, frontal carinae more narrowly separated (< 0.38 × HW) and at least convex, often lyrate21
21. Seen in full-face view, head with sides in front of eyes rounded towards mandibular bases; post-ocular lateral ridges present, forming distinct, narrowly rounded occipital corners posteriad, eyes placed close to corners of vertex; seen in dorsal view, pronotal humeri angular or narrowly rounded, mesonotum and propodeum strongly convergent posteriad, the propodeal angle armed with short, upturned teeth; petiolar node usually armed with a pair of dorsal teeth or spines and a pair of lateral teeth or spines, the



FIGURES 604–610 604) *Polyrhachis ammonoeides* syntype ('*Polyrhachis chalcas*') (CASENT0910804); 605) *Polyrhachis weiri* (from Kohout (2013b), Fig. 10A [alt.]); 606) *Polyrhachis melanura* (CASENT0281367); 607) *Polyrhachis pilbara* (from Kohout (2013b), Fig. 8C [alt.]); 608) *Polyrhachis seducta* (ANTWEB1008707); 609) *Polyrhachis tanami* (from Kohout (2013b), Fig. 9E [alt.]); 610) *Polyrhachis* sp. JDM 1275 (JDM32-004514).

- | | |
|---|--|
| <p>latter never being distinctly longer than the former (in <i>P. pseudothrinax</i> and <i>P. unicornis</i> there is only a single, median, dorsal spine) (<i>P. gravis</i> group) 22</p> <p>Differing in particulars of head (head may be rounded without post-ocular lateral ridges, or genae may be strongly carinate), dorsal aspect of mesosoma or petiolar node 29</p> <p>22. Dorsum of petiolar node terminating in a single spine 23</p> <p>Dorsum of petiolar node terminating in a pair of spines or teeth 24</p> <p>23. Pronotal humeri simply angular; eyes smaller, distinctly convex; dorsal petiolar spine long and acute (Figure 616) <i>pseudothrinax</i> Hung
[https://www.antweb.org/specimenImages.do?name=antweb1041182]</p> | <p>Pronotal humeri produced as short, distinct teeth; eyes larger, only moderately convex; dorsal petiolar spine short and blunt (see Kohout 2013b; Figs. 5C–D, G–H) <i>unicornis</i> Kohout
[https://www.qm.qld.gov.au/~media/Documents/QM/About+Us/Publications/Memoirs+-+Nature/N56-2/qmn56-2-kohout-hagiomyrmacol.pdf]</p> <p>24. Pilosity generally long, thin, abundant (Figure 617) <i>capillata</i> Kohout
[https://www.antweb.org/specimenImages.do?name=antweb1041222]</p> <p>Pilosity generally short, bristle-like, sparser 25</p> <p>25. Seen in full-face view, petiolar node high and slender; dorsolateral margins steeply raised, strongly convergent dorsally, forming single base for two slender dorsal spines;</p> |
|---|--|



FIGURES 611–616 611) *Polyrhachis cracenta* (from Kohout (2013b), Fig. 3C [alt.]); 612) *Polyrhachis crawleyi* syntype (CASENT0910803); 613) *Polyrhachis clarki* (from Kohout (2013b), Fig. 6C [alt.]); 614) *Polyrhachis anderseni* (from Kohout (2013b), Fig. 6A [alt.]); 615) *Polyrhachis femorata* holotype (CASENT0903302); 616) *Polyrhachis pseudothrinax* (ANTWEB1041182).

moderately shining; colour black with light orange appendages (see Kohout 2013b; Figs. 4C–D, G–H) *palmerae* Kohout

[<https://www.qm.qld.gov.au/~media/Documents/QM/About+Us/Publications/Memoirs++Nature/N56-2/qmn56-2-kohout-hagiomyrmacol.pdf>]

Seen in full-face view, petiolar node about as high as wide; dorsolateral margins less steeply raised and less strongly convergent dorsally, bases of dorsal spines noticeably separated; matt; colour dull black with black or dark reddish-brown appendages 26

26. Dorsal petiolar spines tooth-like, distinctly shorter and stouter than lateral spines; bristle-like pubescence very sparse, virtually lacking on dorsum of mesosoma and petiole (Figure 618) *curtospinosa* Kohout

[https://www.antwiki.org/wiki/Polyrhachis_curtospinosa]

Dorsal petiolar spines slender, distinctly longer than lateral spines; bristle-like pubescence present on most body surfaces, including dorsum of mesosoma and petiole 27

27. Anterior margin of first gastral tergite with strongly raised carina (see Kohout 2013b; Figs. 4A–B, E–F) *opacita* Kohout

[<https://www.qm.qld.gov.au/~media/Documents/QM/About+Us/Publications/Memoirs++Nature/N56-2/qmn56-2-kohout-hagiomyrmacol.pdf>]

Anterior margin of first gastral tergite with only poorly indicated carina 28

28. Antennal scape longer (SL > 125); eyes moderately convex; pronotal humeri narrowly rounded with posterior pronotal margins shallowly emarginated; greatest width of pronotal dorsum at middle of segment (Figure 619) *gravis* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008263>]

Antennal scapes shorter (SI 115); eyes distinctly smaller, strongly convex; pronotal humeri distinctly angular; greatest width of pronotal dorsum across humeri (see Kohout 2013b; Figs. 3C–D, G–H) *hespera* Kohout

[<https://www.qm.qld.gov.au/~media/Documents/QM/About+Us/Publications/Memoirs++Nature/N56-2/qmn56-2-kohout-hagiomyrmacol.pdf>]

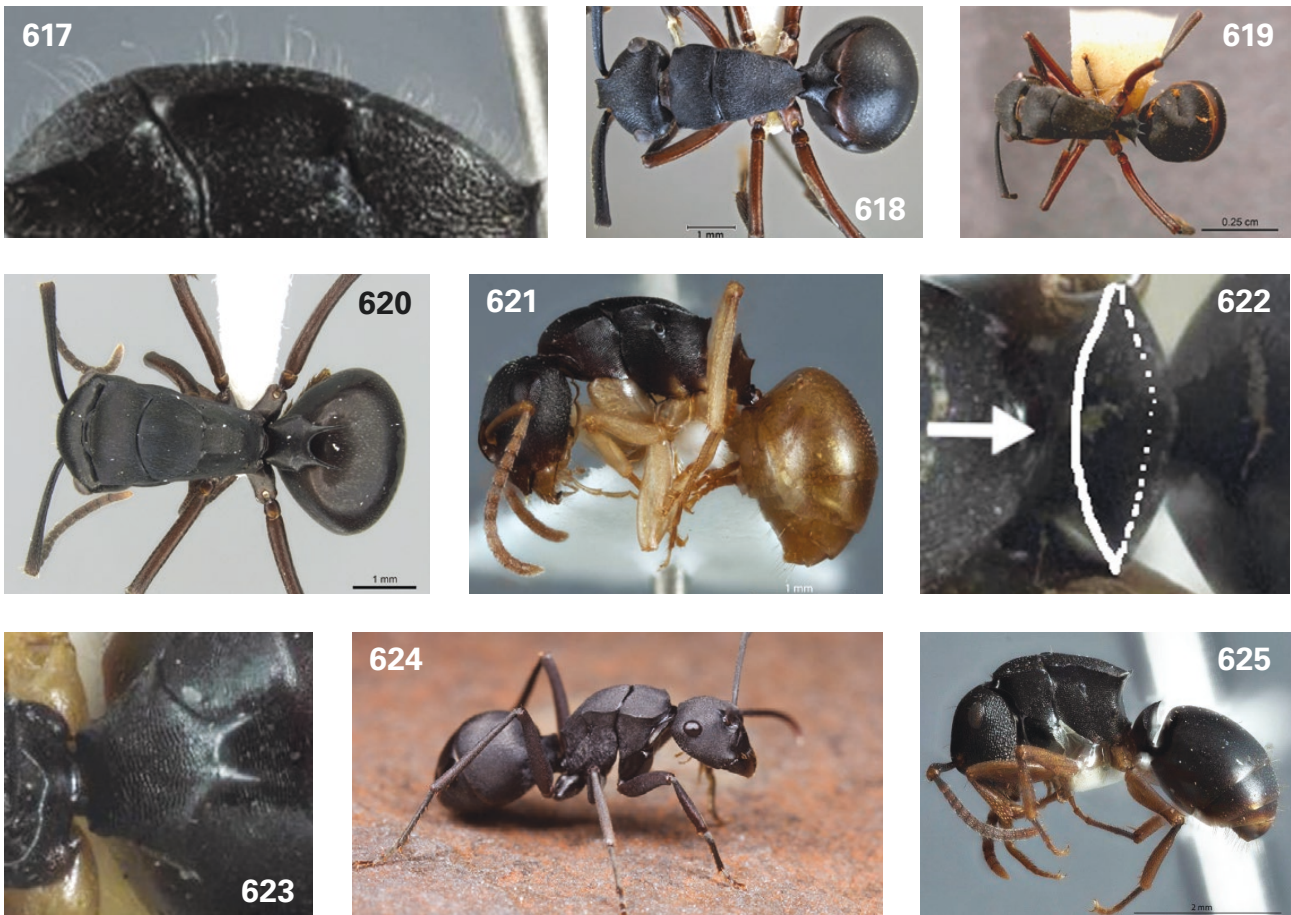
29. Seen in full-face view, petiolar node large, high (in profile extending upwards beyond propodeal angle) with two well-separated dorsal spines, lateral spines obsolete and represented only by a blunt angle; seen in profile mesosoma strongly convex; eyes very large and placed near corners of vertex; eyes large (EL ~0.25 × length of side of head); post-ocular carina present (*P. micans* group, *P. micans* complex) (Figure 620).....
*prometheus* Santschi

[<https://www.antweb.org/specimenImages.do?name=casent0906566>]

Seen in full-face view, petiolar node with various configurations, but if armed dorsally but not laterally (some *P. schwiedlandi* complex species) then node of smaller proportions and dorsal processes reduced to sharp teeth or denticles and spinous only in one taxon, which, however, also possesses lateral spines..... 30

30. Seen in profile, upper gena longitudinally depressed or flattened, with distinct post-ocular ridge that may be carinate, genae may also be demarcated from underside of head by a carina; propodeal angle usually armed with very small, upturned denticles, never spines or flattened dentate processes, but may be unarmed or a flange; petiolar node thin, scale-like, very rarely armed dorsally with a pair of short spines, usually flanged above, the flange at most with a small medial emargination or notch or, in one species, dorsum produced as a single acute angle; lateral petiolar teeth usually present, but may be reduced to an acute angle; femora and tibiae always lighter in colour than black mesosoma, generally yellow but may be reddish brown, however, fore coxae, at least, usually black (*P. micans* group, *P. schwiedlandi* complex)31

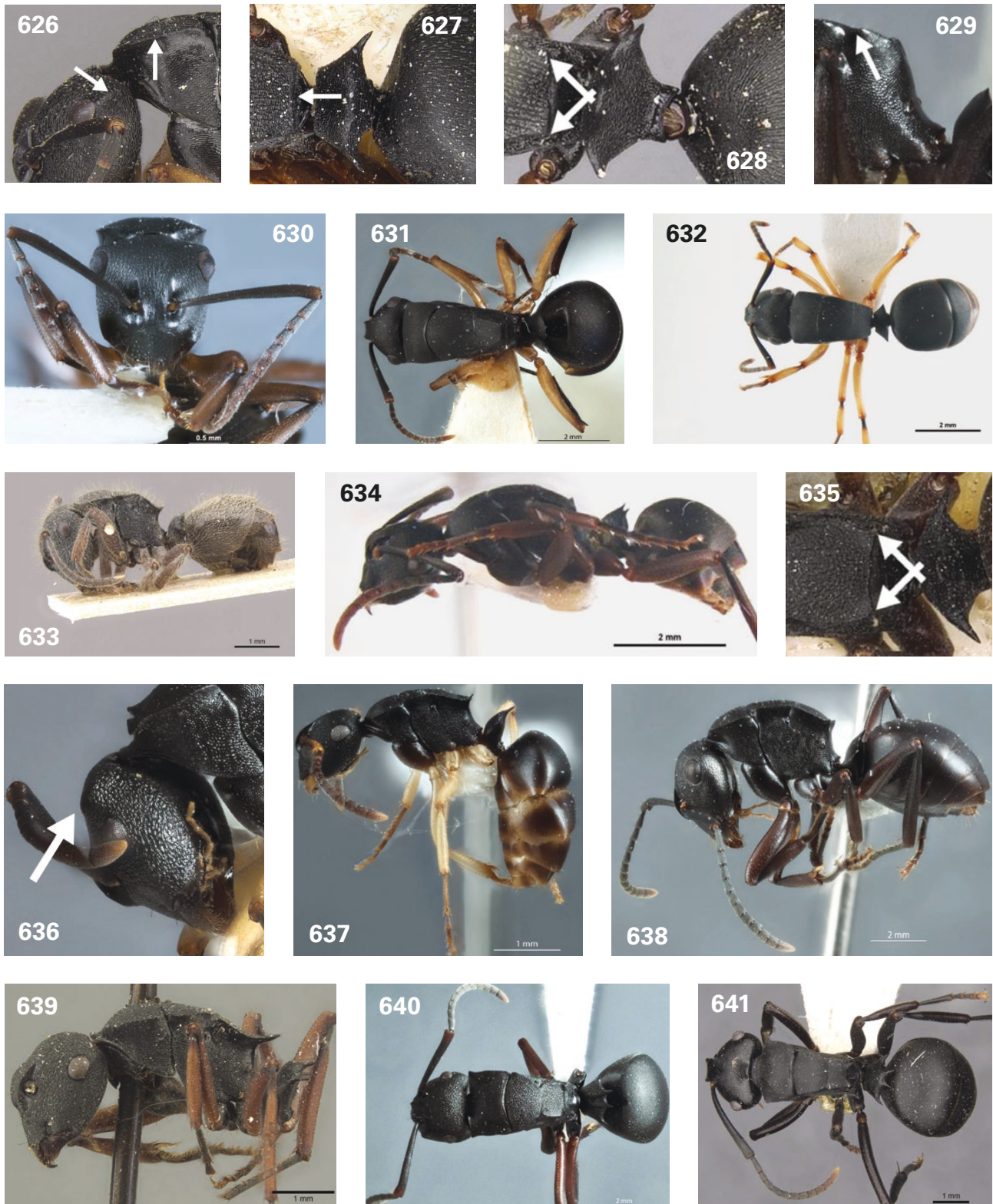
If features of head roughly similar, then differing in appearance of node (usually



FIGURES 617–625 617) *Polyrhachis capillata* (ANTWEB1041222); 618) *Polyrhachis curtospinosa* (ANIC; S.O. Shattuck); 619) *Polyrhachis gravis* holotype (ANTWEB1008263); 620) *Polyrhachis prometheus* (CASENT0906566); 621) *Polyrhachis* sp. JDM 670 (JDM32-002210); 622) *Polyrhachis* sp. JDM 1086 (ANTWEB1041167); 623) *Polyrhachis* sp. JDM 1012 (ANTWEB1041166); 624) *Polyrhachis* sp. JDM 1011 (Ashburton, Western Australia); 625) *Polyrhachis* sp. JDM 805 (JDM32-002212).

- with well-developed dorsal and lateral teeth) and propodeum (horizontally directed flattened dentate processes often present) 42
31. Gaster yellow with brown infuscation, head and mesosoma black (Figure 621)
..... *Polyrhachis* sp. JDM 670
[<https://www.antweb.org/specimenImages.do?name=jdm32-002210>]
Body completely black..... 32
32. Dorsum of petiolar node a single acute angle (Figure 622) *Polyrhachis* sp. JDM 1086
[<https://www.antweb.org/specimenImages.do?name=antweb1041167>]
Dorsum of petiolar node not as above, usually a horizontal flange but may have a pair of spines..... 33
33. Dorsum of petiolar node armed with a closely aligned pair of short spines (Figure 623).....
..... *Polyrhachis* sp. JDM 1012
[<https://www.antweb.org/specimenImages.do?name=antweb1041166>]
Dorsum of petiolar node a horizontal flange..... 34
34. Seen in dorsal view, petiolar flange inclined posteriad (Figure 624).....
..... *Polyrhachis* sp. JDM 1011
[<https://www.flickr.com/photos/myrmecian/7710265338/>]
Seen in dorsal view, petiolar flange inclined vertically 35
35. Seen in dorsal view, dorsum of propodeum terminating posteriad in a flange that overhangs its declivous face (Figure 625)
..... *Polyrhachis* sp. JDM 805
[<https://www.antweb.org/specimenImages.do?name=jdm32-002212>]
Seen in dorsal view, propodeal dorsum terminating in tiny denticles at propodeal angles, or dorsum concluding posteriad in a transverse carina or angle only 36
36. Seen in profile, genae strongly depressed, with post-ocular carina that terminates at the outer margin of the eye; carina also present between upper genae and underside of head; seen in profile, pronotal humeri extended over sides of pronotum as a distinct shelf; seen in full-face view, sides of head straight or even concave (Figure 626).....
..... *schwiedlandi* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910779>]
- Seen in profile, genae not as strongly depressed and may be merely flattened, lacking a carina between upper genae and underside of head (a blunt ridge may be present); pronotal humeri not extended over sides of pronotum as a distinct shelf, although they may be developed as strong carinae; seen in full-face view, sides of head straight or weakly convex but never concave 37
37. Cuticle around eye impressed so that it forms a distinct, narrow annulus; seen in full-face view, petiolar node with dorsal processes present as discrete short denticles or acute angles and separated by a broadly U-shaped emargination, and lateral denticles produced as sharp teeth or small spines; eyes placed very close to posterior angles of vertex (distance < 0.5 × width of eye); small species (HW ≥ 1.30 mm) 38
- Cuticle around eyes less strongly impressed, so annulus is incomplete or not suggested at all; seen in full-face view, petiolar node either without dorsal processes, or these present as broad denticles separated by a V-shaped emargination or indistinct angles separated by a broad undulation; eyes placed further from the posterior angles of the vertex (distance ≥ 0.75 × width of eye); generally larger 39
38. On close inspection, first gastral tergite with fine, uniform alveolate or alveolate-striolate sculpture; seen in rear view, propodeum with straight or weakly undulant posterior carina (Figure 627)..... *inconspicua* Emery
[<https://www.antweb.org/specimenImages.do?name=casent0905559>]
On close inspection, first gastral tergite with coarse, costulate-microreticulate sculpture; seen in rear view, propodeum without a posterior carina; the propodeal angles produced as two unconnected denticles (Figure 628) *io* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910782>]
39. Seen in profile, propodeum separately forming a strong convexity that is separate to that of pronotum and mesonotum; on close inspection, appressed setae of antennal scape fine and overlapping, forming a thin pubescence (Figure 629).....
..... *Polyrhachis* sp. JDM 1201
[<https://www.antweb.org/specimenImages.do?name=antweb1041170>]
Seen in profile, convexity of propodeum part of general arc of mesosoma; on close

- inspection, appressed setae of antennal scape stout and well-separated..... 40
40. Seen in profile, head depressed below the eye; femora darker, brown or blackish-brown (Figure 630)..... ***Polyrhachis* sp. JDM 1009**
[<https://www.antweb.org/specimenImages.do?name=antweb1041432>]
Seen in profile, head flattened but not depressed below the eye; femora pale yellow, tibiae pale yellow or infuscated brownish-yellow (hind tibiae in one species), fore-coxae, tarsi, and articulations of legs black or blackish-brown41
41. Seen in dorsal view, propodeum strongly attenuated towards its posterior angles (width of posterior margin of propodeum $\leq 0.5 \times$ width of anterior margin); tibiae (apart from articulations), especially hind tibiae, partially or totally infuscated with darker colouration; seen in dorsal view, on close inspection sculpture of mesosoma consisting of short beaded striae that are indistinct from a distance (Figure 631).....
..... ***Polyrhachis* sp. JDM 1200**
[<https://www.antweb.org/specimenImages.do?name=antweb1041169>]
Seen in dorsal view, propodeum only weakly attenuated towards its posterior angles, if at all; tibiae (apart from articulations) pale yellow to yellowish-orange without infuscation; seen in dorsal view, mesosomal sculpture of most specimens consisting of distinct long striae that are clearly visible from a distance (Figure 632).....
..... ***Polyrhachis* sp. JDM 1010**
[<https://www.padil.gov.au/barrow-island/pest/main/136707>]
42. In full-face view, lateral spines or denticles of petiolar node directed obliquely at angle of $45^\circ \leq$, dorsal spines usually the same size or longer than the lateral spines; seen in full-face view, node about as high as wide; seen in profile, node flattened or curved anteriorly, but not trapezoidal; seen in dorsal view, pronotal humeral angles usually angular or rounded and not armed as below; compact species (*P. micans* group, *P. sidnica* complex)..... 43
Seen in full-face view, the lateral spines of petiolar node directed obliquely at angle of $\geq 60^\circ$, lateral spines distinctly longer and stouter than paired dorsal spines; seen in full-face view, node distinctly higher than wide; seen in profile, node rather trapezoidal anteriorly; seen in dorsal view, pronotal humeral angles dentate; gracile species with long legs (*P. macropus* group) 53
43. Head, body, and appendages densely covered with long, white, erect setae (Figure 633).....
..... ***hirsuta* Mayr**
[<https://www.antweb.org/specimenImages.do?name=casent0910772>]
Mesosoma, antennal scape and legs, at least, glabrous..... 44
44. Appressed setae on first gastral tergite fine, overlapping and forming a fine yellowish or off-white pubescence..... 45
Appressed setae on first gastral tergite short, stout and well separated and not forming pubescence..... 47
45. Seen in dorsal view, propodeal dorsum longitudinally rectangular $> 1.5 \times$ longer than wide; propodeal angles produced as tiny, upturned teeth (Figure 634)
..... ***Polyrhachis* sp. JDM 703**
[<https://www.padil.gov.au/barrow-island/pest/main/136730/9893>]
Seen in dorsal view, propodeal dorsum square or trapezoid as wide as or wider than long; propodeal angles produced as upwardly curved angles, dentate flanges or teeth..... 46
46. Propodeal angles produced as upwardly curved dentate flanges about as wide as long across their base; seen in full-face view, dorsal spines of petiolar node visibly closer to one another than they are to the lateral spines (Figure 635)..... ***phryne* Forel**
[<https://www.antweb.org/specimenImages.do?name=casent0910777>]
Propodeal angles produced as upwardly curved flattened spines $> 2 \times$ as long as wide across their base; seen in full-face view dorsal and lateral spines of petiolar node equidistant from one another (see Figure 54)
..... ***Polyrhachis* sp. JDM 118**
[<https://www.antweb.org/specimenImages.do?name=jdm32-002207>]
47. Seen in full-face view, head an inverted triangle with eyes near the angles of the vertex; eyes protuberant, horizontally elongate, elliptical; sculpture of pronotum and mesonotum consisting of elongate, parallel striae, surface shining (otherwise similar to *Polyrhachis* sp. JDM 804)
..... ***Polyrhachis* near sp. JDM 804**



FIGURES 626–641

626) *Polyrhachis schwiedlandi* syntype (CASENT0910779); 627) *Polyrhachis inconspicua* syntype (CASENT0905559); 628) *Polyrhachis io* syntype (CASENT0910782); 629) *Polyrhachis* sp. JDM 1201 (ANTWEB1041170); 630) *Polyrhachis* sp. JDM 1009 (ANTWEB1041432); 631) *Polyrhachis* sp. JDM 1200 (ANTWEB1008708); 632) *Polyrhachis* sp. JDM 1010 (Barrow Island, Western Australia); 633) *Polyrhachis hirsuta* syntype ('*P. hirsuta quinquedentata*') (CASENT0910772); 634) *Polyrhachis* sp. JDM 703 (ANTWEB108699); 635) *Polyrhachis phryne* syntype (CASENT 0910777); 636) *Polyrhachis* sp. JDM 804 (JDM32-002162); 637) *Polyrhachis* sp. JDM 802 (ANTWEB1041227); 638) *Polyrhachis* sp. JDM 1384 (ANTWEB1041226); 639) *Polyrhachis sidnica* holotype (CASENT0915621); 640) *Polyrhachis* sp. JDM 390 ('*P. sidnica quadricuspis*') (JDM32-002199); 641) *Polyrhachis ops* syntype (CASENT0910775).

- If with similar, protuberant eyes, then angles of vertex form rounded protuberances above the eyes, and sculpture of pronotum and mesonotum finely imbricate, matt..... 48
48. Seen in full-face view, vertex peculiarly truncate, its angles forming rounded protuberances or bosses, above the eyes; eyes very convex, almost weakly conical; seen in dorsal view, pronotum depressed anteriorly well below level of humeri which form sharp, acute angles (Figure 636).....
..... *Polyrhachis* sp. **JDM 804**
[<https://www.antweb.org/specimenImages.do?name=jdm32-002162>]
- Seen in full-face view, vertex not truncate, being either rounded or weakly angulate above the eyes and lacking protuberances; eyes moderately convex; seen in dorsal view, pronotum not depressed anteriorly, the humeral angles on the same horizontal plane as the rest of the anterior pronotal sector or only weakly raised (in *Polyrhachis* sp. JDM 390)..... 49
49. Lateral processes of petiolar node short denticles, distinctly shorter than dorsal spines..... 50
Lateral processes of petiolar node spinous and the same length or longer than dorsal spines51
50. Smaller species (HW ~1 mm); legs yellow (except for fore coxae which are dark brown) (Figure 637)..... *Polyrhachis* sp. **JDM 802**
[<https://www.antweb.org/specimenImages.do?name=antweb1041227>]
- Larger species (HW > 1.2 mm); legs brown, fore coxae black (Figure 638).....
..... *Polyrhachis* sp. **JDM 1384**
[<https://www.antweb.org/specimenImages.do?name=antweb1041226>]
51. Seen in full-face view, dorsal spines of petiolar node only slightly elevated above its lateral spines; smaller species (HW ≤ 1.50 mm); propodeal angles produced as flattened spines directed posteriorly, their length ≥ 2 × their width across their base (Figure 639).....
..... *sidnica* Mayr
[<https://www.antweb.org/specimenImages.do?name=casent0915621>]
- Seen in full-face view, dorsal spines of petiolar node visibly on higher plane than its lateral spines; larger species (HW ≥ 1.95 mm); propodeal angles produced as upcurved dentate flanges at a maximum about as long as wide across their base 52
52. Seen in dorsal view, mesonotum a narrow trapezoid with an anterior margin much broader than its base, the whole sclerite visibly much wider than long; propodeum angles raised but not dentiform; seen in dorsal view, ant matt with sculpture of mesosoma coarsely reticulate-striolate (Figure 640)..... *Polyrhachis* sp. **JDM 390**
[<https://www.antweb.org/specimenImages.do?name=jdm32-002199>]
- Seen in dorsal view, mesonotum a weak trapezoid with an anterior margin slightly broader than its base, the whole sclerite about as wide as long; propodeal angles produced as upcurved dentate flanges at a maximum about as long as wide across their base; seen in dorsal view, ant moderately shining with sculpture of mesosoma finely microreticulate-striolate (Figure 641).....
..... *ops* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0910775>]
53. Propodeum armed with two short, upturned denticles; length of hind femora ≥ length of mesosoma (Figure 642).....
..... *Polyrhachis* sp. **JDM 1189**
[<https://www.antweb.org/specimenImages.do?name=antweb1041168>]
- Propodeum armed with distinct teeth directed posteriorly; length of hind femora ≥ length of mesosoma 54
54. Seen in dorsal view, surface of mesosoma finely striate-reticulate, not leathery in texture when seen from a distance; also in dorsal view, sides of propodeum visibly convex (Figure 643)..... *macropus* Wheeler
[<https://www.antweb.org/specimenImages.do?name=casent0281348>]
- Seen in dorsal view, surface of mesosoma very finely and evenly areolate, leathery in texture when seen from a distance; also seen in dorsal view, sides of propodeum straight, parallel or only weakly convex..... 55
55. Seen in dorsal view, propodeum ≥ 2.5 × as long as wide and with a weak median groove in pinned material; dorsal processes of petiolar node always produced as spines (Figure 644).....
..... *pyrrhus* Forel
[<https://www.antweb.org/specimenImages.do?name=antweb1008266>]

Seen in dorsal view, propodeum $\leq 2 \times$ as long as wide and usually without a weak median groove in pinned material; dorsal processes of petiolar node variably developed but most commonly reduced to short denticles or nubs (Figure 645)*zimmerae* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008267>]

56. Seen in dorsal view, pronotum with marginal lamina smoothly continuous from the posterior margin to the neck sclerite, humeral angles rounded (Figure 646)
.....*Polyrhachis* sp. JDM 1204

[<https://www.antweb.org/specimenImages.do?name=antweb1041171>]

Seen in dorsal view, pronotum with dentate humeral angles breaking the pronotal outline..... 57

57. Legs light orange (Figure 647)..... *cyrus* Forel

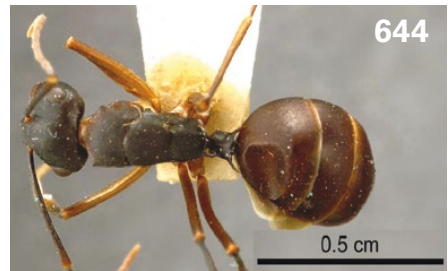
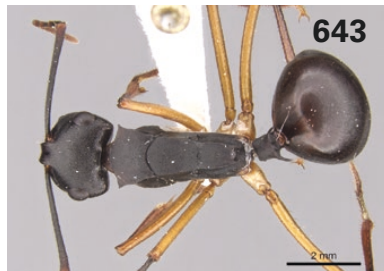
[<https://www.antweb.org/specimenImages.do?name=casent0910821>]

Legs black or very dark red 58

58. Seen in dorsal view, lateral margin of mesonotum plus propodeum with three dentate processes; propodeal spines strongly recurved (Figure 648).....
.....*Polyrhachis* sp. JDM 808

[<https://www.padil.gov.au/barrow-island/pest/main/136709>]

Seen in dorsal view, lateral margin of mesonotum plus propodeum without dentate processes; propodeal spines describing a weakly curved or weakly sinuous outline but not strongly recurved as above..... 59



FIGURES 642–650

642) *Polyrhachis* sp. JDM 1189 (ANTWEB1041168); 643) *Polyrhachis macropus* (CASENT0281348); 644) *Polyrhachis pyrrius* syntype (ANTWEB1008266); 645) *Polyrhachis zimmerae* holotype (ANTWEB1008267); 646) *Polyrhachis* sp. JDM 1204 (ANTWEB1041171); 647) *Polyrhachis cyrus* syntype (CASENT0910821); 648) *Polyrhachis* sp. JDM 808 (Barrow Island, Western Australia); 649) *Polyrhachis* sp. JDM 1274 (ANTWEB1041172); 650) *Polyrhachis* sp. JDM 807 (JDM32-002131).

59. Seen from the rear, posterior face of petiolar node with transverse, parallel grooves that become increasingly arcuate towards the base of the node, the posterior face of the node being without any pubescence or other appressed setae (Figure 649).....

..... *Polyrhachis* sp. JDM 1274

[<https://www.antweb.org/specimenImages.do?name=antweb1041172>]

Seen from the rear, posterior face of petiolar node with various sculpture but not as above, the sculpture always partially covered with appressed pubescence or other pilosity..... 60

60. Appressed pubescence on head and mesosoma pale yellow to golden (if not distinctly yellow, then eyes flattened as in couplet 62).....61

Appressed setae on head and mesosoma white or whitish (eyes convex)..... 62

61. Seen in full-face view, eyes flattened and not breaking the outline of the sides of the head (Figure 650)..... *Polyrhachis* sp. JDM 807

[<https://www.antweb.org/specimenImages.do?name=jdm32-002131>]

Seen in full-face view, eyes moderately convex, distinctly breaking the outline of the sides of the head (Figure 651).....

..... *Polyrhachis* sp. JDM 1273

[<https://www.antweb.org/specimenImages.do?name=jdm32-002150>]

62. Seen in full-face view, erect setae on antennal scape sparse and mostly confined to outer edge of scape, their length < greatest width of scape; seen in dorsal view, appressed pubescence on pronotum thick and mostly obscuring cuticle (two size classes) (Figure 652)..... *gab* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0910822>]

Seen in full-face view, erect setae on antennal scape present on all surfaces and may be numerous, the length of the longest setae ≥ greatest width of scape; seen in dorsal view, appressed pubescence on pronotum dilute or completely lacking..... 63

63. On close inspection, pronotum devoid of pubescence, its underlying cuticular sculpture completely revealed; seen in full-face view, white pubescence on frons very dense, obscuring cuticle (Figure 653).....

..... *senilis* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0910824>]

On close inspection, pronotum with dilute, off-white pubescence that variably hides some cuticular sculpture; seen in full-face view, off-white pubescence on frons more dilute so some of the cuticle can be seen (Figure 654).....

..... *lata* Emery

[<https://www.antweb.org/specimenImages.do?name=casent0905580>]

Prolasius

1. Appressed setae on gaster generally separated by much more than their own length, not forming pubescence..... 2

Appressed setae on gaster fine, dense, overlapping and forming distinct pubescence..... 4

2. Uniformly brown species (Figure 655).....

..... *flavicornis* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008274>]

Species with yellowish or ochre head and mesosoma and light yellowish-brown gaster..... 3

3. Erect setae on mesosoma confined to one pair on pronotum; seen in profile, mesonotum compact, much deeper than wide; setae on antennal scape fine and decumbent (dealate queen) (Figure 656)..... *hemiflavus* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008275>]

At least two pairs of erect setae on pronotum and at least one pair (often two) of erect setae on mesonotum; seen in profile, mesonotum more elongate, nearly as wide as deep; semi-erect setae present along length of antennal scape (Figure 657)..... *Prolasius* sp. JDM 109

[<https://www.antweb.org/specimenImages.do?name=jdm32-002253>]

4. Dark brownish or blackish species with numerous stout, erect setae on legs and antennal scapes (Figure 658).....

..... *antennatus* McAreavey

[<https://www.antweb.org/specimenImages.do?name=casent0217811>]

Generally less hairy species always without stout, erect setae on legs and antennal scapes (minute, fine, sub-erect setae may be present on the scapes, in which case ant is pale)..... 5

5. Mesosoma with one prominent pair of fine, pale, erect setae on pronotum, other pronotal setae less conspicuous or absent, erect setae

on gaster also fine and pale; moderately shining with superficial imbricate sculpture; colour brown to dark brown (Figure 659).....

..... *Prolasius* sp. JDM 1120

[<https://www.antweb.org/specimenImages.do?name=jdm32-002267>]

Mesosoma with stout, erect setae, usually with more than one pair on pronotum; erect setae on gaster also conspicuously stout; if worker dark, then more matt in appearance with microreticulate-imbricate sculpture and erect setae dark 6

6. Seen in full-face view, clypeus sculptured with fine, arched striolae across its expanse, these directed towards the midline of the clypeus; blackish to brownish-orange ants with brown gaster; mesopleuron and metapleuron with surface sculpture, these parts matt or only weakly shining (Figure 660)..... *wheeleri* McAreavey

[<https://www.antweb.org/specimenImages.do?name=casent0281473>]

Seen in full-face view, clypeus glossy and unsculptured; yellow or yellowish ants (head may be darker) with light yellowish-brown gaster; mesopleuron and metapleuron smooth and glossy without surface sculpture (Figure 661).....

..... *Prolasius* sp. JDM 551

[<https://www.antweb.org/specimenImages.do?name=antweb1041183>]

Stigmatros

McAreavey's (1957) monograph on the genus has been followed to a limited extent here. However, he has misjudged the characters in terms of their broader evolution, and there are only three body forms he mentions that deserve to be separated at a deeper level, i.e. a species-group or sub-generic level. These are the 'sub-genera' '*Campostigmatros*' (flattened, marginate mesonotum with a deeply incised metanotal groove, a deeply impressed anepisternum, no trace of a metanotum and posteriorly directed metathoracic spiracles), '*Cyrtostigmatros*' (mesonotum smoothly rounded on all sides, at least a trace of a metanotum, dorsally directed metathoracic spiracles and an anepisternum that is not impressed) and '*Chariostigmatros*' (gnarly-looking, highly sculptured forms with a transverse metanotal ridge). A fourth 'subgenus' that includes one undescribed WA species is added here. At a species level, the picture is even more confused, with much apparent synonymy as species are separated largely on minor differences in colour or proportions. On the other hand, genuine undescribed species constitute a very high proportion of the WA fauna.

1. Cuticle of mesosoma and, in *S. hirsuta*, the head with a shining, wrinkled appearance caused by diffuse raised striae, alveolate and reticulate microsculpture and other rugosity; seen in dorsal view, metanotum indicated by a transverse ridge with a concave posterior face and with small, longitudinal costulae connected to it, a median costula that connects the metanotum with the anterior propodeum being particularly prominent; metathoracic spiracles not readily visible (former *Chariostigmatros*) 2

Cuticle of head and mesosoma either smooth and glossy or matt with regular microsculpture; metanotum either obsolete or otherwise defined; metathoracic spiracles often indicated by prominences (except former *Campostigmatros*) 3

2. Seen in profile, eye very large (EL > 0.35 × length of side of head) and orientated obliquely on side of head; erect, thickened setae on mesosoma reduced to a pair on pronotum (where present) (Figure 662).....
..... *Stigmatros* sp. JDM 833

[<https://www.antweb.org/specimenImages.do?name=antweb1041177>]

Eye smaller (EL < 0.25 × length of side of head) and orientated longitudinally on side of head; erect, thickened setae regularly arranged in widely spaced pairs on mesosoma, especially its lateral margins (Figure 663)..... *hirsuta* McAreavey

[<https://www.antweb.org/specimenImages.do?name=antweb1008340>]

3. Seen in profile, mesonotum flattened, its sides defined by a carina that separates its dorsal face from its lateral face (pronotum may be similarly carinate); mesopleuron nearly always deeply impressed and overhung by mesonotum; node often with distinct dorsal or lateral teeth or both; fore femur often conspicuously large and bulbous (mostly former *Campostigmatros*) 4

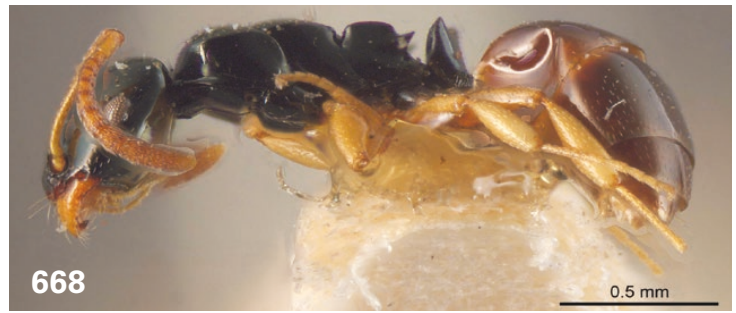
Seen in profile, mesonotum typically convex, sloping to its junction with propodeum, may be more-or-less flat but always non-carinate; mesopleuron only weakly impressed, if at all; node usually lacking dorsal teeth, lateral teeth weakly developed or absent (except in the *S. barretti* cluster); fore femur usually comparable in appearance to remaining femora (former subgenus *Cyrtostigmatros* except for the second lug of couplet 23) 15



FIGURES 651–666

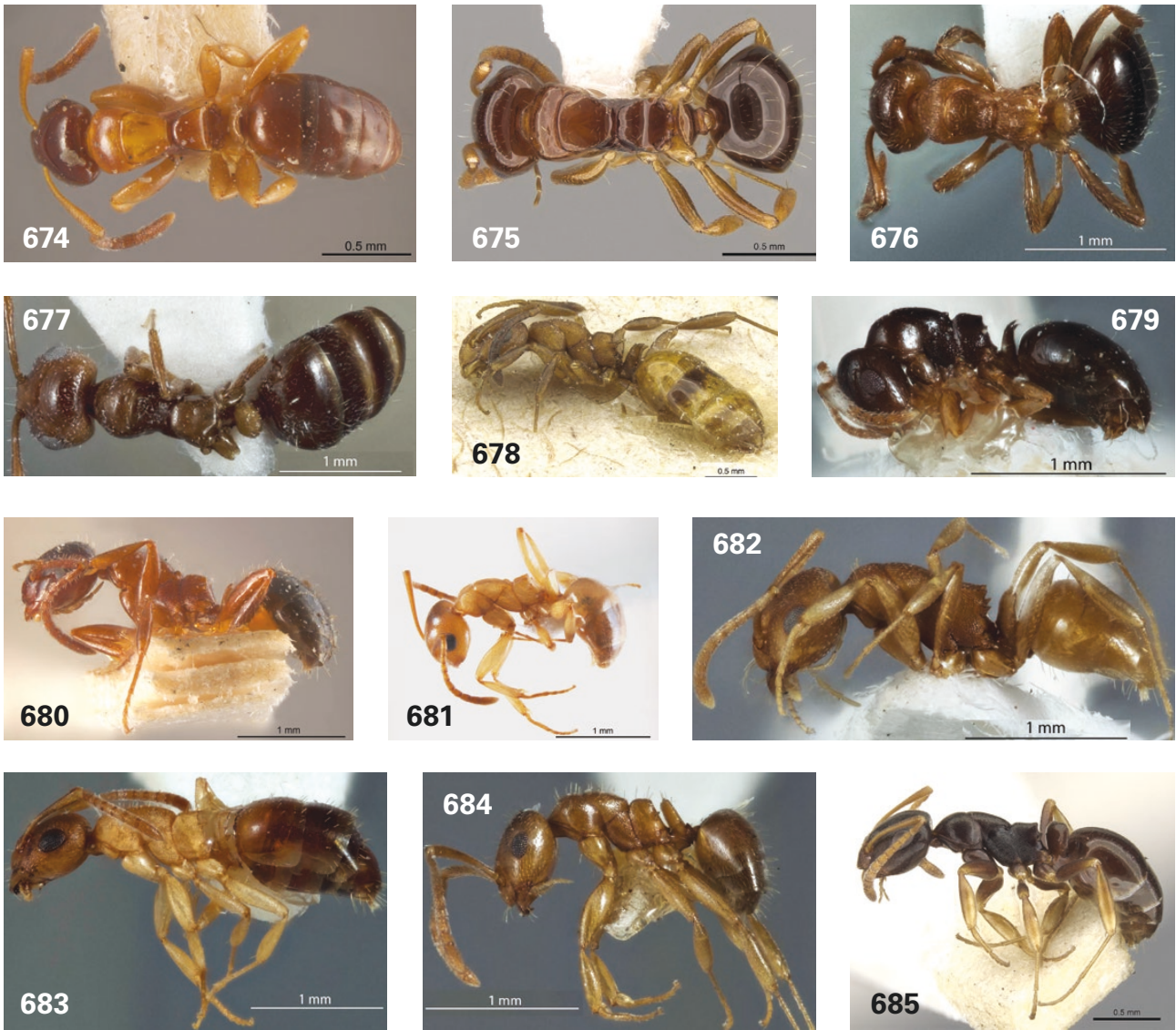
651) *Polyrhachis* sp. JDM 1273 (JDM32-002150); 652) *Polyrhachis gab* holotype ('*P. guerini gab*') (CASENT0910822); 653) *Polyrhachis senilis* syntype (CASENT0910824); 654) *Polyrhachis lata* syntype (CASENT0905580); 655) *Prolasius flavicornis* syntype (ANTWEB1008274); 656) *Prolasius hemiflavus* syntype (ANTWEB1008275); 657) *Prolasius* sp. JDM 109 (JDM32-002253); 658) *Prolasius antennatus* (CASENT0217811); 659) *Prolasius* sp. JDM 1120 (JDM32-002267); 660) *Prolasius wheeleri* (CASENT0281473); 661) *Prolasius* sp. JDM 551 (ANTWEB1041183); 662) *Stigmacros* sp. JDM 833 (ANTWEB1041177); 663) *Stigmacros hirsuta* holotype (ANTWEB1008340); 664) *Stigmacros* sp. JDM 341 (JDM32-002362); 665) *Stigmacros spinosa* holotype (dealate queen) (ANTWEB1008354); 666) *Stigmacros* sp. JDM 831 (JDM32-002373).

4. Dorsum of mesosoma and gaster pubescent; cuticle of mesosoma matt and microreticulate-striolate; mesopleuron not impressed but on same vertical plane as lateral surface of mesonotum; seen in dorsal view, propodeum flattened and square dorsally and without medial furrow or slight concavity, seen in rear view, its sides straight, vertical; seen in profile, node rather thick (*Stigmacros* species-group 'A') (Figure 664) ***Stigmacros* sp. JDM 341**
[<https://www.antweb.org/specimenImages.do?name=jdm32-002362>]
- Dorsum of mesosoma and gaster not pubescent and often glabrous; cuticle of mesosoma typically glossy and unsculptured apart from hair pits; mesopleuron always deeply impressed and overhung by mesonotum; seen in dorsal view, propodeum always narrowly trapezoid (except for *Stigmacros* sp. JDM 831), the sides divergent, usually with median furrow or slight concavity or with dorsal surface that descends obliquely to the declivous surface; seen in rear view, sides of propodeum divergent posteriad; seen in profile node typically scale-like (former subgenus *Campostigmacros*) (part)..... 5
5. Seen in profile, propodeal angles produced as elongate spines directed posteriad; dorsum of petiolar node armed with two spines also directed posteriad; lateral spines on petiolar node vestigial or reduced to small teeth (possibly two species) (dealate queen) (Figure 665).....***spinosa* McAreavey**
[<https://www.antweb.org/specimenImages.do?name=antweb1008354>]
- Seen in profile, propodeal angles produced as short denticles at most; if dorsum of petiolar node with elongate spines directed posteriad, then lateral spines also well-developed on the node..... 6
6. Petiolar node with both posteriorly directed dorsal spines and well-developed lateral spines; seen in dorsal view, propodeum a narrow, longitudinal rectangle (depigmented, hairy, with a number of erect setae on mesosoma) (Figure 666).....
..... ***Stigmacros* sp. JDM 831**
[<https://www.antweb.org/specimenImages.do?name=jdm32-002373>]
- Petiolar node without dorsal and lateral spines both developed (if the former occur then the latter will be small denticles or vestigial) in dorsal view, propodeum narrowly trapezoid 7
7. Mesosoma black or blackish..... 8
Mesosoma otherwise coloured11
8. Seen in profile, propodeal angles armed with tiny denticles; seen in dorsal view, mesonotum with longitudinal substrigulate sculpture (Figure 667).....
.....***anthracina* McAreavey**
[<https://www.antweb.org/specimenImages.do?name=antweb1008327>]
- Seen in profile, propodeal angles obsolete or represented only by blunt angles; seen in dorsal view, mesonotum smooth and glossy or with surface microreticulation only..... 9
9. Petiolar node black; seen in profile, head strongly dorsolaterally compressed with a weak, subcarinate postocular ridge present; eye smaller ($EL \leq 0.18 \times$ length of side of head) (Figure 668)***brachytera* McAreavey**
[<https://www.antweb.org/specimenImages.do?name=antweb1008329>]
- Petiolar node yellow or brownish-orange; seen in profile, head less strongly dorsolaterally compressed and without postocular ridge; eye larger ($EL \geq 0.25 \times$ length of side of head)10
10. Seen in profile, eye larger ($EL \geq 0.30$ mm), separated from mandibular insertions by less than its length; seen in dorsal view propodeum with median furrow; seen in full-face view, petiolar node slightly emarginate above (Figure 669).....
..... ***elegans* McAreavey**
[<https://www.antweb.org/specimenImages.do?name=casent0172181>]
- Seen in profile, eye smaller ($EL \sim 0.25$ mm), separated from mandibular insertions by about $2 \times$ its length; seen in dorsal view, propodeum flat with no hint of median furrow; seen in full-face view, petiolar node platelike, convex above (Figure 670)
..... ***Stigmacros* sp. JDM 1045**
[<https://www.antweb.org/specimenImages.do?name=jdm32-002377>]
11. Dorsal and lateral surfaces of pronotum separated by a carina; seen in full-face view, dorsum of petiolar node emarginate, its angles in the form of small teeth (Figure 671)
..... ***Stigmacros* sp. JDM 622**
[<https://www.antweb.org/specimenImages.do?name=jdm32-002370-2>]



FIGURES 667–673 667) *Stigmacros anthracina* holotype (ANTWEB1008327); 668) *Stigmacros brachytera* holotype (ANTWEB1008329); 669) *Stigmacros elegans* holotype (CASENT0172181); 670) *Stigmacros* sp. JDM 1045 (JDM32-002377); 671) *Stigmacros* sp. JDM 622 (JDM32-002370-2); 672) *Stigmacros aemula* (CASENT0217812); 673) *Stigmacros* sp. JDM 827 (JDM32-002334).

- Dorsal surface of pronotum smoothly rounded over to its lateral surface; seen in full-face view, dorsum of petiolar node bilobate or a simple convexity 12
- 12. In dorsal and profile views, propodeum with a flattened or weakly concave dorsum to the level of the propodeal angles, the propodeal angle distinct.....13
 - In dorsal and profile views, propodeum with a dorsum that slopes posteriad, the propodeal angle weak or absent.....14
- 13. Head and body completely glabrous; most workers strongly bicoloured with black head and dark gaster and dull ochre or yellowish mesosoma and node (Figure 672).....
 - *aemula* (Forel)
 - [<https://www.antweb.org/specimenImages.do?name=casent0217812>]
- Gaster and often pronotum with a few shortish, stout erect setae; head and mesosoma brown with gaster concolorous or a darker brown (Figure 673).....
 -*Stigmacros* sp. JDM 827 (part)
 - [<https://www.antweb.org/specimenImages.do?name=jdm32-002334>]
- 14. Seen in dorsal view, head black or blackish and much darker than the pronotum; worker glabrous (Figure 674).....
 - *epinotalis* McAreavey
 - [<https://www.antweb.org/specimenImages.do?name=antweb1008334>]
- Seen in dorsal view, head concolorous with pronotum or only slightly darker; worker with fine erect setae on gaster, at least, and often also on other body surfaces (Figure 675).....
 -*pilosella* Viehmeier
 - [<https://www.antweb.org/specimenImages.do?name=casent0281495>]



FIGURES 674–685 674) *Stigmacros epinotalis* holotype (ANTWEB1008334); 675) *Stigmacros pilosella* (CASENT0281495); 676) *Stigmacros* sp. JDM 1237 (JDM32-004663); 677) *Stigmacros* sp. JDM 1046 (JDM32-002378); 678) *Stigmacros barretti* syntype (CASENT0912434); 679) *Stigmacros* sp. JDM 832 (JDM32-002375); 680) *Stigmacros inermis* holotype (ANTWEB1008342); 681) *Stigmacros termitoxena* (ANTWEB1008719); 682) *Stigmacros* sp. JDM 1091 (ANTWEB1041179); 683) *Stigmacros* sp. JDM 1367 (JDM32-002382); 684) *Stigmacros* sp. JDM 396 (JDM32-002367); 685) *Stigmacros reticulata* syntype (CASENT0903231).

15. Propodeum rounded without distinct dorsal surface; propodeal spiracular teeth reduced to short nubs; node a very thick scale, the dorsum of which is slightly indented medially16

Propodeum square or rectangular with distinct dorsal surface; propodeal spiracular teeth typically well-developed; node a thin, scale whose dorsum is often indented medially to varying degrees, more rarely bearing spines or teeth17

16. Entire surface of mesosoma matt and covered with fine, longitudinal striae (Figure 676).....
..... *Stigmacros* sp. JDM 1237

[<https://www.antweb.org/specimenImages.do?name=jdm32-004663>]

Mesosoma smooth and shining apart from a few striolae on lower mesopleuron and propodeum (Figure 677).....
..... *Stigmacros* sp. JDM 1046

[<https://www.antweb.org/specimenImages.do?name=jdm32-002378>]

17. Petiolar node with strongly developed dorsal spines directed posteriad18
 Petiolar node without dorsal spines (may have blunt teeth).....19
18. Propodeal spiracular spine well-developed; petiolar node with well-developed lateral spines (Figure 678).....*barretti* Santschi
 [https://www.antweb.org/specimenImages.do?name=casent0912434]
 Propodeal spiracular spine reduced to a very short denticle and petiolar node lacking lateral spines (Figure 679).....
 *Stigmacros* sp. JDM 832
 [https://www.antweb.org/specimenImages.do?name=jdm32-002375]
19. Mesosoma with erect setae..... 20
 Mesosoma glabrous 25
20. Appendages as well as mesosoma with many erect setae; propodeal spiracular spine vestigial; bicoloured with dark brown head and gaster and tawny orange mesosoma (Figure 680).....*inermis* McAreavey
 [https://www.antweb.org/specimenImages.do?name=antweb1008342]
 Appendages without erect setae; propodeal spiracular spine small but well-developed; orange or reddish-orange species that may have a darker gaster21
21. Erect setae on mesosoma stout, very short, few in number (≤ 6), confined to pronotum and mesonotum..... 22
 Erect setae on mesosoma more numerous (> 9) and occurring on propodeum as well as pronotum and mesonotum, setae may be fine and long.....24
22. Seen in profile, mesonotum convex, descending smoothly to metanotal groove, which is distinct but broadly and not deeply impressed; mesothoracic spiracles indicated by small tubercles orientated dorsally; seen in full-face view, clypeus distinctly carinate, the median longitudinal carina terminating on the anterior clypeal margin as a small denticle (Figure 681)
 *termitoxena* Wheeler (part)
 [https://www.antweb.org/specimenImages.do?name=antweb1008719]
 Seen in profile, mesonotum only very weakly convex, metanotal groove narrow and deeply impressed; mesothoracic spiracles indicated by small processes on margin of mesonotum that are directed posteriad; seen in full-face view, clypeus without a distinct carina and more-or-less evenly convex..... 23
23. Species weakly shining, with shallow areolate microsculpture on mesosoma; erect mesosomal setae represented on anterior pronotum with a pair of short, thick setae also on posterior sector of mesonotum near the metanotal groove (Figure 682)
 *Stigmacros* sp. JDM 1091
 [https://www.antweb.org/specimenImages.do?name=antweb1041179]
 Species moderately shining, with imbricate microsculpture on mesosoma; erect setae confined to a few short, thick setae on anterior pronotum (*Campostigmacros*) (see Figure 673).....*Stigmacros* sp. JDM 827 (part)
 [https://www.antweb.org/specimenImages.do?name=jdm32-002334]
24. Seen in full-face view, petiolar node with a pair of blunt dorsal teeth and well-developed lateral teeth; head and mesosoma dull, uniformly microreticulate (Figure 683).....
 *Stigmacros* sp. JDM 1367
 [https://www.antweb.org/specimenImages.do?name=jdm32-002382]
 Seen in full-face view, petiolar node medially weakly emarginate dorsally and with short lateral denticles; head and mesosoma moderately shining, with superficial microreticulation (Figure 684)
 *Stigmacros* sp. JDM 396
 [https://www.antweb.org/specimenImages.do?name=jdm32-002367]
25. Shagreenate black or variegated black-and-brown species; tibiae, other articulations of the leg, antennae and mandibles are pale yellowish and conspicuously paler than the rest of the ant (Figure 685).... *reticulata* Clark
 [https://www.antweb.org/specimenImages.do?name=casent0903231]
 Colour combination not as above (colour ranges from pale yellow to olive brown, workers being concolorous or bicoloured) 26
26. Seen in full-face view, petiolar node deeply emarginate, its dorsum produced as two blunt teeth; lateral teeth small but spinous in appearance..... 27
 In full-face view, dorsum of petiolar node not deeply emarginate, at most weakly indented medially; lateral teeth either lacking or present as tiny denticles 28

27. Seen in dorsal view, mesosoma uniformly alveolate, matt; gaster with dilute pubescence, its underlying sculpture consisting of very fine, longitudinal striolae that can be seen in some lights (Figure 686) *punctatissima* McAreavey

[<https://www.antweb.org/specimenImages.do?name=antweb1008348>]

Seen in dorsal view, mesosoma weakly and superficially areolate, moderately shining; appressed setae on gaster well-spaced and not forming pubescence, its underlying sculpture consisting of superficial microreticulation only (Figure 687) *Stigmacros* sp. JDM 1067

[<https://www.antweb.org/specimenImages.do?name=jdm32-002343>]

28. Seen in dorsal view, dorsal face of propodeum flat and square, at least as long as wide, and lacking carina (workers with dark reddish-orange head and mesosoma and chocolate legs and black gaster) (Figure 688) *Stigmacros* sp. JDM 1001

[<https://www.antweb.org/specimenImages.do?name=antweb1041178>]

Seen in dorsal view, if dorsal face of propodeum is as long as wide then medially concave, with lateral carinae 29

29. Tiny (HW ≤ 0.45 mm), shining, yellow or yellow-and-brown species; seen in profile mesosoma rather flat and smooth without metanotal ridge or metathoracic tubercles; seen in dorsal view, propodeum a narrow transverse rectangle, not defined laterally by carinae, or two prominences separated by a longitudinal median furrow (these species correspond to subgenus *Stigmacros* in McAreavey's 1957 revision, but the ants are not necessarily closely related) 30

Larger (HW > 0.50 mm), matt or weakly shining, finely sculptured species; seen in profile, mesosoma gently convex terminating in a weakly developed metanotal ridge with metathoracic spiracles indicated by small prominences; seen in dorsal view, propodeum hollowed out medially and defined laterally by carinae (McAreavey's subgenus *Cyrtostigmacros*) ... 33

30. Seen in profile, propodeal angles represented by small teeth that are orientated dorsally; seen in dorsal view, humeri well-developed

giving the mesosoma a conspicuously inverted triangular appearance (Figure 689) *pusilla* McAreavey

[<https://www.antweb.org/specimenImages.do?name=antweb1008349>]

Seen in profile, propodeal angles not dentate, either dorsal face smoothly rounded on to declivous face or propodeal angles weakly defined and joined by a carina; seen in dorsal view, humeri rounded and mesosoma not conspicuously triangular 31

31. Antennal scape longer, extending beyond vertex by about 0.30 × its length; eye large (EL ~0.30 × length of side of head); seen in dorsal view, propodeum nearly flat, weakly and broadly emarginate posteriorly, its length ~0.67 × its width (Figure 690) *rectangularis* McAreavey

[<https://www.antweb.org/specimenImages.do?name=antweb1008350>]

Antennal scape shorter, barely attaining the vertex or surpassing it by about 2 × greatest width of antenna; eye variable in size but always smaller (EL < 0.30 × length of side of head, usually < 0.25 × length of side of head); seen in dorsal view, propodeum either a broad, narrow ridge, its length very much less than its width, or, propodeum bimodal (best seen in rear view) and raised as a rounded prominence at each of the propodeal angles 32

32. Head light brown or tawny yellow, mesosoma yellow to tawny yellow, gaster brown or yellow anteriorly and brown posteriorly, flagellum of antenna brown and distinctly darker than scape; propodeum lacking a posterior carina, being either a weakly defined transverse rectangle much wider than long, or two rounded prominences separated by a broad, longitudinal medial furrow (Figure 691) *froggatti* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0903230>]

Worker concolorous pale yellow; propodeum weakly concave medially and defined posteriorly by a strong carina (Figure 692) *Stigmacros* sp. JDM 115

[<https://www.antweb.org/specimenImages.do?name=jdm32-002347>]

33. Eye larger (EW ≥ 0.30 × length of side of head) 34
 Eye smaller (EW ≤ 0.20 × length of side of head) 35

34. Worker compact (in dorsal view, mesonotum about as long as wide); also in dorsal view, mesometanotal suture visible as a transverse groove above the metathoracic spiracular prominences; seen in full-face view, antennal scapes short, surpassing the vertex by slightly more than their greatest width (Figure 693) *Stigmacros* sp. JDM 1135

[<https://www.antweb.org/specimenImages.do?name=jdm32-002376>]

Worker less compact (in dorsal view, mesonotum ~1.3 × longer than wide); also in dorsal view, mesometanotal suture indistinct; seen in full-face view, antennal scapes longer, surpassing the vertex by about a third of their length (Figure 694) *termitoxena* Wheeler (part)

[<https://www.antweb.org/specimenImages.do?name=antweb1008719>]



FIGURES 686–697 686) *Stigmacros punctatissima* holotype (ANTWEB1008348); 687) *Stigmacros* sp. JDM 1067 (JDM32-002343); 688) *Stigmacros* sp. JDM 1001 (ANTWEB1041178); 689) *Stigmacros pusilla* holotype (ANTWEB1008349); 690) *Stigmacros rectangularis* syntype (ANTWEB1008350); 691) *Stigmacros froggatti* syntype (CASENT0903230); 692) *Stigmacros* sp. JDM 115 (JDM32-002347); 693) *Stigmacros* sp. JDM 1135 (JDM32-002376); 694) *Stigmacros termitoxena* (ANTWEB1008719); 695) *Stigmacros flava* holotype (ANTWEB1008337); 696) *Stigmacros occidentalis* (CASENT0906280); 697) *Stigmacros clivispina* syntype (CASENT0909935).

35. Pallid, dull yellow species, except for posterior of gaster, which is brown (Figure 695)
*flava* McAreavey

[<https://www.antweb.org/specimenImages.do?name=antweb1008337>]

If ant has pale yellow head and mesosoma, then petiolar node and gaster are brown... 36

36. Seen in rear view, sides of petiolar node convex and node may bear tiny lateral denticles; imbricate sculpture of mesosoma generally less intense, colour of mesosoma yellow (Figure 696).....*occidentalis* Crawley

[<https://www.antweb.org/specimenImages.do?name=casent0906280>]

Seen in rear view, sides of petiolar node straight, always lacking lateral denticles; imbricate sculpture of mesosoma generally more intense, colour of mesosoma typically brown (but lighter coloured morphs [possibly tenerals] also occur) (Figure 697)....
*clivispina* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0909935>]

LEPTANILLINAE

One species (*Leptanilla swani* Wheeler) (see Figure 66).

[<https://www.antweb.org/specimenImages.do?name=casent0172006>]

MYRMECIINAE

Myrmecia

M. inquilina Douglas & Brown occurs in WA and type material is held in WAM, but the species is not included in this key as it is only known from a workerless queen.

1. Occipital carina present 2
 Occipital carina absent21

2. Subapical portion of mandible without a supplementary ventral tooth (*M. urens* group) 3

Subapical portion of mandible with a supplementary ventral tooth (*M. gulosa* group) 6

3. Mandibular shaft narrow at the extreme base, broadened over basal quarter to fifth of its length; mandible not darkened (Figure 698)*urens* (Lowne)

[<https://www.antweb.org/specimenImages.do?name=antweb1041176>]

Mandibular shaft even in width, mandibles long and slender, often darkened to varying degrees 4

4. Worker very small (HW ~1 mm), arguably smallest Australian *Myrmecia* species; seen in dorsal view, sculpture of pronotum consisting of concentric striae over indistinct surface sculpture; also in dorsal view, dorsum of petiolar node longer than wide, shining, with diffuse superficial sculpture only; mesonotum also shining and unsculptured apart from superficial microreticulation; dorsum of node always with conspicuous brown medial infuscation, the rest of the node being a dirty orange (Figure 699)
 *Myrmecia urens* group sp. JDM 71

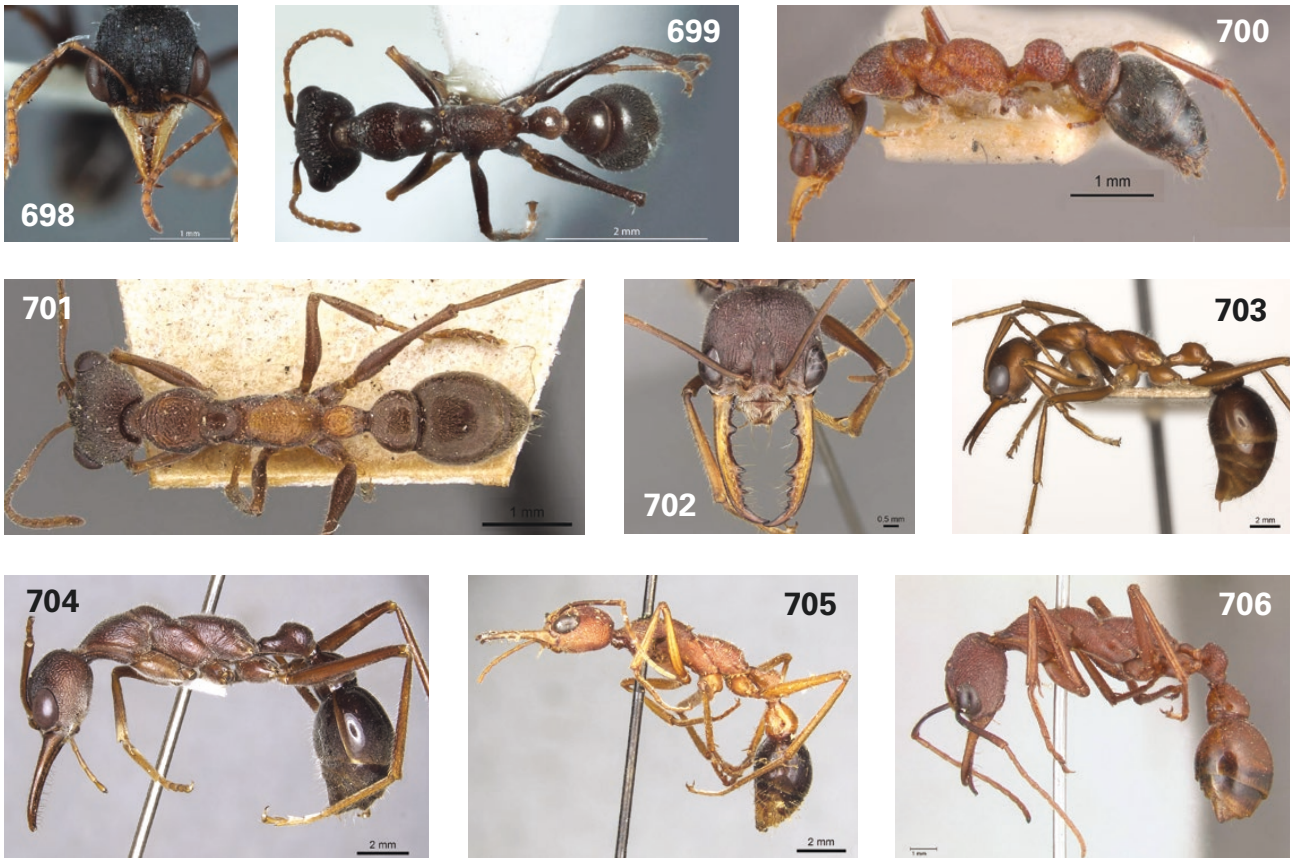
[<https://www.antweb.org/specimenImages.do?name=jdm32-002547>]

Worker larger (HW > 1.30 mm); seen in dorsal view pronotum coarsely striate-reticulate; if dorsum of petiolar node longer than wide, then matt and distinctly sculptured; mesonotum also matt or weakly shining with weak longitudinal or horizontal striolae or other sculpture (sculpture more pronounced in larger specimens); dorsum of node not as above, usually concolorous red or black..... 5

5. Seen in dorsal view, dorsum of petiolar node in smaller workers distinctly trapezoid, longer than wide, the anterior margin shorter than the posterior margin, node in large workers about as long as wide but still trapezoid; on close inspection, petiolar node covered with dilute pubescence that converges to form a visible midline when node is viewed obliquely; seen in full-face view, mandible yellow, much more rarely dusky yellow, without apical darkening, pubescence on clypeus and lower genae fine, shining yellowish-white; mandibles visibly longer than head (Figure 700)*exigua* (Clark)

[<https://www.antweb.org/specimenImages.do?name=antweb1008284>]

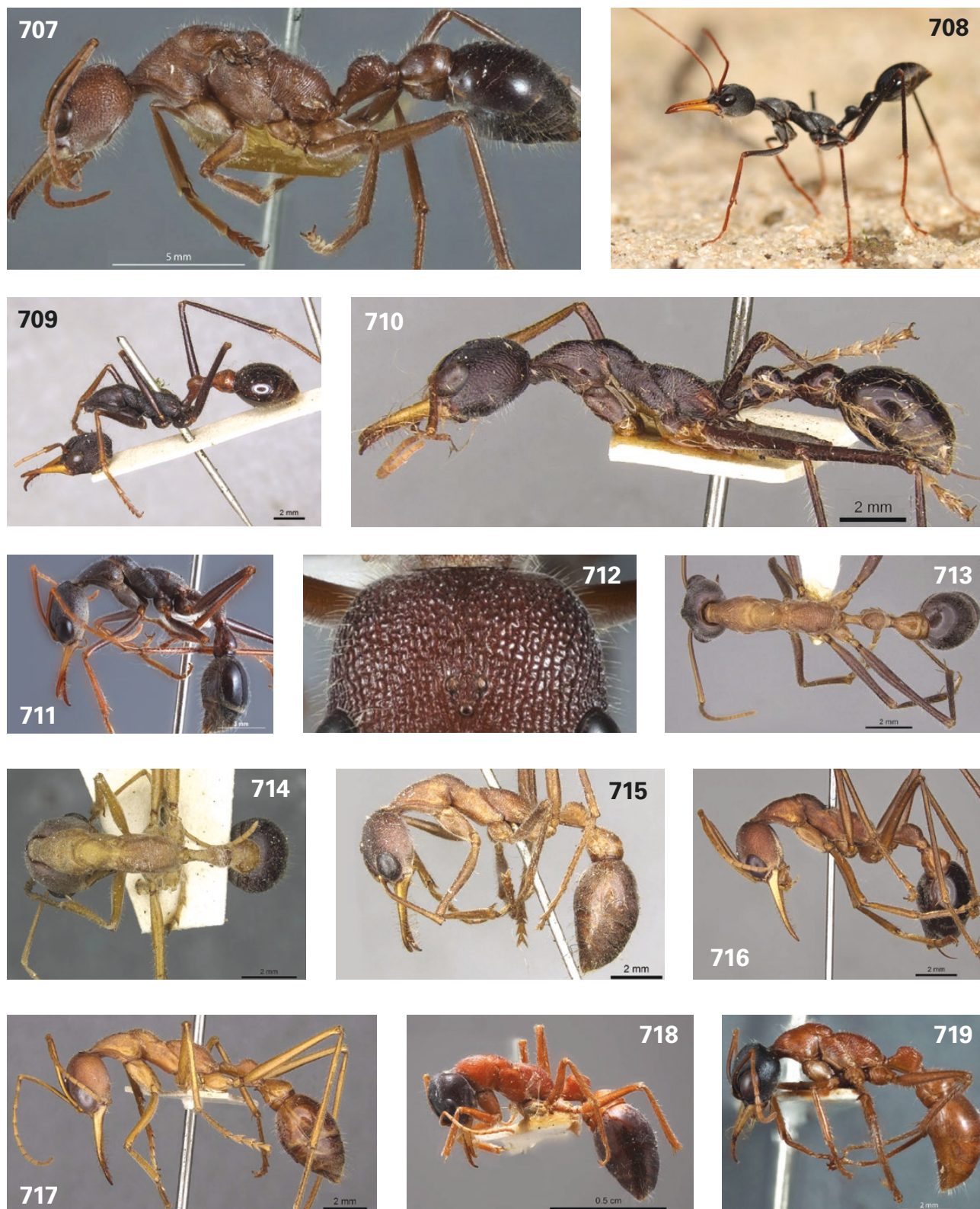
Seen in dorsal view, dorsum of petiolar node rounded or square, as wide as long or wider than long; on close inspection, appressed setae on petiolar node more dispersed, not forming a visible midline when node is viewed obliquely; seen in full-face view, mandible colour ranging from yellow to bicoloured yellow basally and blackish in



FIGURES 698–706 698) *Myrmecia urens* (ANTWEB1041176); 699) *Myrmecia urens* group sp. JDM 71 (JDM32-002547); 700) *Myrmecia exigua* holotype ('*Promyrmecia exigua*') (ANTWEB1008284); 701) *Myrmecia infima* syntype (CASENT0907090); 702) *Myrmecia forceps* (CASENT0914018); 703) *Myrmecia regularis* (CASENT0217502); 704) *Myrmecia erecta* paratype (CASENT0902793); 705) *Myrmecia analis* syntype (CASENT0915831); 706) *Myrmecia nigriscapa* 'type' (AntWeb) (FOCOLO814).

- the apical half, but often darkened in the apical half, pubescence on clypeus and lower genae coarse, white; mandibles barely as long as head at maximum and may be visibly shorter than head (Figure 701) *infima* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0907090>]
- 6. Mandibles each with three enlarged teeth apart from the apical tooth (Figure 702) *forceps* Roger
[<https://www.antweb.org/specimenImages.do?name=casent0914018>]
Mandibles each with four or five enlarged teeth apart from the apical tooth..... 7
- 7. Mandibles medium reddish-brown to dark brown, approximately concolorous with head 8
- Mandibles light yellowish- to reddish-brown, distinctly lighter than head..... 9
- 8. Apex of gaster reddish to yellowish (Figure 703) *regularis* Crawley
[<https://www.antweb.org/specimenImages.do?name=casent0217502>]
Apex of gaster dark brown to blackish-brown (Figure 704) *erecta* Ogata & Taylor
[<https://www.antweb.org/specimenImages.do?name=casent0902793>]
- 9. Apex of gaster yellowish, scapes darker than head10
Apex of gaster blackish; scapes concolorous with or lighter than head.....11
- 10. Basal portion of gaster dark blackish-brown (Figure 705) *analis* Mayr
[<https://www.antweb.org/specimenImages.do?name=casent0915831>]

- Basal portion of gaster reddish-brown (Figure 706)..... *nigriscapa* Roger
[<https://www.antweb.org/specimenImages.do?name=focol0814>]
11. Seen in full-face view, mandibular shaft generally even in width, not narrowed basally..... 12
Seen in full-face view, mandibular shaft narrow at extreme base, broadened over basal quarter to fifth.....15
12. Seen in profile, petiolar peduncle short, at most as long as node and not reaching the apices of the hind coxae when they are extended (Figure 707, dealated queen).....
..... *picticeps* Clark
[<https://www.antweb.org/specimenImages.do?name=antweb1041175>]
Seen in profile, petiolar peduncle longer than petiolar node, reaching or exceeding the apices of the hind coxae when they are extended posteriad.....13
13. Pronotum with erect setae shorter than those of first segment of antennal flagellum (Figure 708)..... *rubripes* Clark
[https://www.flickr.com/photos/jean_hort/5823926213/]
Pronotum with erect setae longer than those of first segment of antennal flagellum.....14
14. Petiole and postpetiole light yellowish- to reddish-brown, contrasting with the more darkly coloured mesosoma and gaster (sometimes the median sector of pronotum and propodeum are partially light-coloured) (Figure 709)..... *rufinodis* F. Smith
[<https://www.antweb.org/specimenImages.do?name=casent0902790>]
Petiole and post-petiole dark brown to black, concolorous with mesosoma and gaster (Figure 710)..... *arnoldi* Clark
[<https://www.antweb.org/specimenImages.do?name=casent0914017>]
15. Body colour variable, brownish-yellow to blackish, either with head concolorous with mesosoma or darker than mesosoma, but, in dorsal view, leg colour lighter than colour of mesosoma or the same colour, never darker; most workers with a central brownish infuscation of the otherwise yellow clypeus, this variably developed; erect setae on pronotum short, at maximum the same length as the width of the antennal scape but mostly shorter (Figure 711)..... *pavida* Clark
[<https://www.antweb.org/specimenImages.do?name=jdm32-002522>]
If ant similar to the above, then in dorsal view, leg colour darker than colour of mesosoma (thus, the otherwise very similar *M. fuscipes*), or clypeus entirely yellow, or erect setae on pronotum longer than greatest width of antennal scape.....16
16. Setae on head and mesosoma long and thick, those on sides near posterior corners of head extending beyond outer margins of eye (Figure 712)..... *fulgida* Clark
[<https://www.antweb.org/specimenImages.do?name=jdm32-002458>]
Setae on head and mesosoma short and thin, those on sides near posterior corners of head not extending beyond outer margins of eyes17
17. Head blackish, concolorous with black gaster; mesosoma and nodes yellowish to dull brownish-orange, a little darker than the yellow mandibles.....18
Head dark reddish-brown to light reddish, lighter than black gaster (base of gaster may be dark red); mesosoma and nodes light reddish-brown to dark brown, much darker than mandibles19
18. Seen in dorsal view, legs dark brown, much darker than mesosoma (Figure 713)
..... *fuscipes* Clark
[<https://www.antweb.org/specimenImages.do?name=casent0914022>]
Seen in dorsal view, legs yellowish to dull orange, concolorous with mesosoma (Figure 714) *desertorum* Wheeler
[<https://www.antweb.org/specimenImages.do?name=casent0912436>]
19. On close inspection, antennal scape with numerous small, erect or sub-erect setae (note: may be difficult to see in abraded specimens) (Figure 715)..... *nigriceps* Mayr
[<https://www.antweb.org/specimenImages.do?name=casent0915833>]
On close inspection antennal scape almost lacking small, erect or sub-erect setae..... 20



FIGURES 707–719

707) *Myrmecia picticeps* (ANTWEB1041175); 708) *Myrmecia rubripes* (Munglinup, Western Australia); 709) *Myrmecia rufinodis* holotype (CASENT0902790); 710) *Myrmecia arnoldi* (CASENT0914017); 711) *Myrmecia pavida* (JDM32-002522); 712) *Myrmecia fulgida* (JDM32-002458); 713) *Myrmecia fuscipes* (CASENT0914022); 714) *Myrmecia desertorum* syntype ('*M. lutea*') (CASENT0912436); 715) *Myrmecia nigriceps* syntype (CASENT0915833); 716) *Myrmecia gratiosa* (CASENT0914024); 717) *Myrmecia vindex* syntype ('*M. vindex basirufa*') (CASENT0907095); 718) *Myrmecia cephalotes* syntype ('*Promyrmecia cephalotes*') (ANTWEB1008278); 719) *Myrmecia callima* (JDM32-002400).

20. Head light reddish-brown, concolorous with mesosoma; gaster always black (Figure 716) *gratiosa* Clark
 [https://www.antweb.org/specimenImages.do?name=casent0914024]
 Head dark reddish-brown, distinctly darker than mesosoma; base of gaster may be reddish (variety *basirufa*) (Figure 717).....
 *vindex* F. Smith
 [https://www.antweb.org/specimenImages.do?name=casent0907095]
21. Posterior tibial spur of hind leg a simple spine-like process (*M. cephalotes* group) 22
 Posterior tibial spur of hind leg distinctly pectinate.....24
22. First gastral tergite wholly or partially dark brown, contrasting with orange postpetiole (Figure 718) *cephalotes* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008278]
 Entire first gastral segment reddish-orange, concolorous with postpetiole 23
23. Entire gaster reddish-orange; seen in full-face view, mandibles broader, their outer borders convex (Figure 719)..... *callima* (Clark)
 [https://www.antweb.org/specimenImages.do?name=jdm32-002400]
 Two apical segments of gaster blackish, the rest light reddish-orange; mandibles slender, their outer borders virtually straight (Figure 720)..... *hilli* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008286]
24. Subapical portion of mandible with a single row of teeth (*M. picta* group) 25
 Subapical portion of mandible with a supplementary ventral tooth 26
25. Seen in full-face view, sub-basal portion of mandible only slightly broadened; erect setae on clypeus reaching basal quarter of mandible; pronotum light-reddish-brown (Figure 721) *fucosa* Clark
 [https://www.antweb.org/specimenImages.do?name=antweb1041430]
 Seen in full-face view, sub-basal portion of mandible distinctly broadened; erect setae on clypeus not reaching basal quarter of mandible; pronotum black (Figure 722)
 *picta* F. Smith
 [https://www.antweb.org/specimenImages.do?name=casent0902806]
26. Dentition strongly developed along entire inner margin of mandible (*M. pilosula* group) 27
 Dentition reduced or vestigial in the sub-basal portion of the mandible..... 35
27. Erect clypeal setae long, reaching at least to the basal quarter of the mandibles 28
 Erect clypeal setae short, at most only slightly exceeding anterior clypeal margin 30
28. Postpetiole distinctly sculptured; pubescence on gaster bright yellow (Figure 723, dealate queen) *rugosa* Wheeler
 [https://www.antweb.org/specimenImages.do?name=casent0902801]
 Postpetiole with at most vestigial sculpture; pubescence on gaster off-white, yellowish or bright orange 29
29. Erect setae on pronotum mostly longer than length of first segment of antennal flagellum; clypeus without yellow pubescence; mandible of more-or-less the same width throughout its length; gaster with bright orange pubescence (Figure 724).....
 *michaelseni* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0907087]
 Erect setae on pronotum mostly shorter than length of first segment of antennal flagellum; clypeus may have yellowish pubescence; mandible noticeably tapered along its length; gastral pubescence off-white to yellowish (Figure 725)..... *varians* Mayr
 [https://www.antweb.org/specimenImages.do?name=casent0902804]
30. Erect setae on hind tibia abundant and long, some setae as long as or longer than maximum width of tibia.....31
 Erect setae on hind tibia sparse and short, shorter than maximum width of tibia..... 32
31. Mandibles yellow to light fawn, lighter than head; in full-face/oblique view, upper part of head with more-or-less straight striae, the space between the striae smooth (Figure 726) *chasei* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0907076]
 Mandibles dark fawn to dark brown, often nearly concolorous with head; in full-face/oblique view, striae on upper part of head



FIGURES 720–737

720) *Myrmecia hilli* syntype ('*Promyrmecia hilli*') (ANTWEB1008286); 721) *Myrmecia fucosa* (ANTWEB1041430); 722) *Myrmecia picta* syntype (CASENT0902806); 723) *Myrmecia rugosa* syntype (CASENT0902801); 724) *Myrmecia michaelsoni* syntype (CASENT0907087); 725) *Myrmecia varians* syntype (CASENT0902804); 726) *Myrmecia chasei* syntype (CASENT0907076); 727) *Myrmecia ludlowi* syntype ('*M. chasei ludlowi*') (CASENT0902802); 728) *Myrmecia imaii* holotype (north of Denmark, Western Australia); 729) *Myrmecia dispar* (JDM2-002441); 730) *Myrmecia elegans* syntype ('*Promyrmecia elegans*') (ANTWEB1008282); 731) *Myrmecia occidentalis* syntype ('*Promyrmecia occidentalis*') (ANTWEB1008288); 732) *Myrmecia mandibularis* holotype (CASENT0902808); 733) *Myrmecia tepperi* 'type' ('*Promyrmecia tepperi*') (ANTWEB1008211); 734) *Myrmecia clarki* paratype (CASENT0902810); 735) *Myrmecia testaceipes* holotype ('*Promyrmecia testaceipes*') (ANTWEB1008295); 736) *Myrmecia swalei* (CASENT0914036); 737) *Myrmecia acuta* paratype (CASENT0902811).

- rather ragged in appearance with dimples or semi-reticulate spaces between them (Figure 727)..... *ludlowi* Crawley
 [https://www.antweb.org/specimenImages.do?name=casent0902802]
32. Mesosoma essentially uniformly black; petiole black (Figure 728)..... *imaii* Taylor
 [https://www.antwiki.org/wiki/Myrmecia_imaii]
 Mesosoma more-or-less uniformly light reddish to yellowish or bicoloured black- or brown-and-red; petiole commonly yellowish- to reddish-brown, very rarely black 33
33. With combination of mandibles dark brown, concolorous with head, and pubescence on clypeus whitish (Figure 729).....
*dispar* (Clark)
 [https://www.antweb.org/specimenImages.do?name=jdm32-002441]
 Mandibles usually lighter in colour, if darker, then pubescence on clypeus yellowish 34
34. Pubescence on clypeus yellowish; seen in full-face view, antennal scape not exceeding posterior border of head (Figure 730).....
*elegans* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008282]
 Pubescence on clypeus whitish; seen in full-face view, antennal scape exceeding posterior border of head by about half length of first segment of antennal flagellum (Figure 731)*occidentalis* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008288]
35. Clypeus with distinctly long, forwardly directed setae, reaching to about half the length of the mandible, or further (*M. mandibularis* group) (Figure 732).....
*mandibularis* F. Smith
 [https://www.antweb.org/specimenImages.do?name=casent0902808]
 Clypeus with shorter setae (*M. tepperi* group) 36
36. Body more-or-less uniformly blackish brown 37
 Body bicoloured: head and gaster blackish-brown, mesosoma and petiole reddish 38

37. Mandibles dark brown, dorsal surface of second and following gastral segments with gold pubescence (Figure 733)*tepperi* Emery
 [https://www.antweb.org/specimenImages.do?name=antweb1008211]
 Mandibles yellowish, dorsal surface of second and following gastral segments with sparse white pubescence (Figure 734)
*clarki* Crawley
 [https://www.antweb.org/specimenImages.do?name=casent0902810]
38. Legs reddish-brown, approximately concolorous with mesosoma (often a little lighter); postpetiole usually lighter in colour than gaster (Figure 735).....*testaceipes* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008295]
 Legs distinctly darker brown than mesosoma; postpetiole dark in colour, concolorous with gaster 39
39. Dorsal projection of labrum obtuse, broadly rounded (Figure 736)..... *swalei* Crawley
 [https://www.antweb.org/specimenImages.do?name=casent0914036]
 Dorsal projection of labrum narrow and acute (Figure 737) *acuta* Ogata and Taylor
 [https://www.antweb.org/specimenImages.do?name=casent0902811]

Nothomyrmecia

- One species (*Nothomyrmecia macrops* Clark) (see Figure 67).
 [https://www.antweb.org/specimenImages.do?name=casent0003155]

MYRMICINAE

Adlerzia

- One species (*Adlerzia froggatti* [Forel 1902]) (see Figure 83).
 [https://www.antweb.org/specimenImages.do?name=casent0010805]

Aphaenogaster

1. Erect setae on underside of head randomly distributed and not forming a distinct psammophore (Figure 738)
*kimberleyensis* Shattuck
 [https://www.antwiki.org/wiki/Aphaenogaster_kimberleyensis]

Majority of erect setae on underside of head located laterally to form a psammophore (only scattered setae on central sector)..... 2

2. Eye relatively large (EL ~0.25 × length of side of head); antennal scape relatively long (scape exceeds vertex by ≥ 2 × its greatest width) (Figure 739).....*mediterrae* Shattuck

[https://www.antwiki.org/wiki/Aphaenogaster_mediterrae]

Eye relatively smaller (EL ~0.23 × length of side of head); scape relatively short (scape exceeds vertex by ≤ 1 × its greatest width) 3

3. Seen in profile, petiolar peduncle shorter, petiolar spiracle placed just in front of anterior face of node; seen in full-face view, mandibular sculpture composed of regularly sized striations (Figure 740).....*barbigula* Wheeler

[<https://www.antweb.org/specimenImages.do?name=casent0280943>]

Seen in profile, petiolar peduncle longer, petiolar spiracle placed well ahead of anterior face of node; seen in full-face view, mandibular sculpture composed of irregularly sized striations (Figure 741)*poultoni* Crawley

[https://www.antwiki.org/wiki/Aphaenogaster_poultoni]

Austromorium

1. Body smaller (HW < 0.85 mm); gaster banded (honey yellow anteriorly and posteriorly, brown medially) or uniformly yellow; propodeal lobes developed as sharp spines posteriorly (Figure 742).....*flavigaster* Clark

[<https://www.antweb.org/specimenImages.do?name=casent0106211>]

Body larger (HW > 1.30 mm); gaster uniformly coloured dark brown; propodeal lobes large and rounded posteriorly (Figure 743).....*hetericki* Shattuck

[https://www.antwiki.org/wiki/Austromorium_hetericki]

Cardiocondyla

1. Seen in profile, metanotal groove distinct; also in profile, propodeal spines well-developed and thin, longer than they are wide across their base (Figure 744).....*wroughtonii* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0908350>]

Seen in profile, metanotal groove weakly developed or absent; also in profile, propodeal spines developed as short, angular teeth, about as wide across their base as they are long 2

2. Seen in rear view, appressed setae on gaster shorter, each seta clearly separated from the seta above it and below it (Figure 745)*paranuda* Seifert

[<https://www.antweb.org/specimenImages.do?name=casent0914965>]

Seen in rear view, appressed setae on gaster longer, each seta overlapping or at least touching the one approximately above it and approximately below it 3

3. Appearance of head and mesosoma matt, their surfaces covered with distinct areolae (Figure 746)*nuda* (Mayr)

[<https://www.antweb.org/specimenImages.do?name=casent0919732>]

Appearance of head and mesosoma weakly shining, the areolate sculpture on their surfaces partially effaced (Figure 747).....*atalanta* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0908343>]

Carebara

Only minor workers are known for two species, hence there is no key to major workers. Images of the major workers can be found on AntWeb: *Carebara affinis* (<https://www.antweb.org/specimenImages.do?name=casent0106016>); *C. cornigera* (<https://www.antweb.org/specimenImages.do?name=casent0106016>).

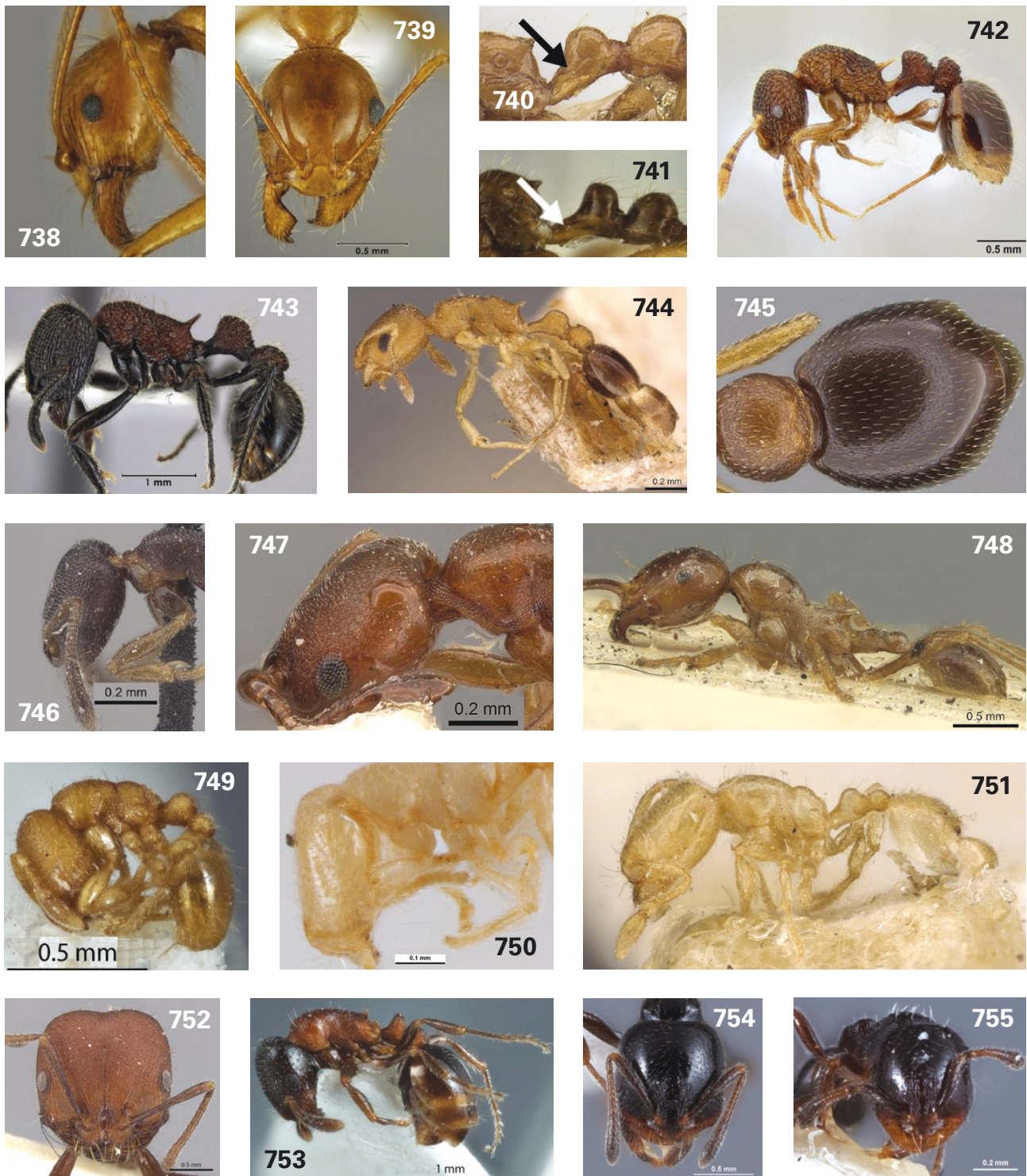
1. Propodeal angle armed with a long, curved spine; eye small, multifaceted (Figure 748).....*affinis* (Jerdon)

[<https://www.antweb.org/specimenImages.do?name=casent0901419>]

Propodeal angle unarmed, each angle bearing a flange that descends along sides of the propodeal declivity; eye minute, represented by single facet, or eye absent..... 2

2. Seen in profile, ant matt with sides of head and mesosoma completely covered with areolate sculpture; single-faceted eye distinct as a tiny black fleck (Figure 749).....*Carebara* sp. JDM 440

[<https://www.antweb.org/specimenImages.do?name=antweb1041174>]



FIGURES 738–755

738) *Aphaenogaster kimberleyensis* holotype (ANIC32-017982); 739) *Aphaenogaster mediterrae* holotype (ANIC32-031016); 740) *Aphaenogaster barbigula* (CASENT0280943); 741) *Aphaenogaster poultoni* (ANIC32-001132); 742) *Austromorium flavigaster* (CASENT0106211); 743) *Austromorium hetericki* (ANIC; S.O. Shattuck) (ANIC32-051957); 744) *Cardiocondyla wroughtonii* syntype (CASENT0908350); 745) *Cardiocondyla paranuda* (CASENT0914965); 746) *Cardiocondyla nuda* lectotype ('*Leptothorax nudus*') (CASENT0919732); 747) *Cardiocondyla atalanta* syntype ('*C. nuda atalanta*') (CASENT0908343); 748) *Carebara affinis* syntype ('*Solenopsis laboriosa*') (CASENT0901419); 749) *Carebara* sp. JDM 440 (ANTWEB1041174); 750) *Carebara* sp. JDM 1131 (Barrow Island, Western Australia); 751) *Carebara cornigera* syntype ('*Oligomyrmex corniger parvicornis*') (CASENT0908904); 752) *Chelaner striatifrons* paratype (CASENT0902325); 753) *Chelaner whitei* group sp. JDM 1178 (JDM32-003562); 754) *Chelaner anthracinus* major (ANTWEB1041388); 755) *Chelaner anthracinus* minor (JDM32-003494).

Seen in profile, ant with at least the sides of the promesonotum smooth and shining; eye barely visible or completely absent..... 2

2. Head distinctly dorsoventrally flattened and, in full-face view, a longitudinal rectangle (HW ~0.50 × HL), setae on sides of head and on antennal scape erect; colour a depigmented creamy-yellow (Figure 750).....
..... **Carebara sp. JDM 1131**

[<https://www.padil.gov.au/barrow-island/pest/main/136671>]

Head not distinctly dorsoventrally flattened and, in full-face view, a squarish rectangle, (HW ~0.75 × HL), setae on sides of head and on antennal scape sub-decumbent; colour a bright yellow (Figure 751).....
..... **Carebara cornigera** (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0908904>]

Chelaner

1. Workers always with 4 well-developed mandibular teeth; always strongly sculptured with small workers predominantly microreticulate, rarely with foveate sculpture (and then on head only), and large workers with strongly rugose or costate sculpture; petiole with a relatively long pedicel and bluntly conical node; clypeus bicarinate and often broadly excised medially, the clypeal carinae typically developed as strong teeth (multiple teeth in some taxa) or at least short denticles (*C. whitei* species-group)..... 2

Worker mandible primitively with 5 teeth, two or more of which may be split into tiny denticles, but fusion resulting in 2, 3 and 4 teeth (two taxa) does occur rarely, if mandible 4-toothed then node distinctly narrowly or broadly rectangular with a short pedicel and cuticle predominantly foveate (one species) or sculpture mainly confined to propodeum (second species); clypeus bicarinate and medially narrowly excised, the clypeal carinae developed as short denticles or sharp angles, or clypeus only weakly bicarinate and not or barely medially excised, the clypeal carinae not developed as teeth or angles (other *Chelaner* species-groups)9

2. Seen in full-face view, sculpture of head longitudinally costulate; also in full-face view, anteromedial sector of clypeus

weakly emarginate and passing over to its lateral sectors through a broad convexity (monomorphic red species) (Figure 752)
..... **striatifrons** (Heterick)

[<https://www.antweb.org/specimenImages.do?name=casent0902325>]

Seen in full-face view, sculpture of head variably striolate, microreticulate, foveate, smooth and shining or a mixture of these, but not longitudinally costulate; also in full-face view, frontal carinae meeting the anterior clypeal margin as sharp teeth or denticles that separate the deeply emarginate V-shaped or U-shaped anteromedial sector from the lateral margins of the clypeus (mostly polymorphic or likely to be so) 3

3. Metanotal groove obsolete; minor worker tiny (HW < 0.45 mm) (major and media workers unknown); at least sides of head smooth and glassy with scattered foveae (Figure 753)
..... **whitei group sp. JDM 1178**

[<https://www.antweb.org/specimenImages.do?name=jdm32-003562>]

Metanotal groove always present and distinct; if minor worker tiny as above, then head always lacking foveae, being either completely smooth except for hair-pits and a few longitudinal striolae around the median carinae, or with some non-foveate sculpture that usually covers its surface..... 4

4. Frons of head smooth and shining except for striolae around the frontal carinae; in minor and media workers eye obliquely orientated, elongate, so its anterior margin is usually separated from the mandibular insertion by less than the width of the eye (most pronounced in smallest minor workers, where the anterior margin of the eye almost abuts the mandibular insertion); anteromedian clypeal margin with clypeal broadly V-shaped and produced as a single tooth; uniformly black or dark to light brown (minor) (Figures 754 [major], 755 [minor])..... **anthracinus** (Heterick)

[major: <https://www.antweb.org/specimenImages.do?name=antweb1041388>]

[minor: <https://www.antweb.org/specimenImages.do?name=jdm32-003494>]

Head usually matt and sculptured; if frons of head smooth and shining (some workers of *C. bicorne*), then ant distinctly bicoloured with black or dark brown head and

mesosoma and yellow or reddish gaster and anteromedian clypeal carinae always broadly U-shaped and often produced as multiple teeth or denticles; seen in profile, eye of all subcastes orientated along an longitudinal axis, or nearly so, and not noticeably elongate, its anterior margin separated from the mandibular insertions by much more than the width of the eye 5

- 5. Small (HW ≤ 0.52 mm) minor worker with overlapping decumbent and subdecumbent setae only on first gastral tergite, erect and suberect setae lacking on this sclerite; colour ranging from tawny yellow with slightly darker head to concolorous yellow (major and media workers unknown but likely to exist) (Figure 756).....*pubescens* (Heterick)
[https://www.antweb.org/specimenImages.do?name=casent0902320]

If minor worker of similar size, then with well-separated erect and suberect setae present on first gastral tergite and concolorous brown or brown-and-reddish-brown 6

- 6. Monomorphic species; ant with red or crimson-red head and mesosoma, the head anteriorly infuscated in some workers, gaster and legs red-brown; ant matt, sculpture finely and evenly microreticulate over entire head and mesosoma (Figure 757)*majeri* (Heterick)
[https://www.flickr.com/photos/myrmecian/7186336097]

Polymorphic species; if ant with reddish mesosoma (some major workers of *C. rufoniger*), then head and gaster black or blackish-brown and mesosoma moderately shining with some smooth spaces and longitudinal rugae on sides 7

- 7. Seen in profile, eye distinctly larger in relation to head (EW ≥ 0.25 × as long as length of side of head) (Figure 758).....*whitei* (Wheeler)
[https://www.antweb.org/specimenImages.do?name=antweb1041389]

Seen in profile, eye distinctly smaller in relation to head (EW ≤ 0.20 × length of side of head)..... 8

- 8. Major and media worker dissimilar in morphology to minor worker (major and media worker hirsute with rugose propodeum, minor worker with shorter setae and microreticulate propodeum); gaster the same colour as or darker than mesosoma (Figure 759).....*rufoniger* (Heterick)
[https://www.antweb.org/specimenImages.do?name=casent0902321]

Major and media worker with similar morphology to minor worker; gaster always lighter in colour than mesosoma in WA populations (Figure 760).....*bicornis* (Forel)
[https://www.antweb.org/specimenImages.do?name=jdm32-003501]

- 9. Seen in profile, petiolar node elongate, barrel-shaped, usually much longer than high; if node about as long as high, then ant with extensive and pronounced rugosity on sides of mesosoma and head is square, about as wide as long (*C. longinodis* species-group)....10

Seen in profile, petiolar node not elongate and barrel-shaped, usually as high as long or higher than long and projecting well above the petiolar peduncle; not rugose as above (except for one member of the *C. insolescens* species-group and *C. xantheklemma*, which have longitudinally rectangular heads)13

- 10. Worker with two or three mandibular teeth; seen in full-face view, clypeal carinae produced as stout teeth.....11

Worker with five mandibular teeth; seen in full-face view, clypeal carinae terminating in small angles or weak prominences..... 12

- 11. Number of mandibular teeth two (Figure 761)*bifidus* (Heterick)
[https://www.antweb.org/specimenImages.do?name=casent0902292]

Number of mandibular teeth three (Figure 762)*capito* (Heterick)
[https://www.antwiki.org/wiki/Chelaner_capito]

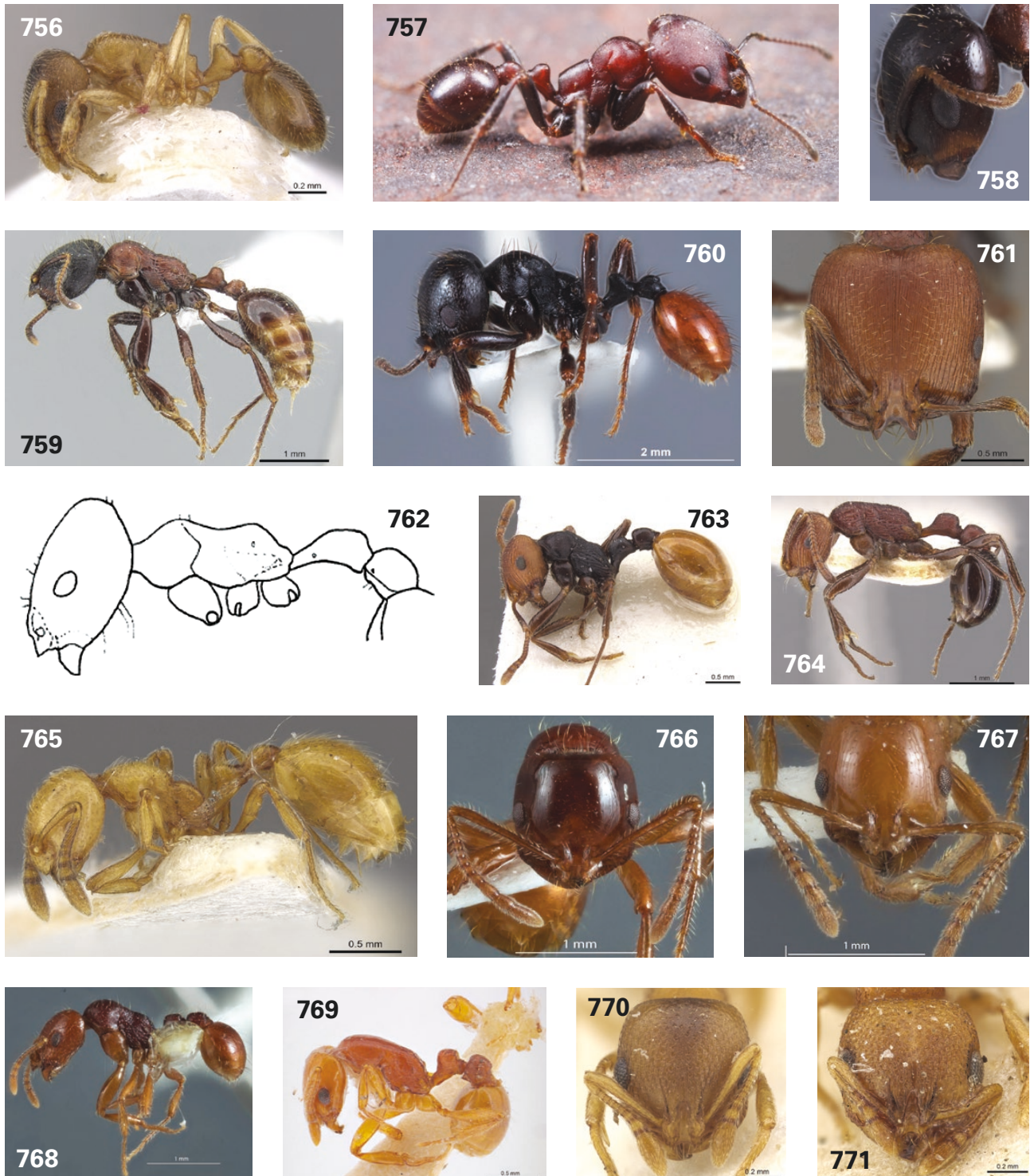
- 12. Seen in full-face view, head trapezoidal, narrowest at vertex; frons longitudinally striate; sculpture of sides of humeri restricted to microreticulation; head and gaster orange or yellow contrasting with dark blackish-brown to black mesosoma and nodes (Figure 763).....*flavonigrus* (Heterick)

[https://www.antweb.org/specimenImages.do?name=casent0902311]

Seen in full-face view, head rectangular; frons longitudinally striate-reticulate; humeri longitudinally rugose; ant otherwise coloured (usually head and mesosoma reddish or orange-and-reddish with or without infuscation of the head, and gaster brown or black) (Figure 764)*longinodis* (Heterick)

[https://www.antweb.org/specimenImages.do?name=casent0902313]

13. Seen in profile, postpetiole a curved, horizontal cone that is widest at its junction with the gaster (*C. kilianii* species-group) (Figure 765) *crinitus* (Heterick)
[<https://www.antweb.org/specimenImages.do?name=casent0902298>]
Seen in profile, postpetiole strongly constricted both anterior and posterior, so that its greatest diameter is at its midpoint; postpetiolar shape round, square or round with a slight dorsal lip facing posteriad14
14. Seen in profile, petiolar node strongly inclined posteriad, with anterior face of node much longer than its posterior face; also in profile, ventral surface of petiole with a characteristic small indentation just before the articulation of its posterior socket with the postpetiole; postpetiolar ventrite may have a strongly protruding anterior lip (*C. insolescens* species-group).....15
Seen in profile, petiolar node not strongly inclined as above, its anterior and posterior faces of equal length or the posterior face only slightly shorter than the anterior face; ventral surface of petiole without a small indentation just before the articulation of its posterior socket with the postpetiole; postpetiolar ventrite usually without a strongly protruding anterior lip.....18
15. Larger species (HW \geq 1 mm); mesosoma largely or wholly smooth, glassy in appearance; petiolar peduncle relatively long, its length \geq width of node16
Smaller species (HW \leq 0.8 mm); cuticle often largely matt, microreticulate; petiolar peduncle relatively short, its length \leq width of node.....17
16. Seen in full-face view, head weakly to strongly inversely trapezoid, its sides converging towards vertex, the vertex concave; also, in full-face view, pronotal sector distinctly convex (Figure 766).....
..... *insolescens* group sp. JDM 1381
[<https://www.antweb.org/specimenImages.do?name=antweb1041200>]
Seen in full-face view, head roundly rectangular, its sides more-or-less straight, the vertex planar or gently convex; also, in full-face view, pronotal sector very weakly convex to planar (Figure 767).....
..... *insolescens* group sp. JDM 1174
[<https://www.antweb.org/specimenImages.do?name=antweb1041199>]
17. Seen in profile, mesosoma noticeably though weakly bimodal with a slight hump around the pronotal sector and a dip in the mesonotal sector; eye large (EL \geq 0.20 \times HL); mesonotal sector and propodeum predominantly longitudinally striolate (*Chelaner longinodis*-like') (Figure 768).....
..... *insolescens* group sp. JDM 1382
[<https://www.antweb.org/specimenImages.do?name=antweb1041201>]
Seen in profile, mesosoma evenly planar or weakly concave without being noticeably bimodal; eye smallish to relatively large in different populations, but usually \leq 0.20 \times HL; mesosoma predominantly matt and microreticulate with any longitudinal striolae being few and short and located in the katepisternal region of the mesonotum (*Chelaner leae*-like') (Figure 769)
..... *insolescens* (Wheeler)
[<https://www.antweb.org/specimenImages.do?name=antweb1008205>]
18. In full-face and dorsal views, frons and promesonotum with fairly densely packed foveae; seen in rear view, propodeum with a flat, V-shaped area that descends from the middle of the promesonotum and extends to the base of the propodeum, this area demarcated by a carina, the carina interrupted only by the propodeal spines and the propodeal lobes; metanotal groove obsolete; gastral pilosity restricted to short, appressed setae spaced much more than their length apart (*C. falcatus* species-group)19
Frons and promesonotum not foveate as above; otherwise, without the above combination of characters (*C. rubriceps* species-group, *C. leae* complex) 20
19. Ant with ten antennal segments (Figure 770)
..... *decuria* (Heterick)
[<https://www.antweb.org/specimenImages.do?name=casent0902301>]
Ant with twelve antennal segments (Figure 771)
..... *elegantulus* (Heterick)
[<https://www.antweb.org/specimenImages.do?name=casent0902300>]
20. Seen in profile, postpetiolar ventrite with a large lip anteriorly, this lip directed obliquely (Figure 772).....
..... *rubriceps* group sp. JDM 1175
[<https://www.antweb.org/specimenImages.do?name=antweb1041203>]



FIGURES 756–771

756) *Chelaner pubescens* paratype ('*Monomorium pubescens*'); 757) *Chelaner majeri* (near Mount Magnet, Western Australia); 758) *Chelaner whitei* (ANTWEB1041389); 759) *Chelaner rufoniger* paratype ('*Monomorium rufonigrum*') (CASENT0902321); 760) *Chelaner bicornis* (JDM32-003501); 761) *Chelaner bifidus* paratype ('*Monomorium bifidum*') (CASENT0902292); 762) *Chelaner capito* (drawing from original description); 763) *Chelaner flavonigrus* paratype ('*Monomorium flavonigrum*') (CASENT0902311); 764) *Chelaner longinodis* paratype ('*Monomorium longinode*') (CASENT0902313); 765) *Chelaner crinitus* paratype ('*Monomorium crinitum*') (CASENT0902298); 766) *Chelaner insolescens* group sp. JDM 1381 (ANTWEB1041200); 767) *Chelaner insolescens* group sp. JDM 1174 (ANTWEB1041199); 768) *Chelaner insolescens* group sp. JDM 1382 (ANTWEB1041201); 769) *Chelaner insolescens* lectotype ('*Monomorium insolescens*') (ANTWEB1008205); 770) *Chelaner decuria* paratype ('*Monomorium decuria*') (CASENT0902301); 771) *Chelaner elegantulus* paratype ('*Monomorium elegantulum*') (CASENT0902300).

- Seen in profile, postpetiolar ventrite with the anterior process a small though distinct shelf.....21
21. Propodeal angles produced as sharp, elongate spines; seen in full-face view, head with many longitudinal striae (Figure 773).....
..... *sublamellatus* (Heterick)
- [<https://www.antweb.org/specimenImages.do?name=antweb1041381>]
- Propodeal angles either not armed or produced as short denticles or flanges only 22
22. Seen in full-face view, head smooth and shining and without sculpture or almost so (ignoring setae-bearing pits and striae extending from frontal carinae and around antennal insertions)..... 23
- Seen in full-face view, head with extensive and distinct sculpture on frons, frons usually matt..... 28
23. Seen in full-face view, basal tooth much larger than other preapical teeth; anteromedial sector of clypeus strongly and sharply convex and protrusive; strongly polymorphic with large-headed major workers (Figure 774)..... *euriodon* (Heterick)
- [<https://www.antweb.org/specimenImages.do?name=casent0902310>]
- Seen in full-face view, basal tooth at most the same size as other preapical teeth and often smaller; anteromedial sector of clypeus weakly convex and less protrusive or concave with 'V' or 'U'-shaped emargination; major and minor workers less dissimilar and either monomorphic or revealing monophasic allometry.....24
24. Sides of mesosoma and all of propodeum with pronounced longitudinal rugosity; propodeum rounded without distinct propodeal angles; ant with head and gaster yellow, mesosoma and nodes orange (Figure 775)..... *xantheklemma* (Heterick)
- [<https://www.antweb.org/specimenImages.do?name=casent0902326>]
- If ant with above colour pattern, then either sculpture of mesosoma not as above or propodeal angles armed with sharp angles or small denticles..... 25
25. Seen in profile, metanotal groove strongly indented and propodeum rounded without distinct propodeal angles; erect setae very short and straight, their length \leq length of the eye (which is rather small) (Figure 776).....
.....*brachythrix* (Heterick)
- [<https://www.antweb.org/specimenImages.do?name=casent0902294>]
- Seen in profile, metanotal groove only weakly indented or barely visible and propodeal angles often sharp or armed with very short denticles; erect setae often curved or suberect, the longest setae $>$ length of the eye..... 26
26. Ant strongly bicoloured, with light yellow head, brick-red mesosoma and nodes and light brown gaster; mandible with four teeth; seen in profile, petiolar node thick, cuboidal (Figure 777).....*durokoppinensis* (Heterick)
- [<https://www.antweb.org/specimenImages.do?name=jdm32-003548>]
- Ant not strongly bicoloured as above, the head never much lighter in colour than the mesosoma and usually the same colour or darker than the mesosoma; mandible nearly always with five teeth (the tiny basal denticle may be absent in some specimens); seen in profile, petiolar node never cuboidal, being either sub-rectangular or squamiform..... 27
27. In full-face view, clypeus with a V-shaped notch between the clypeal carinae, the median seta positioned at the centre of the notch; clypeal carina produced as blunt teeth (generally tawny brown ants with a rather thick, sub-rectangular petiolar node) (Figure 778).....*centralis* (Forel)
- [<https://www.antweb.org/specimenImages.do?name=casent0908671>]
- Seen in full-face view, clypeus medially and smoothly excavate to varying degrees between the clypeal carinae, the excavate area not extending right though the clypeus so that the midpoint of the clypeus is not indented but is either straight or a tiny convexity on which the median seta is situated; clypeal carinae either rounded at their junction with anterior margin of clypeus or produced as weak, obtuse angles (very colour variable and sometimes bicoloured but yellow and orange tones predominate, node generally scale-like, less commonly subrectangular) (Figure 779).....
.....*leae* (Forel)
- [<https://www.antweb.org/specimenImages.do?name=casent0908678>]



FIGURES 772–788

772) *Chelaner rubriceps* group sp. JDM 1175 (ANTWEB1041203); 773) *Chelaner sublamellatus* (ANTWEB1041381); 774) *Chelaner euryodon* paratype ('*Monomorium euryodon*') (CASENT0902310); 775) *Chelaner xanthelemma* paratype ('*Monomorium xanthelemma*') (CASENT0902326); 776) *Chelaner brachythrix* paratype ('*Monomorium brachythrix*') (CASENT0902294); 777) *Chelaner durokoppinensis* (JDM32-003548); 778) *Chelaner centralis* syntype ('*Monomorium centrale*') (CASENT0908671); 779) *Chelaner leae* syntype ('*Monomorium leae*') (CASENT0908678); 780) *Chelaner punctulatum* (ANTWEB1008681); 781) *Chelaner legulus* paratype ('*Monomorium legulum*') (CASENT0902312); 782) *Chelaner bihamatus* paratype ('*Monomorium bihamatum*') (CASENT0902293); 783) *Chelaner longiceps* (CASENT0217887); 784) *Chelaner lacunosus* (ANTWEB1041202); 785) *Colobostruma cerornata* paratype (CASENT0900008); 786) *Colobostruma nancyae* (CASENT0280689); 787) *Colobostruma mellea* paratype (CASENT0900006); 788) *Colobostruma elliotti* (CASENT0280687).

28. Seen in profile, mesosoma visibly flattened with a distinct, subcarinate separation of its dorsal surface from its sides; ant uniformly microreticulate; also in profile, eye relatively large (EL ~0.30 × length of side of head) (Figure 780) *punctulatus* (Heterick)

[<https://www.antweb.org/specimenImages.do?name=antweb1008681>]

Seen in profile, mesosoma more-or-less planar or weakly undulate but not distinctly flattened, the mesosoma rounded on to its sides; ant not uniformly microreticulate but always with other sculpture; eye relatively smaller (EL ≤ 0.25 × length of side of head) 29

29. Seen in profile, propodeal angles absent, the dorsal and declivous propodeal surfaces confluent or nearly so 30

Seen in profile, propodeal angles present as sharp, upturned angles or short teeth directed posteriad 31

30. Posterior sector of promesonotum and propodeum, at least, black and conspicuously darker than surrounding red or reddish areas (the nodes also often dark); frons with irregular longitudinal striolae and some reticulate as well as microreticulate sculpture (Figure 781) *legulus* (Heterick)

[<https://www.antweb.org/specimenImages.do?name=casent0902312>]

Mesosoma and nodes concolorous brick-red without such infuscation; frons with mainly microreticulate sculpture (Figure 782) *bihamatus* (Heterick)

[<https://www.antweb.org/specimenImages.do?name=casent0902293>]

31. Seen in profile, the promesonotum arising smoothly and evenly from its articulation with the head; propodeal angles variably developed as small angles through to small teeth, but usually directed vertically; legs yellow-brown, either the same colour as the mesosoma or darker than the mesosoma (very variable species, but likely monophyletic) (Figure 783) *longiceps* (Wheeler)

[<https://www.antweb.org/specimenImages.do?name=casent0217887>]

Seen in profile, the promesonotum arising abruptly from its articulation with the head, its neck sector separated from the rest of the promesonotum by a feeble transverse carina

(best viewed from above); propodeal angles developed as short, thin teeth directed posteriad; legs light yellow, distinctly lighter in colour than the yellowish-brown mesosoma (Figure 784) *lacunosus* (Heterick)

[<https://www.antweb.org/specimenImages.do?name=antweb1041202>]

Colobostruma

1. Seen in dorsal view, lateral postpetiole with sides approximately vertical, not expanded outwards; antenna four-segmented (Figure 785) *cerornata* Brown

[<https://www.antweb.org/specimenImages.do?name=casent0900008>]

Seen in dorsal view lateral postpetiole drawn outwards into flange-like wings; antennae with four or more segments 2

2. Seen in profile, the dorsum of the mesosoma broadly arched, the propodeum low, its posterior face greatly reduced (about the same height as the petiolar peduncle) and with very narrow, thickened lamellae (Figure 786) *nancyae* Brown

[<https://www.antweb.org/specimenImages.do?name=casent0280689>]

Seen in profile, the dorsum of the mesosoma at most weakly convex, the propodeum high, its posterior face at most only slightly less in height than the petiolar node and with broad, thin lamellae 3

3. Wing-like flange of postpetiole with translucent windows along both anterior and posterior margins, its anterior margin formed by a band of thickened integument (Figure 787) *mellea* Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0900006>]

Wing-like flange of postpetiole as above, but with translucent window on its posterior margin only 4

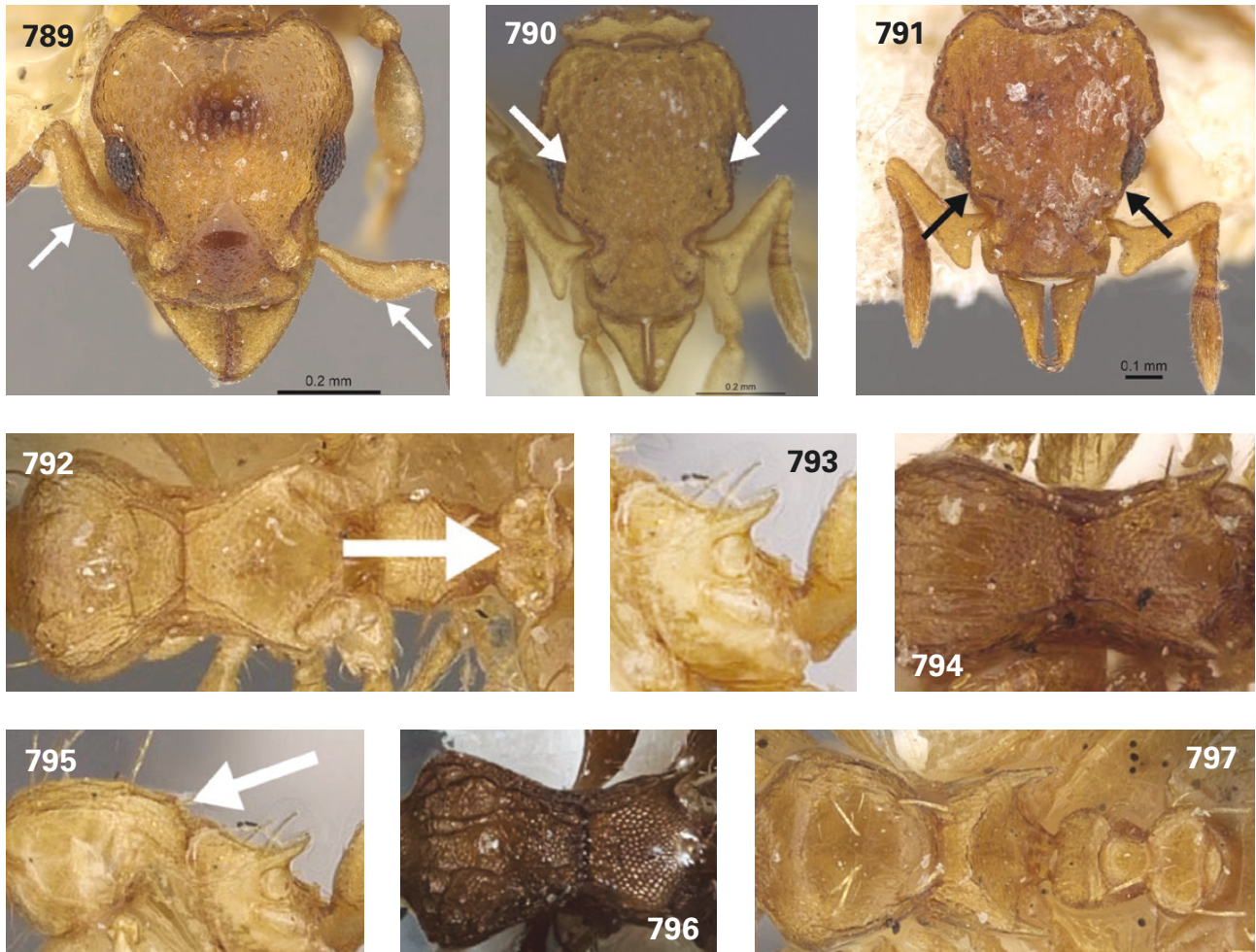
4. Antennae four- or five-segmented (Figure 788) *elliotti* (Clark)

[<https://www.antweb.org/specimenImages.do?name=casent0280687>]

Antennae with 6 or more segments 5

5. Antennae gently elbowed, lacking ventral lobe, antennal diameter changing gradually along its length (Figure 789) *australis* Brown

[<https://www.antweb.org/specimenImages.do?name=casent0900010>]



FIGURES 789–797 789) *Colobostruma australis* paratype (CASENT0900010); 790) *Colobostruma papulata* holotype (MCZ-31163); 791) *Colobostruma froggatti* syntype ('*Epopostruma froggatti*') (CASENT0909352); 792) *Crematogaster queenslandica gilberti* syntype (CASENT0908380); 793) Propodeum with bristly seta at base of each propodeal spine in *Crematogaster queenslandica* (CASENT0908379); 794) *Crematogaster bipartita* syntype ('*dispar bipartita*') (CASENT0908376); 795) *Crematogaster queenslandica* syntype ('*sordidula queenslandica*') (CASENT0908379); 796) *Crematogaster xerophila* (JDM32-003244); 797) *Crematogaster queenslandica froggatti* syntype (CASENT0917801).

Antennae strongly elbowed, with ventral lobe, greatest diameter of antenna being across lobe..... 6

- 6. Seen in full-face view, ridges immediately in front of eyes nearly parallel or diverging anteriad (Figure 790)*papulata* Brown
[https://www.antwiki.org/wiki/Colobostruma_papulata]

Seen in full-face view, ridges immediately in front of eyes converging anteriad (Figure 791)*froggatti* (Forel)
[<https://www.antweb.org/specimenImages.do?name=casent0909352>]

Crematogaster

Crematogaster eurydice Forel was described from a queen and has not been associated with the worker. Therefore, it is not included in this key. In all probability it is synonymous with one of the northern *Crematogaster* (*Crematogaster*) species that is known from the worker caste. The (abbreviated) definition of subgenus and the constituent species are taken from Blaimer (2012).

- 1. Seen in dorsal view, postpetiole usually lacking median impression or merely impressed posteriorly; if petiole distinctly bilobed then, in dorsal view, shape of petiole rectangular or ovo-rectangular (*Orthocrema* subgenus) 2

- Seen in dorsal view, postpetiole bilobed with a sharp, distinct median impression and form of petiole other than rectangular or ovoid-rectangular (*Crematogaster* subgenus)..... 8
2. Seen in dorsal view, postpetiole bilobed with a broad, shallow division between the lobes; seen in profile, mesosoma with three lines of erect setae (Figure 792).....
..... *queenslandica gilberti* Emery
[<https://www.antweb.org/specimenImages.do?name=casent0908380>]
- Seen in dorsal view, postpetiole either only weakly demarcated into two sectors or with posteromedian impression only or distinctly rounded and undivided; seen in profile, mesosoma usually with two lines of erect setae 3
3. Propodeum with a bristly, erect seta on either side, these situated just anterior of the base of the propodeal spine (see Figure 793)..... 4
[<https://www.antweb.org/specimenImages.do?name=casent0908379>]
- Erect setae completely absent from propodeum 5
4. Seen in dorsal view, posterior sector of mesonotum microreticulate, not delimited by a transverse carina; overall colour brown, apart from the darker posterior gaster (Figure 794).....*bipartita* Emery
[<https://www.antweb.org/specimenImages.do?name=casent0908376>]
- Seen in dorsal view, posterior sector of mesonotum longitudinally striate (the striae a continuation of the anterior sculpture of the promesonotum), delimited from the propodeum by a raised, transverse carina; overall colour pale yellowish fawn apart from the darker posterior gaster (Figure 795)*queenslandica* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0908379>]
5. Seen in dorsal view, promesonotum with large reticulate sectors bounded by longitudinal and transverse striae in addition to more superficial sculpture, the surface matt (Figure 796).....*xerophila* Wheeler
[<https://www.antweb.org/specimenImages.do?name=jdm32-003244>]
- Seen in dorsal view, sculpture of promesonotum consisting mainly of fine, longitudinal striae (mostly confined to the anterior and lateral sectors) with small reticulations present or absent, or sculpture reduced, the surface smooth and shining 6
6. Seen in dorsal view, mesosoma very compact and only weakly attenuated posteriorly (width of promesonotum at metanotal groove $\sim 0.50 \times$ width of promesonotum across the humeri); concolorous light (Figure 797)..... *queenslandica froggatti* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0917801>]
- Seen in dorsal view, mesosoma less compact and more strongly attenuated posteriorly (width of promesonotum at metanotal groove $< 0.40 \times$ width of promesonotum across the humeri); either uniformly brown or head yellowish-brown, mesosoma yellowish..... 7
7. Seen in dorsal view, postpetiole narrow, square, its dorsal surface smooth without any trace of a median division; seen in full-face view, the anteromedial clypeal margin emarginate and bounded on either side of the emargination by a short but distinct denticle (Figure 798)*rufotestacea* Mayr
[<https://www.antweb.org/specimenImages.do?name=casent0919693>]
- Seen in dorsal view, postpetiole broad, with a poorly defined median indentation dividing the structure into two weakly defined lobes; seen in full-face view the anteromedial clypeal margin weakly emarginate, the emargination bounded by a pair of small flanges at most (Figure 799)
.....*queenslandica rogans* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0908382>]
8. Mesosoma glabrous 9
Mesosoma with erect setae.....11
9. Either propodeal angle unarmed or, if bearing denticles or spines, these short, their length $< 1.5 \times$ their width across their base (Figure 800).....*longicephala curticeps* Wheeler
[<https://www.antweb.org/specimenImages.do?name=jdm32-003247>]
- Propodeum armed with longer spines, their length $> 3 \times$ their width across their base10
10. Seen in full-face view, head matt, densely and almost uniformly areolate; seen in dorsal view, posteromedial sector of promesonotum and the propodeum uniformly weakly concave, the continuity of this concavity only interrupted by the metanotal groove (Figure 801)*whitei* Wheeler
[<https://www.antweb.org/specimenImages.do?name=jdm32-003260>]

Seen in full-face view, head mainly smooth and shining, the only distinct sculpture being very small longitudinal striolae on the lower genae and in a patch within and above each frontal carina; seen in dorsal view, promesonotum and propodeum distinct, the propodeum having a separate though narrow dorsal surface anteriorly, this rounding smoothly over onto the declivous propodeal face (Figure 802).....*mjobergi* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0908602>]

11. Seen in dorsal view, promesonotum matt, strongly longitudinally striate to rugose-reticulate (Figure 803)*frivola* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0908377>]

Seen in dorsal view, promesonotum (apart from a sculptured ridge denoting vestige of promesonotal suture in some workers) mainly or wholly smooth and shining, longitudinal striae (if present) very fine 12

13. Seen in dorsal view, petiole flared anteriorly with distinctly developed blunt or sharp lateral angles.....14

Seen in dorsal view, petiole not distinctly flared, its lateral margins weakly to strongly convex anteriorly without forming distinct angles.....15

14. Seen in profile, the promesonotal humeri delimited by a carina, the posterior (mesonotal) sector also longitudinally carinate; propodeal spines longer, $\geq 2 \times$ longer than wide across their base (Figure 804).....*clarior* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0193616>]

Seen in profile, promesonotal humeri very weakly protuberant but without distinct carina, the posterior (mesonotal) sector also lacking any hint of carinae; propodeal spines shorter, $\leq 1.5 \times$ longer than wide (Figure 805) *australis* Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0919690>]

15. Seen in profile, the propodeal spines directed distinctly obliquely; erect setae shorter especially on the appendages, those on tibia less than half as long as the greatest width

of the tibia; erect setae on gaster sparse, decumbent setae on gaster often spaced twice their length apart (Figure 806)
.....*Crematogaster* sp. JDM 1368

[<https://www.antweb.org/specimenImages.do?name=antweb1041184>]

Seen in profile, the propodeal spines directed horizontally; erect setae longer especially on the appendages, those on tibia often nearly as long as the greatest width of the tibia; erect setae on gaster numerous, decumbent setae on gaster spaced much less than their length apart (Figure 807) *laeviceps* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0902135>]

Epopostruma

1. Seen in dorsal view, sides of postpetiole expanded laterally in the form of spines or flanges 2

Seen in dorsal view, sides of postpetiole not expanded laterally but approximately vertical or vertical anteriorly with only the posterior corners forming spines or angles 5

2. Seen in dorsal view, lateral postpetiolar extensions forming sharp teeth or spines.... 3

Seen in dorsal view, lateral postpetiolar extensions forming solid, winglike flanges 4

3. Seen in full-face view, area immediately above the eye with a small tooth (Figure 808)
.....*frosti* (Brown)

[<https://www.antweb.org/specimenImages.do?name=casent0280691>]

Seen in full-face view, area immediately above the eye a rounded angle (Figure 809)
.....*lattini* Shattuck

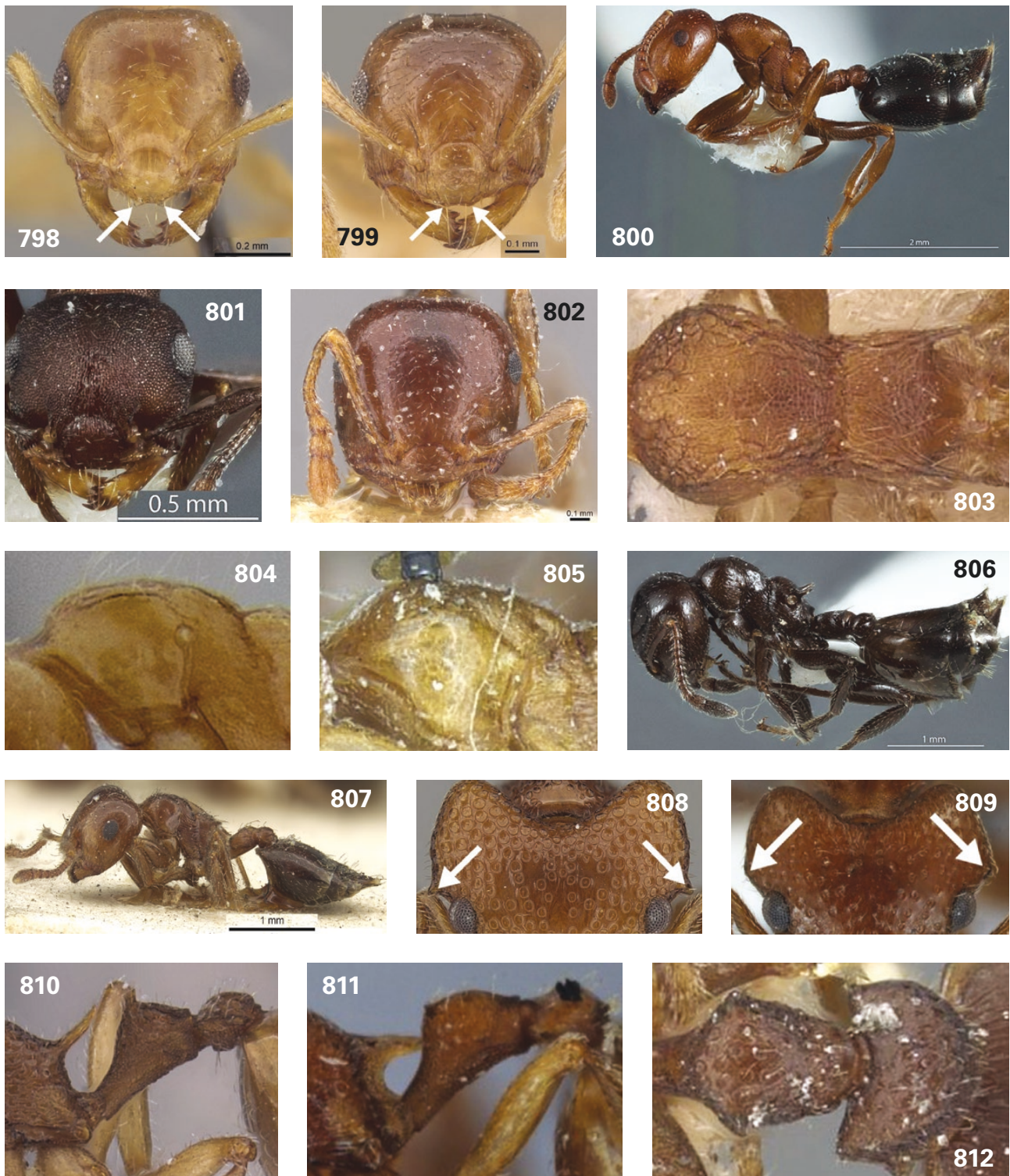
[https://www.antwiki.org/wiki/Epopostruma_lattini]

4. Petiolar spines well-developed and distinct; bases of propodeal lobes and spines not connected by flanges of any sort (Figure 810)
.....*mercurii* Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0900025>]

Petiolar spines indistinct, reduced to sharp angles; posterior face of propodeum with broad, distinct flanges which connect the bases of the spines to the propodeal lobes (Figure 811)
.....*sowestensis* Shattuck

[https://www.antwiki.org/wiki/Epopostruma_sowestensis]



FIGURES 798–812 798) *Crematogaster rufotestacea* syntype (CASENT0919693); 799) *Crematogaster queenslandica rogans* syntype ('*C. sordidula rogans*') (CASENT0908382); 800) *Crematogaster longicephala curticeps* (JDM32-003247); 801) *Crematogaster whitei* (JDM32-003260); 802) *Crematogaster mjobergi* syntype (CASENT0908602); 803) *Crematogaster frivola* syntype (CASENT0908377); 804) *Crematogaster clarior* (CASENT0193616); 805) *Crematogaster australis* syntype (CASENT0919690); 806) *Crematogaster* sp. JDM 1368 (ANTWEB1041184); 807) *Crematogaster laeviceps* syntype (CASENT0902135); 808) *Epopostruma frosti* (CASENT0280691); 809) *Epopostruma lattini* holotype (ANIC32-003693); 810) *Epopostruma mercurii* paratype (CASENT0900025); 811) *Epopostruma sowestensis* holotype (ANIC32-003773); 812) *Epopostruma monstrosa* (CASENT0911156).

- 5. Seen in profile and in dorsal view, anterior face of postpetiole flattened and extended laterally with the anterior corners forming sharp angles (Figure 812).....
..... *monstrosa* Viehmeyer

[<https://www.antweb.org/specimenImages.do?name=casent0911156>]

Seen in profile and in dorsal view, anterior face of postpetiole not so flattened and extended laterally..... 6

- 6. Anterior half of first gastral tergite smooth or nearly so, at most with only very weak, indistinct and generally widely spaced rugae 7

Anterior half of first gastral tergite (and sometimes posterior half as well) distinctly sculptured (although often sculpturing very fine), sometimes resulting in a matt appearance..... 8

- 7. Seen in dorsal view, dorsum of petiole rounded, lacking spines; pronotal humeri rounded lacking teeth (Figure 813).....
..... *inornata* Shattuck

[https://www.antwiki.org/wiki/Epopostruma_inornata]

Seen in dorsal view, dorsum of petiole and pronotal humeri armed with distinct teeth (Figure 814) *natalae* Shattuck

[<https://www.antweb.org/specimenImages.do?name=casent0900028>]

- 8. Seen in dorsal view the posterolateral corners of postpetiole flat or rounded (Figure 815)
..... *quadrispinosa* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0909353>]

Seen in dorsal view, the posterolateral corners of postpetiole forming thin, angular flanges (Figure 816) *kangarooensis* Shattuck

[https://www.antwiki.org/wiki/Epopostruma_kangarooensis]

Mayriella

One WA species (*Mayriella occidua* Shattuck 2007) (see Figure 78).

[https://www.antwiki.org/wiki/Mayriella_occidua]

Meranoplus

Species denoted '(TERC)' in the following key have not been seen outside that Collection, at CSIRO, Darwin, NT.

- 1. Posterior (dorsal) sector of clypeus developed as a massive plate, often keeled, fluted, striate or otherwise configured, that fits between the anterolateral frontal (genal) lobes; seen in profile, true anterior clypeal sector strongly concave and hidden below the posterior sector; head often very large in relation to the mesosoma, in dorsal view, its sides extending beyond the anterior promesonotal angles (*M. diversus* species-group) 2

Posterior sector of clypeus not so developed, the anterior clypeal sector exposed; head smaller in relation to the mesosoma, in dorsal view, its sides falling within the anterior promesonotal angles14

- 2. Promesonotal shield with posterolateral and posterior projections short and at most bluntly rounded or triangular, lateral margins of the shield not or only slightly overhanging lateral mesosomal sides and propodeal declivity 3

Promesonotal shield with posterolateral and posterior projections well developed as acute or narrowly rounded projections, lateral margins distinctly overhanging lateral mesosomal sides and propodeal declivity 8

- 3. Paired projections between posterior angles of promesonotal shield absent; eye very large (EW 0.37–0.42 mm, EI 0.23–0.26) (Figure 817) *occidentalis* Schödl

[<https://www.antweb.org/specimenImages.do?name=antweb1041387>]

Paired projections between posterior angles of promesonotal shield present at least as minute denticles; eyes distinctly smaller (EW < 0.35 mm, EI < 0.22) 4

- 4. Worker with four mandibular teeth; anterior margin of clypeus bluntly bidentate (Figure 818) *duyfkeni* Forel

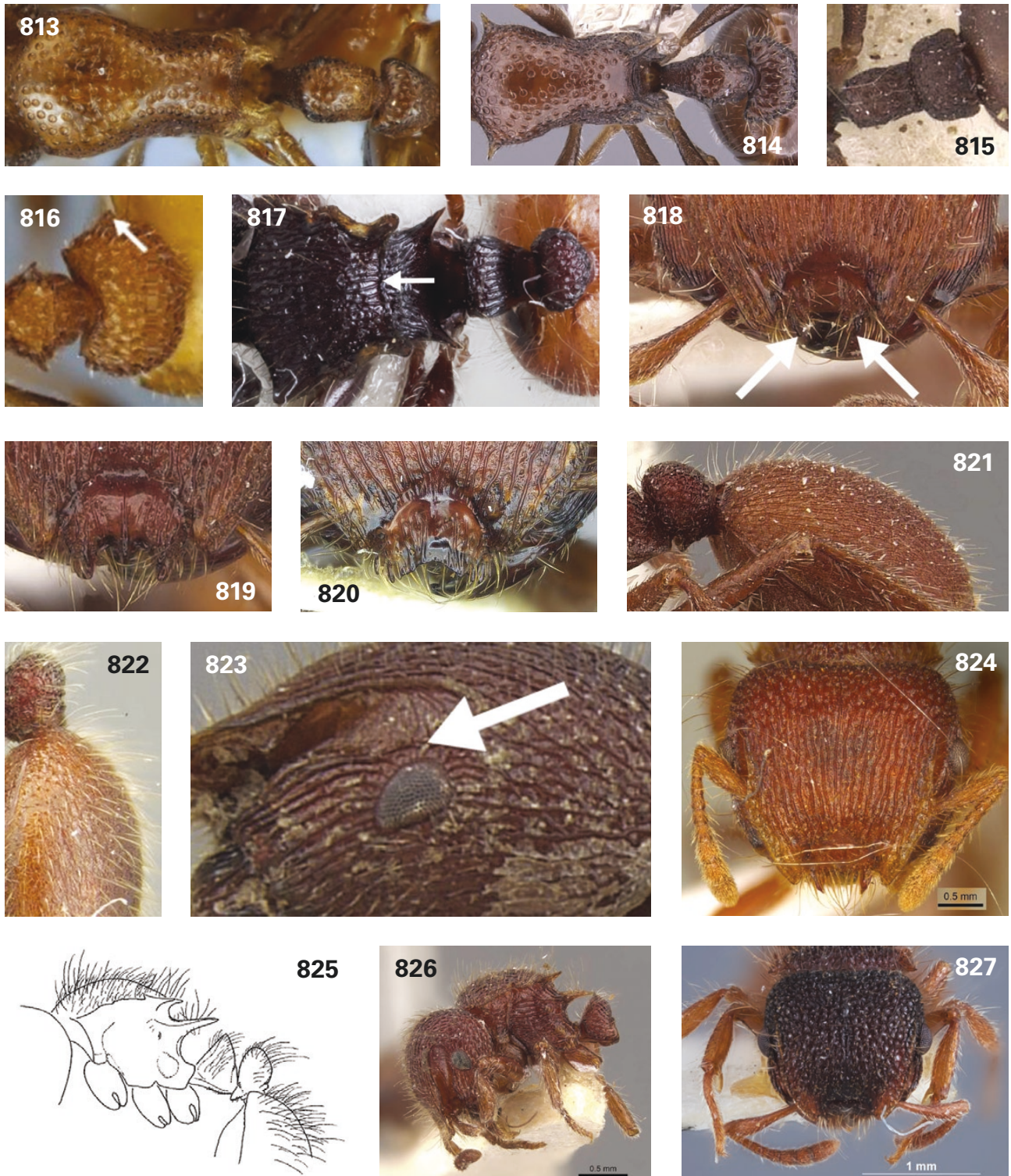
[<https://www.antweb.org/specimenImages.do?name=casent0908938>]

Worker with three mandibular teeth; anterior margin of clypeus with different conformation 5

- 5. Clypeus with conspicuous dorsal median keel-like carina, accompanied by variably developed lateral carinate projections (Figure 819) *ajax* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0922904>]

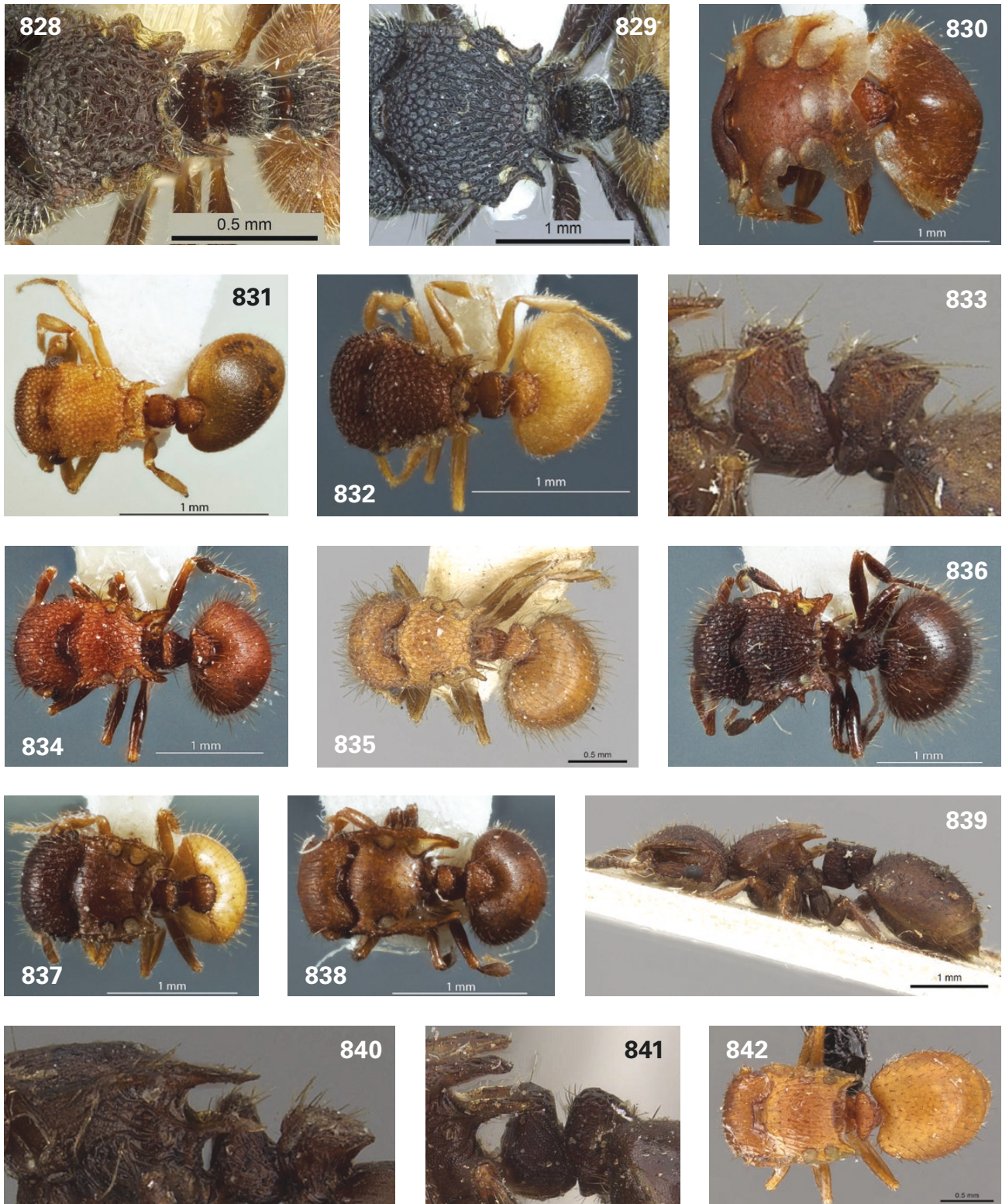
- Dorsal clypeus with at most a weak median keel or with flattened lamina..... 6
6. Anterior clypeal margin a conspicuous, gently emarginate lobe that is projected up and outward in an arc, this lobe with small, dentate, lateral processes (Figure 820).....
..... *snellingi* Schödl (?)
[<https://www.antweb.org/specimenImages.do?name=casent0919723>]
- Anterior clypeal margin not a projecting lobe as described above, but flat and concave with an anteriorly rectangular or emarginate process that may, nonetheless, extend beyond the frontal lobes..... 7
7. Larger species, HW 1.78–2.37 mm; seen in full-face view, dorsal clypeal lamina seldom surpassing anterior clypeal margin; first gastral tergite entirely coarsely striate to striate-and-punctate (more than one taxon may be involved) (Figure 821)..... *unicolor* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0908939>]
- Smaller species, HW 1.58–1.80 mm; seen in full-face view, dorsal clypeal lamina usually distinctly surpassing anterior clypeal margin; first gastral tergite microreticulate, without striation (Figure 822)..... *berrimah* Schödl
[<https://www.antweb.org/specimenImages.do?name=casent0919717>]
8. Posterior petiolar face evenly and conspicuously costate; concolorous or bicoloured species 9
- Posterior petiolar face reticulate-rugulose; distinctly bicoloured species..... 12
9. Dorsal ocular margin well separated from lower scrobal margin (Figure 823)
..... *diversus* F. Smith
[<https://www.antweb.org/specimenImages.do?name=casent0902044>]
- Dorsal ocular margin very close to or confluent with lower scrobal margin.....10
10. Larger species (HW 1.65–1.80 mm); frontal carinae distinctly narrower than HW (Figure 824)..... *deserticola* Schödl
[<https://www.antweb.org/specimenImages.do?name=casent0919719>]
- Smaller species (HW 1.15–1.50 mm); frontal carinae less obviously narrow than HW11
11. Propodeal spines long and massive (Figure 825)..... *crassisipina* Schödl
[https://www.antwiki.org/wiki/Meranoplus_crassisipina]
- Propodeal spines shorter (Figure 826)
..... *oxleyi* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0908937>]
12. Seen in full-face view, anterior clypeal margin broadly concave; mandibles with five teeth (Figure 827)..... *mcarthuri* Schödl
[<https://www.antweb.org/specimenImages.do?name=antweb1041386>]
- Seen in full-face view, anterior clypeal concavity relatively narrow; mandibles with four teeth.....13
13. Anterolateral clypeal corners acutely directed anteriorly; posterior and posterolateral projections of promesonotal shield short and apically bluntly rounded with translucent flanges; scapes short (S1 47–53) (Figure 828) *taurus* Schödl
[<https://www.antweb.org/specimenImages.do?name=casent0919724>]
- Anterolateral clypeal corners less acutely directed anteriorly; posterior and posterolateral projections of promesonotal shield strongly developed; scapes longer (SI > 56) (Figure 829)..... *arcuatus* Schödl
[<https://www.antweb.org/specimenImages.do?name=casent0919715>]
14. Seen in full-face view, clypeus not a distinct hexagon, the anterior clypeal margin broad with its sides only weakly convergent towards the anteromedian clypeal sector, the clypeal outline emarginate, strongly folded posteriorly at about the level of the frontal lobes and with the anterior clypeal margin often not visible (merely posteriorly curved in *Meranoplus* sp. JDM 988 and *Meranoplus* sp. JDM 1378); also in full-face view, lamellar development of anterior margin of scrobe often sufficient to partly or fully obscure eyes (mostly *M. fenestratus* species-group).....15
- Seen in full-face view, clypeus a distinct hexagon that projects well beyond the frontal lobes, the sides strongly convergent towards its anterior sector; anteromedial clypeal margin clypeal margin visible and planar and uniformly dentate or narrowly emarginate between two small denticles (broadly excavate only in *Meranoplus* sp. JDM 988, above); lamellar development of anterior margin of scrobe not partially or fully covering the eyes, usually weakly developed (*M. dimidiatus* species-group) 26



FIGURES 813–827

813) *Epopostruma inornata* holotype (ANIC32-007280); 814) *Epopostruma natalae* paratype (CASENT0900028); 815) *Epopostruma quadrispinosa* syntype ('*Strumigenys (Epopostruma) quadrispinosa*') (CASENT0909353); 816) *Epopostruma kangarooensis* holotype (ANIC32-003699); 817) *Meranoplus occidentalis* (ANTWEB1041387); 818) *Meranoplus duyfkeni* lectotype (CASENT0908938); 819) *Meranoplus ajax* (CASENT0922904); 820) *Meranoplus snellingi* paratype (CASENT0919723); 821) *Meranoplus unicolor* lectotype (CASENT0908939); 822) *Meranoplus berrimah* paratype (CASENT0919717); 823) *Meranoplus diversus* holotype (CASENT0902044); 824) *Meranoplus deserticola* paratype (CASENT0919719); 825) *Meranoplus crassispina* (drawing from original description); 826) *Meranoplus oxleyi* lectotype (CASENT0908937); 827) *Meranoplus macarthuri* (ANTWEB1041386).

15. Seen in dorsal view, promesonotal shield strongly extended laterally with huge fenestrae taking up about one half of the area; sides of gaster with broad lamellae that extend the length of the first gastral tergite; postpetiole flattened so that when the ant is curled up it occupies the indented area of the posterior flange on the promesonotal shield (Figure 830) ...*testudineus* McAreavey
[<https://www.antweb.org/specimenImages.do?name=antweb1041198>]
Ant without the lamelliform extensions mentioned above; postpetiole not so flattened in other members of this species-group16
16. Seen in dorsal view, promesonotal shield distinctly longer than wide, lateral and posterior cuticular protrusions only weakly developed or absent entirely; seen in full-face view, eyes fully visible; lateral fenestrae very small; seen in profile, petiolar node low and triangular (small desert species, here placed in *M. puryi* species complex).....17
Seen in dorsal view, promesonotal shield as wide as or wider than long, at least the posterior angles of the promesonotal shield well developed as spines or blunt, lamellate projections; seen in full-face view, eyes often obscured to varying degree by laminae of frontal carinae; lateral fenestrae of moderate size to large; seen in profile petiolar node typically thick and rectangular, but high and triangular in *M. mjobergi* cluster.....18
17. Seen in dorsal view, posterior margin of promesonotal shield consisting of a continuous lamella, without spinous protrusions of any sort; cuticular angles weak or absent on lateral margins of shield; anteromedial clypeal projection broadly excavate between two stout denticles (Figure 831) *Meranoplus* sp. JDM 988
[<https://www.antweb.org/specimenImages.do?name=antweb1041196>]
Seen in dorsal view, posterior angles of promesonotal shield developed as small, lamellate spines; cuticular angles also present on lateral margins of shield; anteromedial clypeal projection more-or-less planar (Figure 832).....
..... *Meranoplus* sp. JDM 1378
[<https://www.antweb.org/specimenImages.do?name=antweb1041220>]
18. Seen in dorsal view, sculpture of promesonotal shield coarsely but superficially areolate-rugose or striate-microreticulate19
Seen in dorsal view, sculpture of promesonotal shield finely and usually indistinctly microreticulate, fine striae may be present 22
19. Seen in profile, posterior face of postpetiole distinctly emarginate, its dorsal face overhanging the posterior face as a sharp lip; seen in dorsal view, sculpture of promesonotal shield striate-microreticulate and matt in appearance (Figure 833)
..... *oceanicus* Viehmeyer
[<https://www.antweb.org/specimenImages.do?name=casent0902047>]
Seen in profile, posterior face of postpetiole not or only weakly emarginate, its dorsal face not overhanging the posterior face; seen in dorsal view, sculpture of promesonotal shield areolate-rugose and matt to shining and polished in appearance 20
20. Seen in dorsal view, posterior angles of promesonotal shield gently recurved and directed inwardly (Figure 834)
..... *Meranoplus* sp. JDM 424
[<https://www.antweb.org/specimenImages.do?name=jdm32-003336>]
Seen in dorsal view, posterior angles of promesonotal shield not recurved but directed obliquely at about 40° to the vertical21
21. Overall appearance of worker distinctly shining with a rather polished appearance; alveolate-rugose sculpture of promesonotal shield more deeply impressed (Figure 835)
..... *ferrugineus* Crawley
[<https://www.antweb.org/specimenImages.do?name=casent0902049>]
Overall appearance of worker distinctly matt to weakly shining, not polished in appearance; sculpture of promesonotal shield superficial (Figure 836) *Meranoplus* sp. JDM 267
[<https://www.antweb.org/specimenImages.do?name=jdm32-003330>]
22. Bicoloured with brown head and mesosoma and yellow gaster (Figure 837)
..... *Meranoplus* sp. JDM 1268
[<https://www.antweb.org/specimenImages.do?name=antweb1041193>]



FIGURES 828–842 828) *Meranoplus taurus* paratype (CASENT0919724); 829) *Meranoplus arcuatus* paratype (CASENT0919715); 830) *Meranoplus testudineus* (ANTWEB1041198); 831) *Meranoplus* sp. JDM 988 (ANTWEB1041196); 832) *Meranoplus* sp. JDM 1378 (ANTWEB1041220); 833) *Meranoplus oceanicus* holotype (CASENT0902047); 834) *Meranoplus* sp. JDM 424 (JDM32-003336); 835) *Meranoplus ferrugineus* syntype (CASENT0902049); 836) *Meranoplus* sp. JDM 267 (JDM32-003330); 837) *Meranoplus* sp. JDM 1268 (ANTWEB1041193); 838) *Meranoplus* sp. JDM 866 (JDM32-003453); 839) *Meranoplus fenestratus* holotype (CASENT0902050); 840) *Meranoplus pubescens* holotype (CASENT0902046); 841) *Meranoplus mjobergi* syntype (CASENT0908945); 842) *Meranoplus minimus* syntype (CASENT0908944).

Either concolorous yellowish to brown or bicoloured with brown head and mesosoma and a dark brown or black gaster..... 23

23. Seen in dorsal view, posterior angles of promesonotal shield extended beyond posterior lamella of shield by $\geq 1.5 \times$ their width across their base and incurved; posterior angles containing an elongate fenestra (Figure 838).....
..... ***Meranoplus* sp. JDM 866**

[<https://www.antweb.org/specimenImages.do?name=jdm32-003453>]

Seen in dorsal view, posterior angles of promesonotal shield extended beyond posterior lamella of shield by $\leq 1 \times$ their width across their base, these angles not incurved; posterior angles with or without fenestra.....24

24. Seen in profile, petiolar node longitudinally rectangular with flattened dorsal surface; seen in full-face view, frons largely free of distinct sculpture except for areolate-rugose areas on the occipital corners (Figure 839)
..... ***fenestratus* F. Smith**

[<https://www.antweb.org/specimenImages.do?name=casent0902050>]

Seen in profile, petiolar node narrow, either squamiform or bluntly cuneate; seen in full-face view, frons with weakly (*M. pubescens*) to strongly (*M. mjobergi*) accentuated longitudinal striolae..... 25

25. Seen in profile, posterior face of postpetiole distinctly emarginate, its dorsal face overhanging the posterior face as a sharp lip; seen in full-face view, frons weakly striolate with other, microreticulate sculpture evident (Figure 840).....
..... ***pubescens* (F. Smith)**

[<https://www.antweb.org/specimenImages.do?name=casent0902046>]

Seen in profile, posterior face of postpetiole more-or-less vertical; seen in full-face view, frons with mostly regular, longitudinal striolae with other sculpture largely effaced (Figure 841)
..... ***mjobergi* Forel**

[<https://www.antweb.org/specimenImages.do?name=casent0908945>]

26. Seen in profile, petiolar node and postpetiole narrow, squamiform, the anterior face of postpetiole emarginate medially and curved upwards to form a narrow dorsum that gently overhangs the posterior postpetiolar

face, in full-face view, these sclerites expanded laterally; seen in dorsal view, the posterior lamella of the promesonotal shield not interrupted by cuticular projections (*M. dimidiatus* species-group, *M. minimus* complex) (Figure 842)
..... ***minimus* Crawley**

[<https://www.antweb.org/specimenImages.do?name=casent0908944>]

Seen in profile and in full-face view, postpetiole, at least, of different appearance; posterior margin of promesonotal shield usually either with paired cuticular projections connected by a lamella, or posterior margin without a lamella and sometimes cuticular projections as well..... 27

27. Seen in dorsal view, promesonotal shield with five very large fenestrae and broad lamella on posterior margin, these extensively overhanging the sides of the mesosoma; seen in profile, propodeal spines lamelliform and postpetiole rather flattened; occipital angles also lamelliform (appearance of mesosoma and metasoma similar to *M. testudineus*, but this is likely due to convergence, as the clypeus is quite different) (*M. dimidiatus* species-group, complex A) (Figure 843)
..... ***Meranoplus* sp. JDM 867**

[<https://www.antweb.org/specimenImages.do?name=antweb1041194>]

Seen in dorsal view, promesonotal shield not so developed, extensive lamelliform development, if present, confined to posterior margin of promesonotal shield in most species, found on sides only in *M. similis* (which, however, lacks distinct enclosed fenestrae) 28

28. Postpetiole shining with sculpture consisting of concentric costulae, distinctly costulate sculpture also visible on frons and genae of head and side of petiolar node; petiolar node a flattened triangle with a sharp dorsal margin (*M. dimidiatus* species-group, complex B) (Figure 844)
..... ***Meranoplus* sp. JDM 955**

[<https://www.antweb.org/specimenImages.do?name=antweb1041195>]

If postpetiole of above appearance (*Meranoplus* sp. JDM 1276), then posterior face of petiole similarly sculptured, sculpture on head usually areolate or microreticulate-striate; dorsum of petiole node not a sharp edge (may be a blunt edge in a few species) 29

29. Seen in dorsal view, fenestrae lacking on the promesonotal shield except for a tiny fenestra on either side at the lateral midpoint and a posterior lamella; ant clothed in fine, plumose setae (*M. dimidiatus* species-group, complex C) (Figure 845).....
*Meranoplus* sp. JDM 1255

[<https://www.antweb.org/specimenImages.do?name=antweb1041197>]

Worker without a combination of two tiny fenestrae on the promesonotal shield and a posterior lamella, and fine, plumose setae 30

30. Seen in dorsal view, posteromedial projections of promesonotal shield and often its posterior angles in the form of sharply dentate lamellae directed posteriad; lateral and posterolateral fenestrae large; seen in profile, anterior face of postpetiole flat and abruptly vertical, the posterior face rounded and sloping (*M. dimidiatus* species-group, *M. froggatti* species complex).....31

Seen in dorsal view, posterior angles and posterior projections of promesonotal shield not all forming strongly dentate lamellae and often directed obliquely posteriad; lateral and posterior fenestrae variably developed, often small or restricted to small lamellae inside projections of promesonotal shield; seen in profile, anterior face of postpetiole not flat and abruptly vertical in species with dentate lamellae 34

31. Gaster coarsely sculptured, longitudinally costate or striate-reticulate 32

Coarse sculpture (if present) restricted to anterior sector of first gastral tergite, otherwise gaster finely and evenly microreticulate or imbricate..... 33

32. Gaster striate-reticulate; seen in full-face view, head moderately shining, areolate (Figure 846).....*Meranoplus* sp. JDM 922

[<https://www.antweb.org/specimenImages.do?name=jdm32-003456>]

Gaster longitudinally costate; seen in full-face view head matt, microreticulate (Figure 847)*Meranoplus* sp. JDM 1101

[<https://www.antweb.org/specimenImages.do?name=jdm32-003468>]

33. Smaller species (HW ≤ 0.90 mm); seen in rear view, gaster may have coarse striae on anterior sector of first gastral tergite (Figure 848)..... *rugosus* Crawley

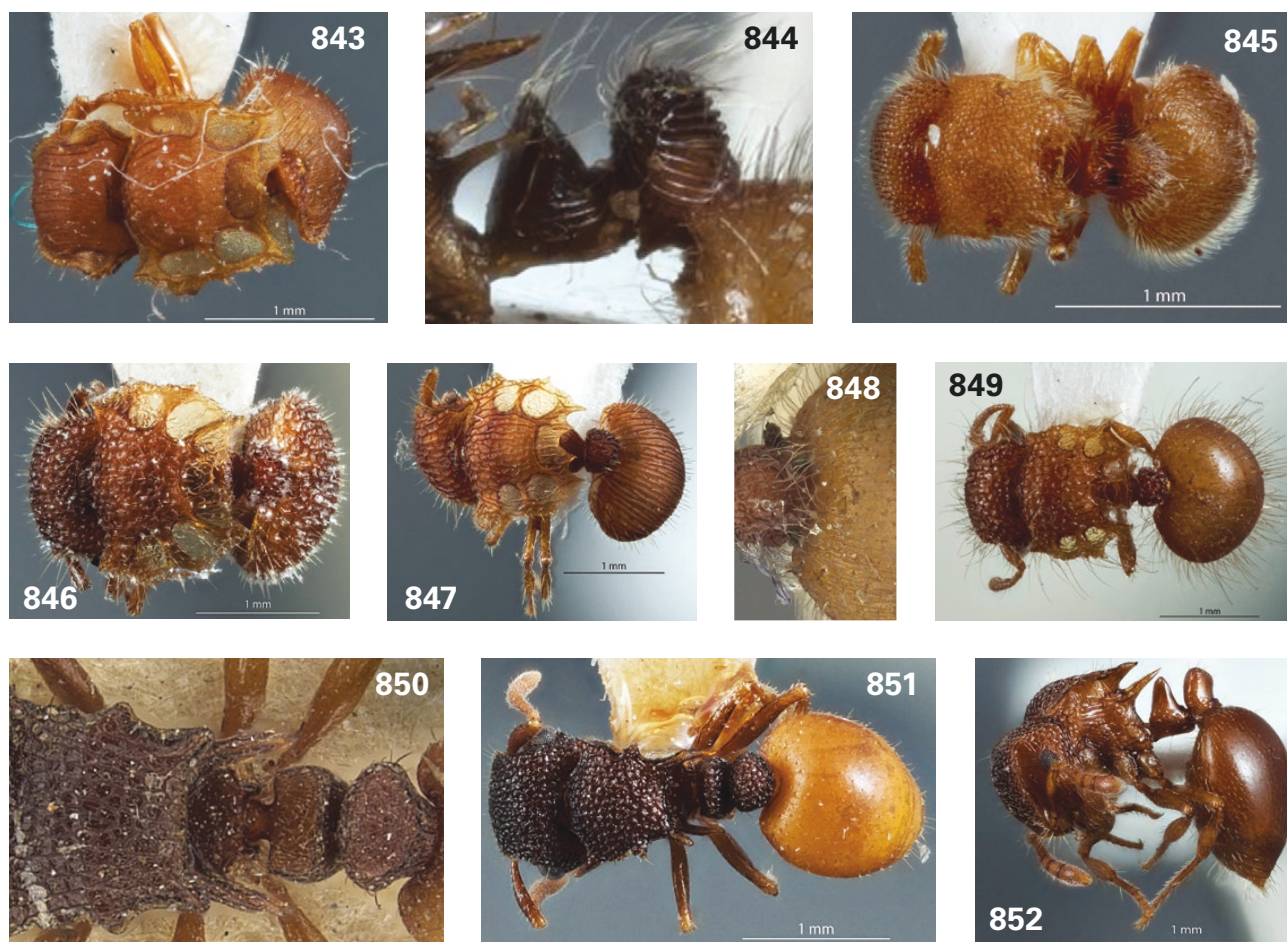
[<https://www.antweb.org/specimenImages.do?name=casent0902052>]

Larger species (HW ~1 mm); seen in rear view, gaster mostly finely and evenly microreticulate with only fine striolae near the base of the postpetiole (Figure 849).....
*Meranoplus* sp. JDM 677

[<https://www.antweb.org/specimenImages.do?name=jdm32-003382>]

34. Ant concolorous brown, blackish-brown or bicoloured, but if the latter then head and mesosoma always much darker than gaster; seen in dorsal view, median fenestra tiny or lacking, other fenestrae reduced to a few small lamella on sides of promesonotal shield or lacking entirely; lateral cuticular protrusions on promesonotal shield, when present, always dentate; posterior lamella usually lacking; non-marginal erect or decumbent setae sparse or absent on mesosoma, these nearly always darkish; appressed setae on gaster short and usually well-separated, but never overlapping so as to form a fine pubescence; seen in full-face view, frontal carinae narrowly separated, revealing both eyes and antennal scrobe, and straight for all or most of their length; seen in profile/rear view, petiole often lacking distinct sculpture (may be shiny and smooth); postpetiole higher than wide, bulbously rectangular (squamiform only in *Meranoplus* sp. JDM 491), and often with posterior lip or curve, so this sclerite appears as an inverted triangle in dorsal view (*M. dimidiatus* species complex) 35

Ant mostly yellowish or orange, although head may be darker; fenestrae of promesonotal shield often developed and distinct, or, if reduced, then extensive laminiform development often present on posterior margin of shield, and lateral cuticular protrusions are absent (e.g. in the dark *Meranoplus* sp. 4 [TERC]); abundant non-marginal erect and/or decumbent setae often present on promesonotal shield, these light in colour (except in *Meranoplus* sp. JDM 623); appressed and decumbent setae on gaster light in colour and often thickly overlapping to form a fine pubescence (dark specimens in the *M. puryi* complex with reduced fenestrae and lamella are always hairy with pale setae); seen in full-face view, frontal carinae usually gently sinuate and may have lamellae; seen in profile/rear view petiole always sculptured, often with costulae or reticulation on its rear face, and postpetiole usually about as high as wide and rounded and never an inverted triangle in dorsal view (*M. puryi* species complex except for *Meranoplus* sp. 4 [TERC]) 43



FIGURES 843–852 843) *Meranoplus* sp. JDM 867 (ANTWEB1041194) ; 844) *Meranoplus* sp. JDM 955 (ANTWEB1041195); 845) *Meranoplus* sp. JDM 1255 (ANTWEB1041197); 846) *Meranoplus* sp. JDM 922 (JDM32-003456); 847) *Meranoplus* sp. JDM 1101 (JDM32-003468); 848) *Meranoplus rugosus* syntype ('*M. hirsutus rugosa*') (CASENT0902052); 849) *Meranoplus* sp. JDM 677 (JDM32-003382); 850) *Meranoplus dimidiatus* holotype (CASENT0902043); 851) *Meranoplus* sp. JDM 1144 (ANTWEB1041186); 852) *Meranoplus* sp. JDM 491 (JDM32-003422).

- 35. Seen in dorsal view, promesonotal shield lacking posterior cuticular protrusions or a lamella between the posterior promesonotal angles..... 36
 Seen in dorsal view, promesonotal shield with cuticular protrusions, one or more lamellae or both between the posterior promesonotal angles..... 39
- 36. Seen in dorsal view, promesonotal shield a regular rectangle without any cuticular protrusions or lamellae; posterior angles of the promesonotal shield unarmed or with only vestigial denticles (black species with very fine, elongate, propodeal spines that are pale distally) ***Meranoplus* sp. 1 (TERC)**
 Seen in dorsal view, promesonotal shield with at least posterior spines or dentate angles 37
- 37. In dorsal view, posterior angles of promesonotal shield prolonged as long spines directed posteriad at 90°; lateral cuticular protrusions on shield absent.....
 ***Meranoplus* sp. 2 (TERC)**
 Seen in dorsal view, posterior angles of promesonotal shield developed as blunt denticles or digitate spines directed posterolaterally; lateral cuticular protrusions on shield present..... 38
- 38. Seen in dorsal view, posterior angles of promesonotal shield in form of short, triangular extensions only, their length about equal to their width across their base (Figure 850).....***dimidiatus*** F. Smith
 [https://www.antweb.org/specimenImages.do?name=casent0902043]

Seen in dorsal view, posterior angles of promesonotal shield in form of long, blunt, digitate spines that are much longer than their width across their base (Figure 851).....
*Meranoplus* sp. JDM 1144 (part)

[<https://www.antweb.org/specimenImages.do?name=antweb1041186>]

39. Both petiolar node and postpetiole squamiform and glossy, without sculpture; posterior angles of promesonotal shield extended as long spines that are slightly curved at the tip (Figure 852)*Meranoplus* sp. JDM 491

[<https://www.antweb.org/specimenImages.do?name=jdm32-003422>]

Postpetiole, at least, with some sculpture, the petiolar node also usually with sculpture, especially on its dorsal margin..... 40

40. Seen in dorsal view, single digitate projections of posterior angles of promesonotal shield joined by a lamella that stretches continuously between them without being interrupted by posterior cuticular protrusions (Figure 853)
*Meranoplus* sp. JDM 627

[<https://www.antweb.org/specimenImages.do?name=jdm32-003425>]

Seen in dorsal view, projections of posterior angles of promesonotal shield relatively short and dentate, not digitate, the posterior lamella confined to and joining two cuticular protrusions that arise from the posterior promesonotal margin inside the posterior angles.....41

41. Appressed setae on gaster long and overlapping; erect setae on gaster long, much longer than length of eye (Figure 854)
*Meranoplus* sp. JDM 423

[<https://www.antweb.org/specimenImages.do?name=casent0906545>]

Appressed setae on gaster short and inconspicuous, spaced well apart and non-overlapping; erect setae on gaster shorter than length of eye 42

42. Seen in dorsal view, promesonotal shield laterally and posteriorly weakly laminiform, the promesonotal spines short and dentate; also seen in dorsal view, postpetiole an inverted triangle (Figure 855)
*Meranoplus* sp. JDM 1071

[<https://www.antweb.org/specimenImages.do?name=jdm32-003465>]

Seen in dorsal view, promesonotal shield lacking laminiform development on its lateral and posterior margins, the promesonotal spines long and digitate; also in dorsal view, postpetiole globose (see Figure 851).....
*Meranoplus* sp. JDM 1144 (part)

[<https://www.antweb.org/specimenImages.do?name=antweb1041186>]

43. Seen in dorsal view, promesonotal shield a rectangle distinctly wider than long, with coarsely areolate sculpture and small, enclosed fenestrae on sides and a continuous posterior lamella; cuticular protrusions absent from sides; seen in profile, postpetiole narrow, squamiform (small, dark species of uncertain affinity)
 *Meranoplus* sp. 4 (TERC)

When seen in dorsal view, without above combination of features; postpetiole thick and not squamiform in most species..... 44

44. Seen in dorsal view, promesonotal shield flat and square with extensive laminiform development on lateral and posterior margins, the posterior lamella a broad membrane, and posterolateral cuticular protrusions not conspicuously enlarged; seen in profile, petiolar node of characteristic form (except in *Meranoplus* sp. JDM 1107 in which it is low and triangular), thickly squamiform to narrowly trapezoidal with a declivitous anterior face and sinuous posterior face, and often both petiole and postpetiole with extensive rugose or costulate sculpturing 45

Seen in dorsal view, promesonotal shield variable, but commonly circular and dorsally rounded or trapezoidal and broadest at the humeral angles and without extensive laminiform development as described above; posterior lamella often confined to space between two cuticular protrusions within the posterior angles of the shield, and lateral lamellae reduced; posterolateral cuticular protrusions usually conspicuously broadened and often extended as dentate processes that are both broader and longer than the posterior angles of the shield; seen in profile, petiolar node low and thick and bluntly wedge-shaped above; frank costulate sculpture, when present, is confined to the posterior face of the petiolar node51

45. Seen in rear view both petiole and postpetiole with nested, concentric costulae (Figure 856)
 *Meranoplus* sp. JDM 1276

[<https://www.antweb.org/specimenImages.do?name=antweb1041219>]

- Seen in rear view, costulate sculpture of rear face of petiole, if present, is in form of chevrons or longitudinal ribs, sculpture of postpetiole also not as above 46
46. Seen in profile, postpetiole narrow, squamiform, in full-face view, postpetiole trapeziform, widest across its dorsal margin, the angles bluntly acute (Figure 857).....
..... *Meranoplus* sp. JDM 1025

[<https://www.antweb.org/specimenImages.do?name=jdm32-000600>]
- Seen in profile, postpetiole roundly rectangular or hemispherical and not as above, in full-face view, postpetiole globose or square and rounded above 47
47. Seen in rear view, costulate sculpture of rear face of petiole in form of chevrons nested within one another (Figure 858).....
..... *Meranoplus* sp. JDM 865

[<https://www.padil.gov.au/barrow-island/pest/main/136715>]
- Seen in rear view, sculpture of rear face of petiole reticulate, weakly striate, longitudinally costulate or a mixture of the three, but not in the form of chevrons..... 48
48. Sculpture of petiolar node, seen in profile/rear view, consisting mainly of deep costulae in the form of parallel, longitudinal ribs.....
..... *Meranoplus* sp. 3 (TERC)

Sculpture of petiolar node, seen in profile/rear view, a mixture of costulae and rugose reticulation (*M. similis*) or weakly defined striae and microreticulation (*Meranoplus* sp. JDM 1107 and *Meranoplus* sp. JDM 1145) 49
49. Seen in profile, petiolar node a low triangle (Figure 859)..... *Meranoplus* sp. JDM 1107

[<https://www.antweb.org/specimenImages.do?name=jdm32-003473>]
- Seen in profile, petiolar node high and trapezoidal..... 50
50. Densely hairy species with many long (much longer than eye length), erect setae on mesosoma and gaster; eye smaller ($EL \leq 0.25 \times$ length of side of head capsule) (Figure 860) *similis* Viehmeyer

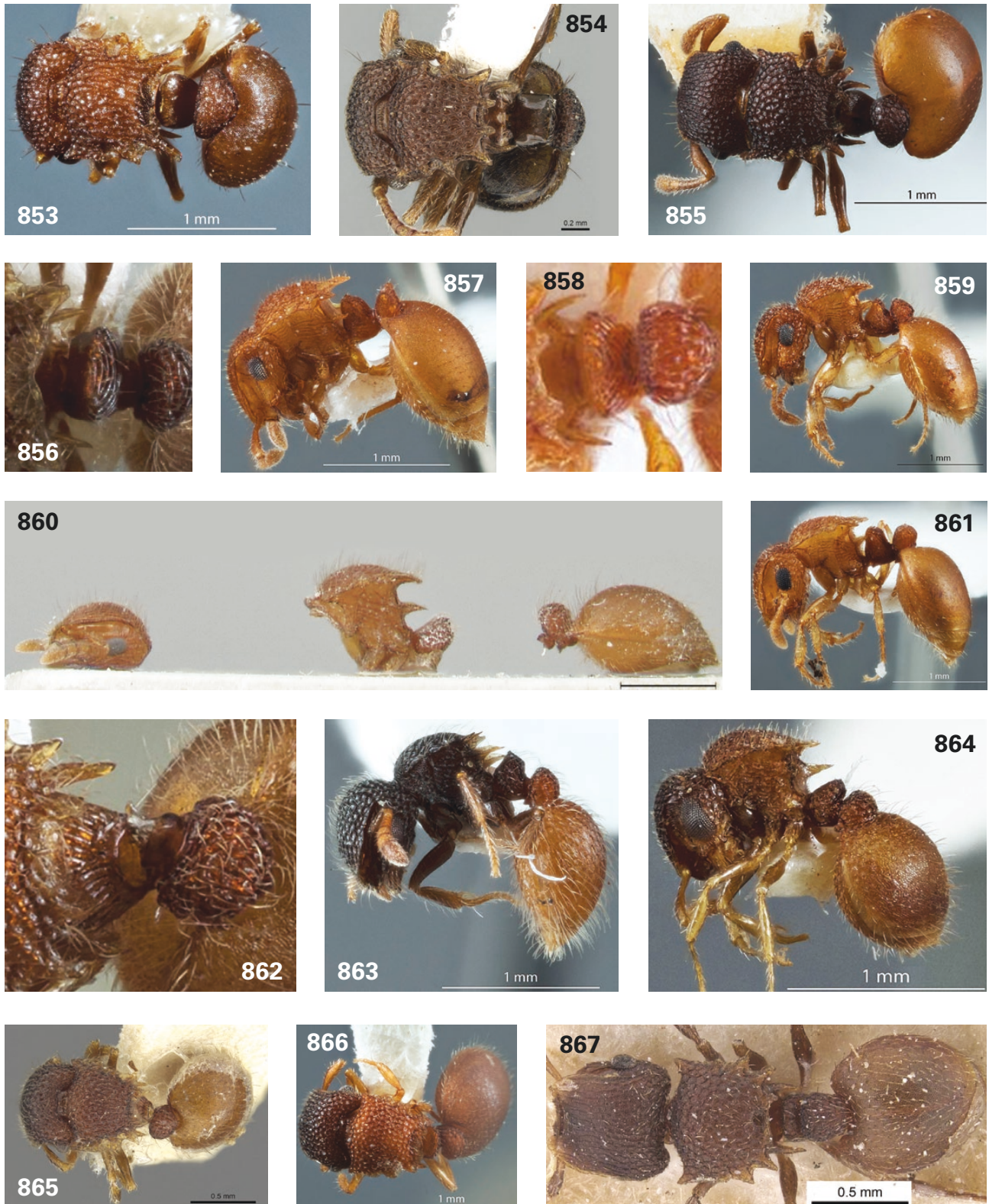
[<https://www.antweb.org/specimenImages.do?name=focol1935>]
- Much less hairy species with just a few short (much shorter than eye length), erect setae on mesosoma and gaster; eye larger ($EL \geq 0.30 \times$ length of side of head capsule) (Figure 861) *Meranoplus* sp. JDM 1145

[<https://www.antweb.org/specimenImages.do?name=antweb1041191>]
51. Seen in rear view, posterior face of petiolar node distinctly longitudinally costulate (Figure 862) *Meranoplus* sp. JDM 889

[<https://www.antweb.org/specimenImages.do?name=antweb1041189>]
- Seen in rear view, posterior face of petiolar node with other sculpture..... 52
52. Seen in full-face view, anteromedian clypeal margin broadly excavate between pronounced clypeal teeth; seen in profile, sides of petiolar node with coarse rugae; gaster with longitudinally striate sculpture that may be shallowly or deeply impressed (spectacular little northern Kimberley species with dark brown head and mesosoma and yellow or brownish-yellow gaster) (Figure 863)
..... *Meranoplus* sp. JDM 931

[<https://www.antweb.org/specimenImages.do?name=antweb1041190>]
- Seen in full-face view, anteromedian clypeal margin narrowly emarginate between small clypeal teeth or uniformly dentate; seen in profile, sides of petiolar node usually lacking frank rugosity, often weakly sculptured or smooth and shining; gaster with variable sculpture or sculpture largely confined to indistinct microreticulation but not longitudinally striate..... 53
53. Minute (HW < 0.70 mm); Eye extremely large ($EL \geq 0.50 \times$ length of side of head); promesonotal shield compact and rounded, lacking distinct lamellae or fenestrae (Figure 864)..... *Meranoplus* sp. JDM 674

[<https://www.antweb.org/specimenImages.do?name=antweb1041187>]
- If ant minute, then eye smaller ($EL \leq 0.35 \times$ length of side of head) and lamellae variably developed but always present 54
54. Seen in dorsal view, posterior angles of promesonotal shield weakly forked and extended as nubs that are often indistinguishable from the surrounding posterior lamella or the anterior fork protrudes as a sharp, lamelliform angle only that barely extends beyond the posterior lamella 55



FIGURES 853–867

853) *Meranoplus* sp. JDM 627 (JDM32-003425); 854) *Meranoplus* sp. JDM 423 (CASENT0906545); 855) *Meranoplus* sp. JDM 1071 (JDM32-003465); 856) *Meranoplus* sp. JDM 1276 (ANTWEB1041219); 857) *Meranoplus* sp. JDM 1025 (JDM32-000600); 858) *Meranoplus* sp. JDM 865 (Barrow Island, Western Australia); 859) *Meranoplus* sp. JDM 1107 (JDM32-003473); 860) *Meranoplus similis* 'type' (AntWeb) (FOCOL1935); 861) *Meranoplus* sp. JDM 1145 (ANTWEB1041191); 862) *Meranoplus* sp. JDM 889 (ANTWEB1041189); 863) *Meranoplus* sp. JDM 931 (ANTWEB1041190); 864) *Meranoplus* sp. JDM 674 (ANTWEB1041187); 865) *Meranoplus aureolus* syntype (CASENT0902048); 866) *Meranoplus* sp. JDM 1146 (ANTWEB1041192); 867) *Meranoplus lineae* lectotype ('*M. aureolus lineae*') (CASENT0913021).

Seen in dorsal view, posterior angles of promesonotal shield prominent as dentate or digitate spines that extend well beyond the posterior margin of the promesonotal shield (the lamella generally being reduced to a membrane stretched between two cuticular protrusions within the propodeal angles) 56

- 55. Mesosoma shining, in profile, erect setae present and usually numerous on mesosoma; gaster with mainly fine, even microreticulate sculpture, a few faint striolae may be visible near postpetiole; seen in dorsal view promesonotal shield trapezoid and broadest across the humeri (morphologically and colour variable, possibly a species complex) (Figure 865).....
.....*aureolus* Crawley

[<https://www.antweb.org/specimenImages.do?name=casent0902048>]

Mesosoma matt, in profile, erect setae virtually lacking on mesosoma; gaster with feeble and indistinct areolate sculpture overlying microreticulation; seen in dorsal view, promesonotal shield more-or-less square (Figure 866)..... *Meranoplus* sp. JDM 1146

[<https://www.antweb.org/specimenImages.do?name=antweb1041192>]

- 56. Brown species with posterior angles of promesonotal shield dentate and about 1.5 × long as the posterolateral cuticular extensions above them, the former directed at an angle ≥ 60° to the horizontal plane; fenestrae (if present) reduced to a tiny median window midway along lateral margin of promesonotal shield and a small lamella between two cuticular extensions inside the posterior angles of the promesonotal shield; small northern species (HW ~0.6 mm) (Figure 867)
.....*linae* Santschi

[<https://www.antweb.org/specimenImages.do?name=casent0913021>]

Seen in dorsal view, spines formed by the posterior promesonotal angles directed posteriad at an angle ≤ 45° to the horizontal plane or ant tawny orange with more developed fenestrae and larger in size (HW ≥ 0.70 mm)..... 57

- 57. Seen in dorsal view, spines formed by the posterior promesonotal angles directed at an angle ≥ 60° to the horizontal plane, these spines thin and distinctly longer (i.e. more

than 2 × as long) than the posterolateral spines directly above them (Figure 868)
.....*Meranoplus* sp. JDM 967

[<https://www.antweb.org/specimenImages.do?name=jdm32-003462>]

Seen in dorsal view, spines formed by the posterior promesonotal angles directed posteriad at an angle ≤ 45° to the horizontal plane; if spines are noticeably longer (i.e. more than 2 × as long) than the posterolateral spines directly above them, then posterolateral spines are conspicuously thickened 58

- 58. Seen in dorsal view, spines formed by the posterior promesonotal angles thick, digitate, bluntly rounded and directed posteriad at an angle of < 45° to the horizontal plane; seen in rear view, outline of dorsum of petiolar node narrowly convex or even bluntly triangular (black or black-and-orange south coast species) (Figure 869)
.....*Meranoplus* sp. JDM 1377

[<https://www.antweb.org/specimenImages.do?name=antweb1041185>]

Seen in dorsal view, spines formed by the posterior promesonotal angles thin, acutely angled or conspicuously thick but always terminating in a point, the spines directed posteriad at an angle of ~45° to the horizontal plane; seen in rear view, dorsum of petiolar node broadly planar or weakly convex (workers orange, brown or brown-and-orange)..... 59

- 59. Eye large, (EL ≥ 0.30 × side of head); in dorsal view, lateral lamellae and fenestra on promesonotal shield always present and developed to variable degrees; two distinct, complete, lateral fenestrae may be present 60

Eye smaller (EL < 0.30 × side of head), lateral lamellae and fenestra much reduced and may be vestigial or even absent with, at most, one very small complete lateral fenestra present.....61

- 60. Major pilosity on mesosoma consisting of many erect setae that are usually stout and short, but may be fine and filamentous in appearance in northern populations (Figure 870)
.....*Meranoplus* sp. JDM 673

[<https://www.antweb.org/specimenImages.do?name=jdm32-003436>]

Major pilosity on mesosoma consisting of decumbent or appressed setae that are stout, filamentous or a mixture of both forms *Meranoplus* sp. JDM 673 (variant)

- 61. Seen in dorsal view, outline of promesonotal shield trapezoid, widest across the humeri; also in dorsal view, the spine formed by posterior angle of promesonotal shield often slightly to moderately shorter than the lateral spine directly above it, the latter often also distinctly broad and conspicuous; seen in dorsal view, promesonotal shield coarsely reticulate (possibly a species complex) (Figure 871) *curvispina* Forel
[<https://www.padil.gov.au/barrow-island/pest/main/142183>]

Seen in dorsal view, outline of promesonotal shield more-or-less square, if anything slightly wider posteriad; also, in dorsal view, spine formed by posterior angle of promesonotal shield distinctly thick and longer than the lateral spine directly above it; seen in dorsal view, promesonotal shield finely areolate (Figure 872)
..... *Meranoplus* sp. JDM 1133
[<https://www.padil.gov.au/barrow-island/pest/main/136714>]

Mesostruma

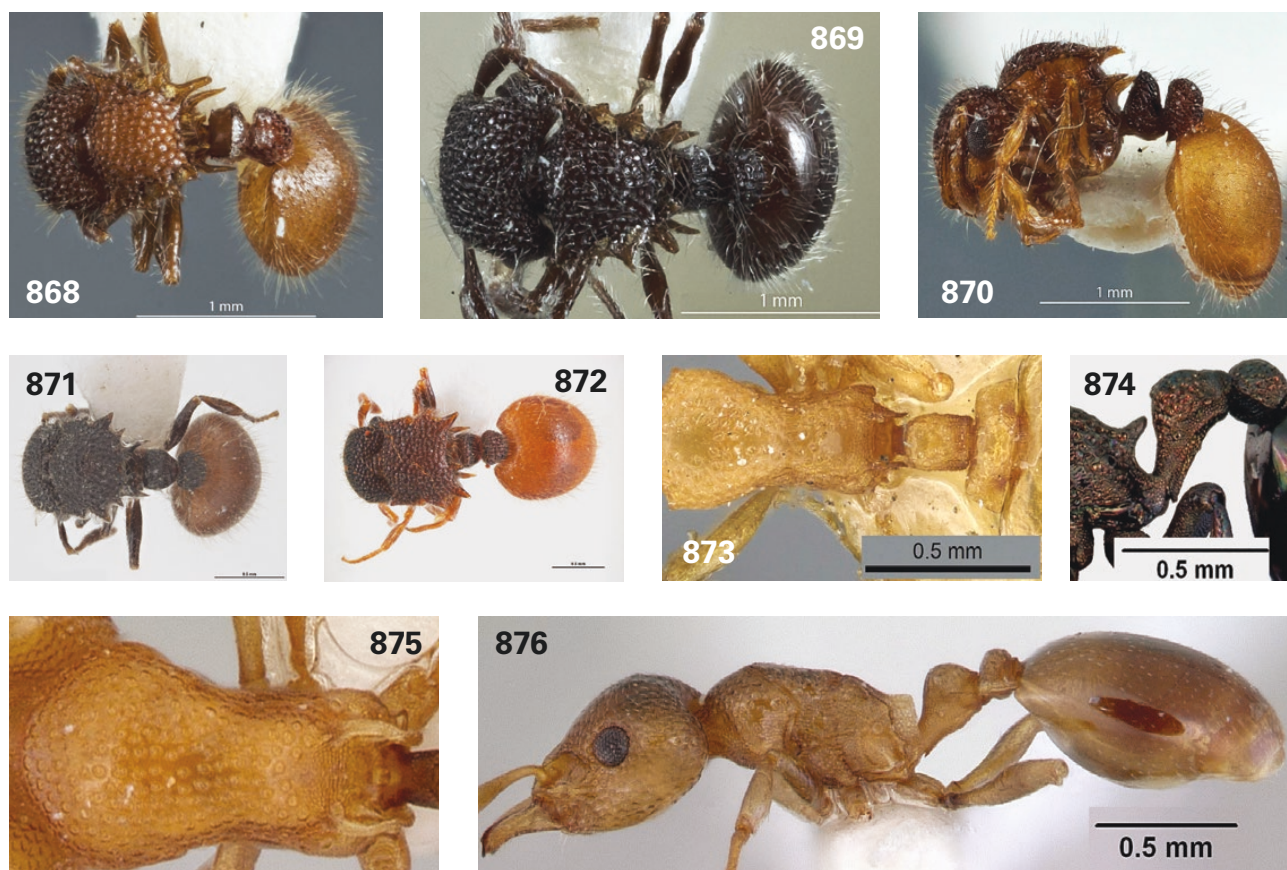
- 1 In dorsal view anterolateral pronotum armed with distinct angles or short spines 2
Seen in dorsal view anterolateral pronotum rounded 3
- 2 In dorsal view, propodeal lamellae well developed; seen in dorsal view, lateral surfaces of postpetiole with well-developed wings (Figure 873) *laevigata* Brown
[<https://www.antweb.org/specimenImages.do?name=casent0911195>]
Propodeal lamellae reduced to thin carinae; lateral surfaces of postpetiole rounded, lacking wings (gold-coated for SEM) (Figure 874) *eccentrica* Taylor
[<https://www.antweb.org/specimenImages.do?name=casent0172468>]
- 3 In dorsal view, dorsum of mesosoma with dense, shallow foveolate punctures which are generally spaced less than their width apart, and with the area between the punctures with weak but distinct sculpturing (Figure 875) *inornata* Shattuck
[<https://www.antweb.org/specimenImages.do?name=casent0172474>]

Seen in dorsal view, dorsum of mesosoma with scattered, shallow foveolate punctures which are spaced more than their width apart, the area between the punctures smooth and lacking sculpturing 4

- 4. Propodeum armed with elongate spines, the lamellae reduced to thin bands which are only slightly raised above the underlying propodeal surface (see Shattuck 2007; Figs. 9–12) *spinosa* Shattuck
[https://www.antwiki.org/wiki/images/f/ff/Shattuck_2007.pdf]
Propodeum lacking spines and with thick lamellae (Figure 876) *loweryi* Taylor
[<https://www.antweb.org/specimenImages.do?name=casent0172477>]

Monomorium

- 1. Antenna 10-segmented; mesosoma and nodes glabrous; yellow in colour, gaster slightly darker (Figure 877)
..... *antipodum complex* sp. JDM 103 (part)
[<https://www.antweb.org/specimenImages.do?name=jdm32-003820>]
Antenna 11- or 12-segmented; usually with some erect setae on body or, at least, nodes 2
- 2. Antenna 11-segmented 3
Antenna 12-segmented 22
- 3. PF 2,2; seen in profile, eye orientated diagonally to the vertical axis, often large and may be folded around the curvature of the head capsule; clypeal carinae produced as sharp denticles; mesopleuron and propodeum finely and evenly microreticulate (microreticulation may be superficial in some specimens) (Figure 878) *eremophilum* Heterick
[<https://www.antweb.org/specimenImages.do?name=casent0902303>]
PF 1,2; if eye orientated diagonally in the manner described above, then clypeal carinae weak and indistinct and not produced as denticles 4
- 4. Propodeum strongly carinate and impressed at its junction with the metapleuron so that it splays out and overhangs the metapleuron in spectacular fashion as it curves over into its declivous face, the declivous propodeal face shining with superficial imbricate sculpture (Figure 879) *carinatum* Heterick
[<https://www.antweb.org/specimenImages.do?name=casent0902297>]
Propodeum not strongly carinate and splayed posteriad as described above 5



FIGURES 868–876 868) *Meranoplus* sp. JDM 967 (JDM32-003462); 869) *Meranoplus* sp. JDM 1377 (ANTWEB1041185); 870) *Meranoplus* sp. JDM 673 (JDM32-003436); 871) *Meranoplus curvispina* (Barrow Island, Western Australia); 872) *Meranoplus* sp. JDM 1133 (Barrow Island, Western Australia); 873) *Mesostruma laevigata* paratype (CASENT0911195); 874) *Mesostruma eccentrica* holotype (coated for SEM work) (CASENT0172468); 875) *Mesostruma inornata* holotype (CASENT0172474); 876) *Mesostruma loweryi* (CASENT0172477).

5. Worker mandible with three distinct teeth; propodeum in profile almost roundly triangular, with a strong carina along either side as it descends to its junction with petiolar peduncle; yellow or yellow-orange species (Figure 880)*arenarium* Heterick

[<https://www.antweb.org/specimenImages.do?name=casent0902291>]

Worker mandible with four teeth (although basal tooth may be reduced); propodeum in profile not as above..... 6

6. Eye very large (EL 0.25–0.30 × length of side of head capsule); mesosoma always with 5–10 erect setae; propodeum cuboidal with varying degrees of microreticulate sculpture varying from complete coverage of the sclerite to almost absent, but mesopleural microreticulation always present; propodeal

lobes very small; northern populations uniformly yellow; southern populations dirty yellow with light brown head and gaster (Figure 881).....*silaceum* Heterick

[<https://www.antweb.org/specimenImages.do?name=casent0902323>]

If eye very large as above and worker yellow (e.g. *M. micula*), then mesopleuron smooth and shining or almost so or mesosoma glabrous..... 7

7. Worker minute (HW ≤ 0.40 mm); clypeal carina produced as sharp denticles, mesosoma glabrous; otherwise description as in couplet 1 (see Figure 877) *antipodum complex* sp. JDM 103 (part)

[<https://www.antweb.org/specimenImages.do?name=jdm32-003820>]

If clypeal carinae developed and protruding as two sharp denticles, then colour various shades of brown; HW generally ≥ 0.50 mm 8

8. Seen in profile, propodeum rounded, weakly cuboidal or even globose, in appearance mainly smooth and glossy with a few metapleural striae or with weak, superficial microreticulation; mesopleuron without uniform microreticulation (except in *M. antipodum* complex sp. JDM 717 from Barrow Island); propodeal lobes small to vestigial, never present as well-developed lateral flanges; if propodeum weakly cuboidal then dorsal and lateral surfaces separated by a blunt edge only; petiole and postpetiole smooth and shining or almost so 9

Propodeum rather flat and always laterally carinate, these lateral propodeal carinae often produced as distinct lateral flanges that diverge posteriad; propodeum most commonly matt or weakly shining with intense areolate or microreticulate sculpture that is uniform over the sclerite, but where reduced, the mesopleuron is uniformly microreticulate; petiolar node and postpetiole often also with at least surface microsculpture 17

9. Seen in profile, reniform eye elongate, orientated diagonally to the vertical axis and folded around the curvature of the head capsule; worker larger (HW ~ 0.45 mm); propodeum short and truncate (Figure 882) *antipodum* complex sp. JDM 717

[<https://www.padil.gov.au/barrow-island/pest/main/136767> (as '*M. eremophilum*')]

If eye as above, then worker smaller (HW < 0.40 mm); otherwise, in profile, eye orientated along a vertical axis, usually of moderate size and elliptical 10

10. Uniformly bright yellow ants; pilosity very variable, even within nests, but typical form with two long, erect setae on humeral angles; less typically, worker with short, slightly curly erect pilosity on mesosoma and antennal scapes, or pilosity confined to a pair of setae directed posteriad on petiolar node and postpetiole; mesopleuron and propodeum smooth and shining or almost so (Figure 883) *disetigerum* Heterick

[<https://www.antweb.org/specimenImages.do?name=casent0902302>]

If workers uniformly yellow or yellowish, then propodeum with at least superficial microreticulate sculpture; erect setae completely lacking on mesosoma and usually the nodes 11

11. Mesosoma glabrous or with a couple of very short, erect, promesonotal setae; eye variously enlarged but eye width $\geq 2 \times$ greatest width of antennal scape and, in profile, often orientated diagonally to vertical axis; eye usually no more than $0.5 \times$ its length from mandibular insertions and may almost abut them; propodeal spiracle small (about width of single eye facet); more-or-less uniformly brown; propodeum tending to elongate or an attenuated cube; worker tiny (HW < 38 mm) (Figure 884) *antipodum* complex sp. JDM 1369

[<https://www.antweb.org/specimenImages.do?name=jdm32-003579>]

If eye large as above, then eye its own length distant from mandibular insertions or nearly so, orientated along a vertical axis, and erect mesosomal setae > 5 12

12. Worker mesosoma glabrous, nodes usually so; propodeum short, as long as high, shining and superficially and evenly microreticulate; petiolar node and postpetiole smooth and shining; propodeal lobes variable in appearance and may be vestigial or consist of a thin flange near the base of the propodeum; colour of worker a dull yellow, head often reddish-yellow and posterior of gaster infuscated (Figure 885) *sydneyense* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=casent0913586>]

Worker mesosoma with a few to many erect setae; propodeum not evenly sculptured in this fashion, and generally free of sculpture apart from metapleural striae or a few patches of impressed sculpture near the junction with the mesopleuron; propodeal lobes, if distinct, generally small and circular 13

13. Worker minute (HW < 0.40 mm); antennal scape short (SI ≤ 76); mesosoma gracile, propodeum tending to elongate; petiolar node bluntly conical, barely higher than postpetiole; colour yellow, typically with vaguely darker infuscation on cephalic vertex and sides of gastral tergites (introduced) (Figure 886) *orientale* Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0916010>]

Without the above combination of characters, specifically, if worker minute with similar appearance of antennal scape and nodes then colour is uniformly brown.....14

14. Worker minute with metasomal nodes often similar in appearance to those of *orientale*; however, in profile, propodeum short, about as long as high, smooth and shining, not elongate as in *orientale* but either smoothly rounded or in form of an attenuated cube; legs lighter in colour than body; north-western WA populations with less broadly

conical node than in *M. orientale* and colour bright yellow to tawny yellow, often with slightly darker head and gaster; other WA populations uniformly brown or dingy yellow (Figure 887)..... *antipodum* Forel

[<https://www.padil.gov.au/barrow-island/pest/main/136762>]

If broadly similar to the above, then workers larger in size (HW > 0.40 mm); propodeal spiracle larger (width > diameter of one eye facet); legs of same colour as body15



FIGURES 877–888 877) *Monomorium antipodum* complex sp. JDM 103 (JDM32-003820); 878) *Monomorium eremophilum* paratype (CASENT0902303); 879) *Monomorium carinatum* paratype (CASENT0902297); 880) *Monomorium arenarium* paratype (CASENT0902291); 881) *Monomorium silaceum* paratype (CASENT0902323); 882) *Monomorium antipodum* complex sp. JDM 717 (Barrow Island, Western Australia); 883) *Monomorium disetigerum* paratype (CASENT0902302); 884) *Monomorium antipodum* complex sp. JDM 1369 (JDM32-003579); 885) *Monomorium sydneyense* syntype ('*M. fraterculus barretti*') (CASENT0913586); 886) *Monomorium orientale* holotype (CASENT0916010); 887) *Monomorium antipodum* (Barrow Island, Western Australia); 888) *Monomorium fieldi* syntype (CASENT0908769).

15. Propodeum short (in profile about as wide as long) and generally more-or-less globose; workers always shades of brown, often concolorous (Figure 888)*fieldi* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0908769>]

Propodeum never globose and typically elongate and smoothly rounded but may be rectangular or cuboidal with weakly defined propodeal carinae; if propodeum cuboidal, then worker concolorous yellow; workers generally concolorous yellow, but may be yellow with tawny yellow to dark brown gaster and extremely rarely uniformly brown (*M. laeve*: one known QLD series, in which case the propodeum is elongate)16

16. Clypeus with a shallow but distinct broadly V-shaped notch between the well-developed clypeal carinae; seen in full-face view petiolar node and postpetiole expanded, about as wide as high; propodeal spiracle very large, its width > diameter of one eye facet; exclusively yellow northern Australian ants (Figure 889) *anderseni* Heterick

[<https://www.antweb.org/specimenImages.do?name=casent0902289>]

Clypeus either straight or very weakly indented between the clypeal carinae or the clypeal carinae indistinct; seen in full-face view petiolar node and postpetiole not expanded, the nodes distinctly higher than wide; width of propodeal spiracle approximately the same as or slightly larger than diameter of one eye facet; workers generally yellow but may be bicoloured yellow with darker gaster (Figure 890) *laeve* Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0916019>]

17. Worker bright yellow, mesosoma shining, metanotal groove deeply but narrowly impressed; eye moderately large (EL 0.25–0.30 × length of side of head capsule); nodes always lacking erect setae (Figure 891) *sydneyense complex sp.* JDM 101

[<https://www.padil.gov.au/barrow-island/pest/main/136764>]

If worker bright yellow, then eye very large (EL 0.35–0.40 × length of side of head capsule), metanotal groove broadly impressed and nodes may bear small, erect setae18

18. Worker bright to dirty, concolorous yellow; eye very large (EL 0.35–0.40 × length of side of head capsule) (Figure 892) *micula* Heterick

[<https://www.antweb.org/specimenImages.do?name=casent0902315>]

Worker various shades of brown19

19. Clypeal carinae not produced as two acute denticles, the anterior margin of the clypeus between them straight or weakly and evenly concave; seen in profile the metanotal groove weakly impressed; seen in dorsal view promesonotum and propodeum not laterally compressed (Figure 893) *sydneyense* Forel (part)

[<https://www.antweb.org/specimenImages.do?name=casent0904587>]

Clypeal carinae produced as two acute denticles, the anterior margin of the clypeus between them excavate; if metanotal groove only weakly impressed, then in dorsal view promesonotum and propodeum laterally compressed towards their junction with the metanotal groove 20

20. Seen in profile, metanotal groove narrowly impressed to form a shallow slit; seen in dorsal view the promesonotum and propodeum laterally compressed towards their junction with the metanotal groove; eye generally smaller, elliptical (Figure 894) *aithoderum* Heterick

[<https://www.antweb.org/specimenImages.do?name=casent0902287>]

Seen in profile, metanotal groove broadly impressed to form a U- or weakly V-shaped groove; seen in dorsal view the promesonotum and propodeum not laterally compressed towards their junction with the metanotal groove; eye generally larger, reniform to varying degrees (see Figure 895)21

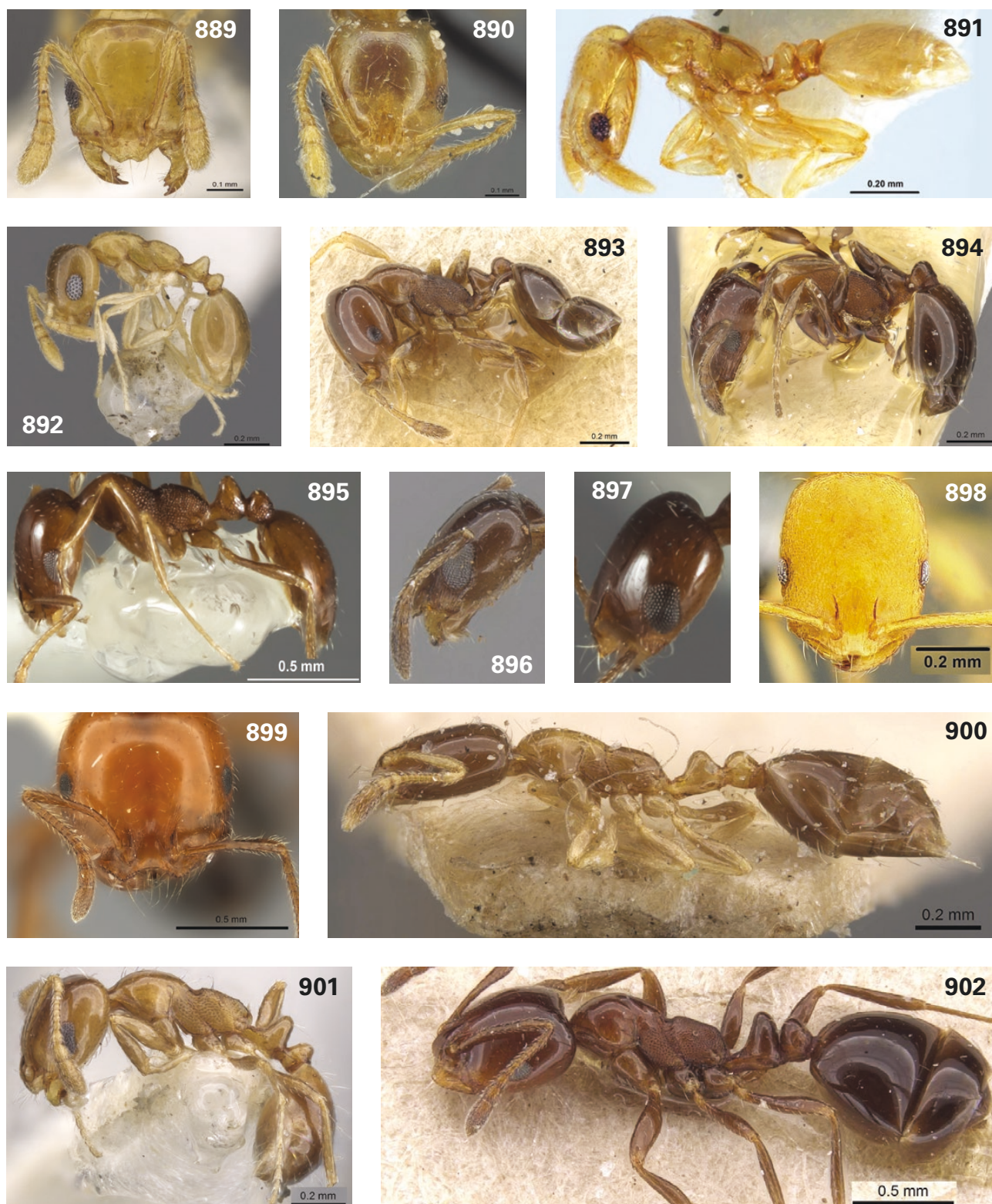
[<https://www.antweb.org/specimenImages.do?name=anic32-015689-1>]

21. Viewed in profile eye variable in size but generally smaller (EW ≤ 0.45 × length of head capsule, mostly much less), elliptical or reniform, usually weakly oblique or orientated along the vertical axis of the head capsule and always separated from mandibular insertion by at least 0.9 × its own length (Figure 896) *stictonotum* Heterick

[<https://www.antweb.org/specimenImages.do?name=casent0902324>]

Viewed in profile, eye always large (EW ≥ 0.4 × length of head capsule), always reniform and strongly oblique and separated from mandibular insertion by much less than its own length, sometimes almost abutting the insertion (Figure 897) *nanum* Heterick

[<https://www.antweb.org/specimenImages.do?name=anic32-015672-1>]



FIGURES 889–902

890) *Monomorium anderseni* paratype (CASENT0902289); 890) *Monomorium laeve* syntype (CASENT0916019); 891) *Monomorium sydneyense* complex sp. JDM 101 (Barrow Island, Western Australia); 892) *Monomorium micula* paratype (CASENT0902315); 893) *Monomorium sydneyense* syntype ('*M. sydneyense nigella*') (CASENT0904587); 894) *Monomorium aithoderum* paratype (CASENT0902287); 895) Metanotal groove broadly impressed (*Monomorium stictonotum*) (ANIC32-015689-1); 896) *Monomorium stictonotum* paratype (CASENT0902324); 897) *Monomorium nanum* holotype (ANIC32-015672-1); 898) *Monomorium pharaonis* (CASENT0171086); 899) *Monomorium rothsteini* (CASENT0217889); 900) *Monomorium floricola* syntype ('*M. floricola philippinensis*') (CASENT0908698); 901) *Monomorium megalops* paratype (CASENT0902314); 902) *Monomorium sordidum* syntype ('*M. foreli*') (CASENT0905835).

22. Frons of head capsule and entire mesosoma finely densely reticulate-punctate, and other cephalic sculpture present; mandibles with longitudinal rugulose sculpture and shagreenation (introduced: mainly built-up areas) (Figure 898).....*pharaonis* (Linnaeus)

[<https://www.antweb.org/specimenImages.do?name=casent0171086>]

Frons of head capsule smooth and shining; mesosoma also with at least some parts of the promesonotum free of sculpture; mandibles smooth and shining, free of sculpture except for hair pits and a few weak striae..... 23

23. Number of mandibular teeth 3; anterior clypeal margin variably crenulate with clypeal carinae sometimes produced as teeth (mainland Australia) (see Excursus 2) (Figure 899)..... *rothsteini* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0217889>]

Number of mandibular teeth 4; anterior clypeal margin weakly excavate to evenly convex between clypeal carinae24

24. Petiolar node triangular, in profile, of same height as postpetiole or slightly higher; mesosoma of worker smooth and shining, with minimal sculpture on propodeum and mesopleuron; clypeus slightly indented between the clypeal carina (introduced) (Figure 900)..... *floricola* (Jerdon)

[<https://www.antweb.org/specimenImages.do?name=casent0908698>]

Petiolar node cuneate and conspicuously higher than the postpetiole. Propodeum and mesopleuron always with some sculpture, sometimes densely microreticulate-areolate; clypeus straight or slightly and evenly convex between weakly developed clypeal carinae 25

25. Eye large, reniform and, in profile, orientated diagonally to the vertical axis (Figure 901).....
.....*megalops* Heterick

[<https://www.antweb.org/specimenImages.do?name=casent0902314>]

Eye moderate, elliptical and, in profile, orientated along the vertical axis (mainland Australia) (Figure 902)*sordidum* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0905835>]

EXCURSUS 2

The status of *Monomorium rothsteini*

The position taken here, and also in Heterick 2001, 2009 and 2013 is that *Monomorium rothsteini* is likely a single species, or consists, perhaps, of a small number of species despite an obviously high degree of variability in many morphological particulars which has led various researchers to assume a likely large species complex (e.g. Andersen 2000). The position taken by Heterick has been contested by other researchers. In 2014 and 2015, Sparks et al. published two papers, the second of which covered the taxonomy of *M. rothsteini*. Sparks et al. identified *M. rothsteini* as a speciose clade. In their taxonomic paper (Sparks et al. 2015) 18 new species were described; four were brought out of synonymy and the existence was posited of numerous additional species that could not yet be formally identified. Eleven of the herein recognised species occur in WA. In an earlier companion paper (Sparks et al. 2014) the theoretical difficulties of studying *M. rothsteini* were discussed. Although the nuclear genes, EF1aF2 and Wingless (Wg) were used along with COI and haplotypes were identified, eventually the authors opted to use mtDNA lineages only to undergird their morphological findings.

Unfortunately, the published taxonomic paper (i.e. Sparks et al. 2015) appears to this researcher to have several limitations, both in terms of methodology and conclusions:

Firstly, the material examined, especially for the species described as new, appears to be very restricted. The Australian National Insect Collection (ANIC) was used neither as a source of material nor as a repository of new material. The chief source of material, in fact, seems to have been the Tropical Ecosystems Research Centre (TERC) in Darwin, most of the remaining material being gathered by the principal author and her co-workers during the project. Nor were most other state institutional collections accessed, any reference to institutional material being restricted to that which had been collected by Sparks and her colleagues.

Secondly, the authors concede that the two nuclear markers used in the study were too slowly evolving to provide support for the mtDNA sequences. This meant that only COI was used to illustrate both clades and species in a cladogram (Figure 4 in Sparks et al. 2014 and Figure 3 in Sparks et al. 2015). This leaves the question open as to whether species or simply populations/ lineages are what is depicted in the above two figures.

Finally, and most critically for practical purposes, the taxonomic key to workers in Sparks 2015 is very difficult to use as diagnostic differences

often concern degree of sculpture on a single small tergite (such as the petiolar node or postpetiole) and, compared with many Formicidae keys, are small. In at least two instances in the key (i.e. couplets 8 and 11) a diagnostic character either does not work for all specimens or is relative, and thus ambiguous. Furthermore, the collections of new species seem commonly to have involved a small handful of specimens from one or two localities, further bringing into question the issue of whether a given diagnostic character will separate all members of the population (*M. eremoides* and *M. erenum* cannot be separated at all morphologically, and non-type specimens examined are included in a single group).

This researcher acknowledges that *M. rothsteini* presents an interesting case for phenotypic variability but does not believe the above authors have conclusively proved their case that this clade is the very large complex that they allege. More comprehensive sampling and genomic datasets may resolve this challenging group.

Orectognathus

One species (*Orectognathus clarki* Brown 1953) (see Figure 72).

[<https://www.antweb.org/specimenImages.do?name=casent0900020>]

Pheidole (minor workers)

1. Antenna with 11 segments (Figure 903)
..... *dispar* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0102458>]

Antenna with 12 segments 2

2. Seen in profile, dorsal surface of propodeum approximately level with promesonotum, so upper surface of mesosoma forms a uniform arch interrupted only by the shallow metanotal groove; eyes minute (≤ 5 ommatidia); worker caste polymorphic (Figure 904) *antipodum* (F. Smith)

[<https://www.antweb.org/specimenImages.do?name=casent0915459>]

Seen in profile, the propodeum depressed below the anterior promesonotum, the posterior sector of the promesonotum steeply sloped; eyes larger (≥ 8 ommatidia); worker caste dimorphic 3

3. In dorsal view, postpetiole large and rather elongate, broader and larger than the petiolar node; seen in profile, postpetiolar ventrite may be conspicuously swollen 4

Seen in dorsal view, postpetiole small and compact, not larger than petiolar node; seen in profile, postpetiolar ventrite not conspicuous or swollen 5

4. Seen in profile, promesonotum with two convexities including a small hump in the mesonotal sector as well as the even curve of the pronotal sector; also in profile, postpetiolar ventrite not bulging conspicuously (introduced) (Figure 905)
..... *indica* Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0101327>]

Seen in profile, promesonotum with a single convexity (the curve of the pronotal sector); postpetiolar ventrite well-developed so as to bulge conspicuously (introduced) (Figure 906) *megacephala* (Fabricius)

[<https://www.antweb.org/specimenImages.do?name=casent0056016>]

5. Seen in profile, propodeal angles either unarmed or armed with a minute angle or denticle (mainly smooth, shining species with most sculpture restricted to mesopleuron and propodeum) 6

Seen in profile, propodeal angles armed with a distinct tooth or sharp, well-formed denticle (often more highly sculptured, matt species) 9

6. Seen in profile, eye very small (10 ommatidia \leq); propodeum completely lacking propodeal angles, its flanks with multiple longitudinal striae and its dorsum weakly concave and smooth medially (Figure 907)
..... *Pheidole* sp. JDM 1332

[<https://www.antweb.org/specimenImages.do?name=antweb1041214>]

Seen in profile, eye larger (> 15 ommatidia), propodeum with at least vestigial denticles and with just one developed striation on lower metapleuron (*P. vigilans* complex) 7

7. Seen in full-face view, antennal scape short, barely attaining the vertex of the head; seen in profile, entire promesonotum hemispherical (tiny, bright yellow species) (Figure 908) *Pheidole* sp. JDM 933

[<https://www.antweb.org/specimenImages.do?name=antweb1008698>]

Seen in full-face view, antennal scape longer, surpassing vertex by $\geq 1.5 \times$ its greatest width; seen in profile, only anterior sector of promesonotum hemispherical, its posterior

- sector weakly curved or almost straight as it descends to the metanotal groove 8
8. Seen in full-face view, the head broader with the vertex weakly concave; also in full-face view, erect setae on antennal scape predominantly sub-erect, numerous and generally shorter than the greatest width of the scape (introduced to WA) (Figure 909)
..... *vigilans* (F. Smith)

[<https://www.antweb.org/specimenImages.do?name=casent0908016>]

Ant very similar to the above, but in full-face view, head narrower with the vertex convex or tending to planar; also in full-face view, erect setae on antennal scape predominantly erect and more sparse than the above, the length of the longest setae > the greatest width of the antennal scape (Figure 910)
..... *Pheidole* sp. JDM 280

[<https://www.antweb.org/specimenImages.do?name=antweb1041210>]

9. In profile, occipital carina strongly developed to form a nuchal collar; appendages including antennal scape conspicuously thin and elongate (Figure 911).....*hospes* F. Smith

[<https://www.antweb.org/specimenImages.do?name=casent0901400>]

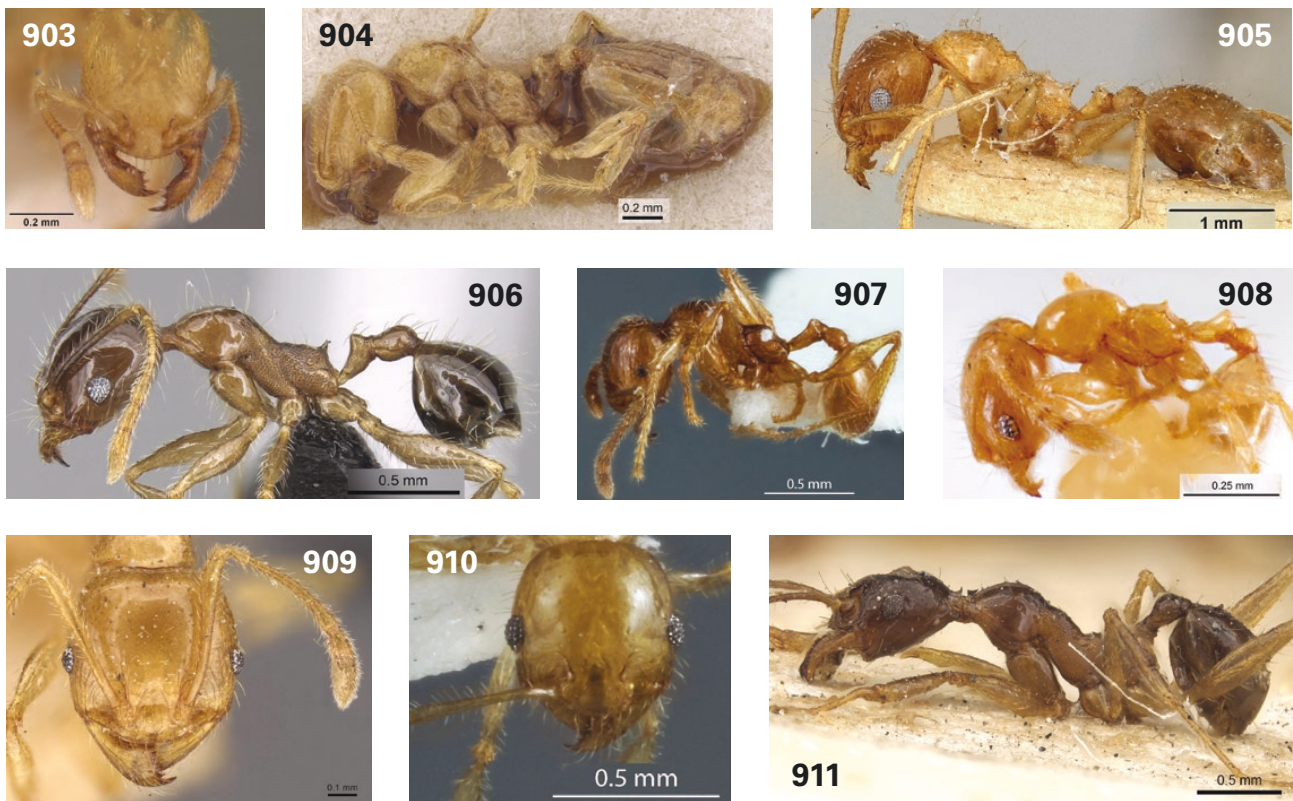
Seen in profile, occipital carina present and visible but not developed to form a nuchal collar; appendages not conspicuously thin and elongate10

10. In dorsal view, humeral angle denoted by a small but distinct denticle.....11

Seen in dorsal view, humeral angle unarmed 12

11. In profile, promesonotum raised as a distinct ledge above the level of the propodeum; propodeal spines directed vertically (TERC) (Figure 912)
.....*Pheidole longiceps doddi* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0908046>]



FIGURES 903–911 903) *Pheidole dispar* minor (CASENT012458); 904) *Pheidole antipodum* minor syntype ('*P. myops*') (CASENT0915459); 905) *Pheidole indica* minor syntype ('*P. voeltzkowi*') (CASENT0101327); 906) *Pheidole megacephala* minor paratype (CASENT0056016); 907) *Pheidole* sp. JDM 1332 minor (ANTWEB1041214); 908) *Pheidole* sp. JDM 933 minor (ANTWEB1008698); 909) *Pheidole vigilans* minor syntype ('*P. ampla parallela*') (CASENT0908016); 910) *Pheidole* sp. JDM 280 minor (ANTWEB1041210); 911) *Pheidole hospes* minor syntype (CASENT0901400).

- Seen in profile, promesonotum descending over a small protuberance to the propodeum, but not raised as a shelf above level of propodeum (Figure 913)
.....*Pheidole* sp. JDM 684
[<https://www.padil.gov.au/barrow-island/pest/main/136711>]
12. Yellowish species with entire head and most of dorsal promesonotum smooth, shining and unsculptured (Figure 914) *proxima* Mayr
[<https://www.antweb.org/specimenImages.do?name=jdm32-004001-2>]
- If species yellowish then area near vertex, at least, with some reticulation or other sculpture13
13. Large species (HW \geq 0.85 mm); seen in full-face view, occipital carina developed and clearly visible as a narrow strip above the vertex; seen in profile, head gently curved as it descends from the vertex (Figure 915)*hartmeyeri* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0904305>]
- Species smaller (HW < 0.70 mm); seen in full-face view, occipital carina generally less developed and either invisible or appearing only as a sharp edge above the vertex; seen in profile in the larger species, head often flattened near vertex14
14. Eye produced, either in a reniform or an inverted teardrop shape, and positioned obliquely across a vertical axis less than its own length from the mandibular articulation; small species (HW < 0.50 mm) with erect setae on head and body short, shorter than length of eye, and may be modified (spatulate or clavate) (*P. incurvata* complex)15
- In small species of similar size, eye ovate and not produced as above, positioned more-or-less along a vertical axis at least its own length from the mandibular articulation17
15. Dark brown or blackish ants with distinctly convex promesonotum when viewed in profile; seen in full-face view, antennal scape nearly always short and not attaining the vertex by about its own width when in upright position (rarely the antennal scape may barely reach the vertex) (Figure 916)
.....*Pheidole* sp. JDM 164
[<https://www.antweb.org/specimenImages.do?name=antweb1041205>]
- If ant brown or blackish, then promesonotum planar for most of its length when viewed in profile, and, in full-face view, antennal scape longer and attaining or surpassing the vertex when in upright position.....16
16. Yellow or yellowish; erect setae on head and body may be clavate or otherwise noticeably thickened; promesonotum evenly convex when viewed in profile (Kimberley region) (Figure 917)*Pheidole* sp. JDM 306
[<https://www.antweb.org/specimenImages.do?name=antweb1041207>]
- Usually light brown with blackish gaster but may be uniformly brown or blackish-brown; erect setae on head and body not noticeably modified; viewed in profile, promesonotum more-or-less planar for most of its length before it descends abruptly to metanotal groove (Pilbara region southwards) (Figure 918)*Pheidole* sp. JDM 429
[<https://www.antweb.org/specimenImages.do?name=jdm32-003971-2>]
17. Seen in full-face view, frons of worker shining and mainly smooth apart from longitudinal striae, other sculpture being absent or very much reduced (e.g. a few reticulate patches may be present near the vertex, and some, mostly obscure microreticulation may be present on the sides of the head)18
- Seen in full-face view, frons of worker always with other sculpture prominent, being chiefly reticulate and microreticulate sculpture, appearance mainly matt 22
18. Seen in profile, propodeal angles developed as gently curved, long spines that do not arise from a broadly triangular base, the spines 5 \times as long as their width across their base (tawny yellow species with a largely unsculptured, smooth promesonotum) (Figure 919)*Pheidole* sp. JDM 934
[<https://www.antweb.org/specimenImages.do?name=antweb1041213>]
- Seen in profile, propodeal angles developed as teeth or short spines that arise from a broadly triangular base, the teeth or short spines \leq 3 \times as long as their width across their base (*P. ampla* complex [part])19
19. Seen in profile, promesonotum not strongly humped but with more-or-less a smooth anterior convexity that descends gradually towards the metanotal groove over what



FIGURES 912–923 912) *Pheidole longiceps doddi* minor syntype (CASENT0908046); 913) *Pheidole* sp. JDM 684 minor (Barrow Island, Western Australia); 914) *Pheidole proxima* minor (JDM32-004001-2); 915) *Pheidole hartmeyer* minor syntype (CASENT0904305); 916) *Pheidole* sp. JDM 164 minor (ANTWEB1041205); 917) *Pheidole* sp. JDM 306 minor (ANTWEB1041207); 918) *Pheidole* sp. JDM 429 minor (JDM32-003971-2); 919) *Pheidole* sp. JDM 934 minor (ANTWEB1041213); 920) *Pheidole ampla* minor (CASENT0908010); 921) *Pheidole turneri* minor (ANTWEB1041216); 922) *Pheidole bos* minor syntype ('*P. pyriformis*') (ANTWEB1008221); 923) *Pheidole bos* minor (note: doubtfully conspecific with syntype majors) (CASENT0908030).

is only a slight undulation posteriad; eyes slightly larger ($EW \geq 0.25 \times$ length of side of head) (Figure 920)*ampla* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0908010>]

Seen in profile, promesonotum strongly humped and often terminating in a relatively steep declivity immediately before the metanotal groove; eye slightly smaller ($EW \leq 0.22 \times$ length of side of head)..... 20

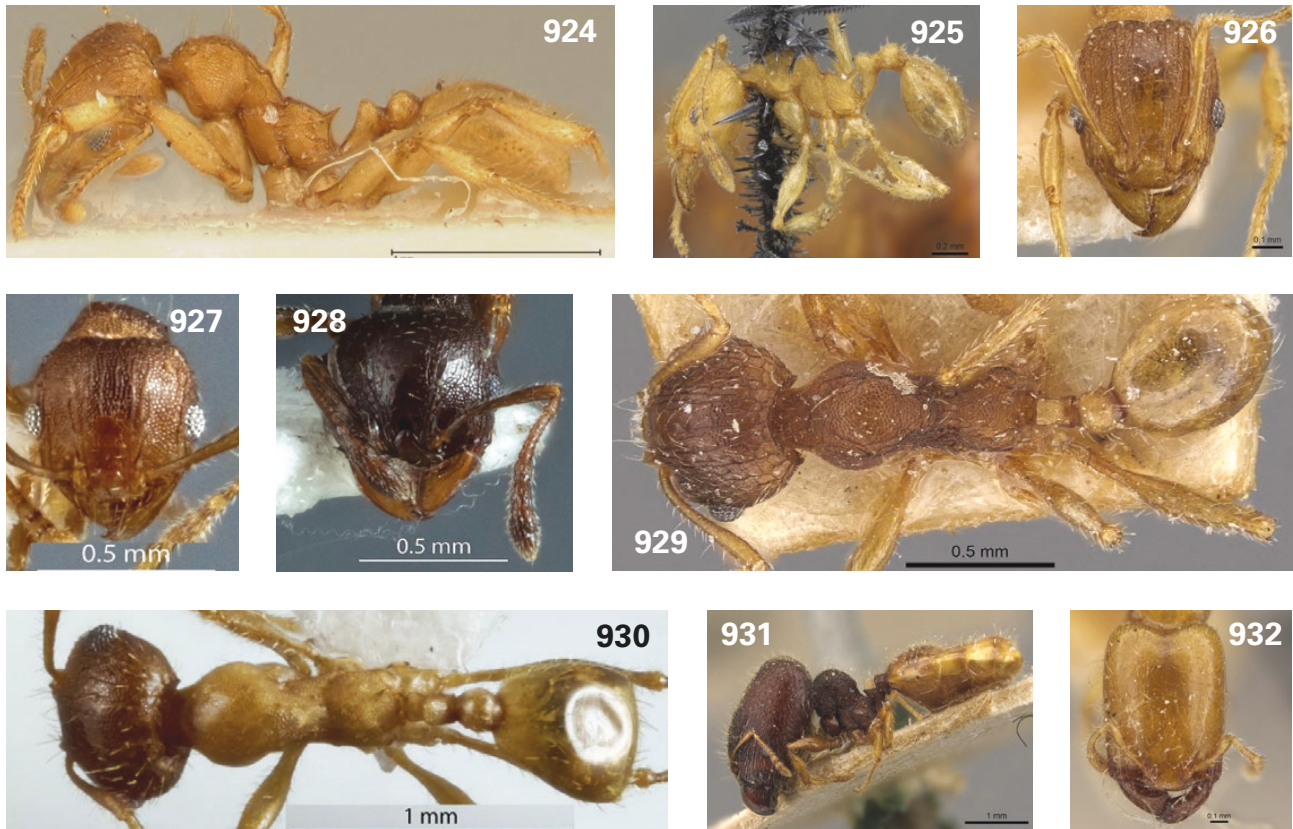
20. Small, bright yellow ants ($HW \leq 0.45$ mm) (Figure 921) *turneri* Forel

[<https://www.antweb.org/specimenImages.do?name=antweb1041216>]

Slightly larger, honey-coloured to blackish-brown ants ($HW \sim 0.50$ mm).....21

21. Frons and most of promesonotum shining and glossy with minimal sculpture apart from a few longitudinal striae around the

- fontal carina and genae and some imbricate sculpture on the humeri (Figure 922).....
*bos* Forel ('*pyriformis*' morph)
 [https://www.antweb.org/specimenImages.do?name=antweb1008221]
- Frons and promesonotum with a variety of striate, microreticulate and imbricate sculpture with some glossy patches (Figure 923).....*bos* Forel (typical morph)
 [https://www.antweb.org/specimenImages.do?name=casent0908030]
22. Ant with netted pattern of large reticulations on upper frons and on anterior and lateral sectors of promesonotum; large, brown, shining species (Figure 924).....
*deserticola foveifrons* Viehmeyer
 [https://www.antweb.org/specimenImages.do?name=focol1410]
- Ant with other sculpture, namely mostly fine striae and microreticulation; species mostly matt in appearance 23
23. Worker sculpture consisting almost exclusively of fine microreticulation, without distinct striae, reticulate areas or smooth, shining sectors, the ant completely matt in appearance; workers yellow to tawny orange (Figure 925).....*variabilis* Mayr
 [https://www.antweb.org/specimenImages.do?name=casent0901547]
- Worker sculpture not consisting exclusively of fine microreticulation and shining areas free of sculpture often present 4
24. Worker small (HW \leq 0.48 mm)..... 25
 Worker larger (HW \geq 0.52 mm)..... 26
25. Seen in full-face view, frons shining and largely smooth or with only feeble or indistinct sculpture between paired longitudinal striae that extend almost to vertex; seen in dorsal view, median sector of promesonotum mainly smooth and shining (Figure 926)..... *rugosula* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0908063]
- Seen in full-face view, frons matt, finely striolate and microreticulate between paired longitudinal striae that extend almost to vertex; seen in dorsal view, promesonotum matt with uniform microreticulation and a few incomplete longitudinal striae (Figure 927).....*rugosula complex sp.* JDM 337
 [https://www.antweb.org/specimenImages.do?name=jdm32-003967-2]
26. Antenna short, barely reaching vertex, if at all; dark chocolate, matt species with uniform microreticulation on head and promesonotum, the head also with fine, longitudinal striolae; antennal scape concolorous with frons; eyes small (EL \leq 0.18 \times length of side of head) (*P. ampla* complex, [part]) (Figure 928).....
*bos complex sp.* JDM 871
 [https://www.antweb.org/specimenImages.do?name=jdm32-004012]
- If sculpture similar then antennal scape longer, surpassing vertex by at least 1.5 \times its greatest width; eyes larger (EL \geq 0.20 \times length of side of head); ant also usually lighter in colour 27
27. Seen in dorsal view, promesonotum with irregular longitudinal striolae in addition to uniform microreticulation (the latter rarely lacking); also in dorsal view, dorsum of head reticulate, with descending longitudinal striae, microreticulate sculpture not visible (Figure 929).....*mjobergi* Forel
 [https://www.antweb.org/specimenImages.do?name=casent0907764]
- Seen in dorsal view, promesonotum exclusively microreticulate without striolae; also in dorsal view, dorsum of head with little or no reticulate sculpture, microreticulate sculpture plainly visible (Figure 930).....
*mjobergi complex sp.* JDM 1176
 [https://www.antweb.org/specimenImages.do?name=antweb1041209]
- Pheidole (major workers)*
- Note: the major worker is unknown for *Pheidole* sp. JDM 280, *Pheidole* sp. JDM 306, *Pheidole* sp. JDM 684, *Pheidole* sp. JDM 871, and *Pheidole* sp. JDM 1332. The major worker for *P. longiceps* is illustrated in Figure 931 (https://www.antweb.org/specimenImages.do?name=casent0908045).
1. Antenna with 11 segments (Figure 932)
*dispar* (Forel)
 [https://www.antweb.org/specimenImages.do?name=casent0917761]
- Antenna with 12 segments 2
2. Seen in profile, dorsal surface of propodeum approximately level with promesonotum, so upper surface of mesosoma forms a uniform arch interrupted only by the



FIGURES 924–932 924) *Pheidole deserticola foveifrons* minor 'type' (AntWeb) (FOCOL1410); 925) *Pheidole variabilis* minor syntype (CASENT0901547); 926) *Pheidole rugosula* minor syntype ('*P. variabilis rugosula*') (CASENT0908063); 927) *Pheidole rugosula* complex sp. JDM 337 minor (JDM32-003967-2); 928) *Pheidole bos* complex sp. JDM 871 minor (JDM32-004012); 929) *Pheidole mjobergi* minor syntype ('*P. (Pheidolacanthinus) mjobergi*') (CASENT0907764); 930) *Pheidole mjobergi* complex sp. JDM 1176 minor (ANTWEB1041209); 931) *Pheidole longiceps doddi* major syntype (CASENT0908045); 932) *Pheidole dispar* major syntype ('*Machomyrma dispar*') (CASENT0917761).

shallow metanotal groove; eyes minute (≤ 5 ommatidia); worker caste polymorphic (Figure 933) *antipodum* (F. Smith)

[<https://www.antweb.org/specimenImages.do?name=casent0010804>]

Seen in profile, the propodeum depressed below the anterior promesonotum, the posterior sector of the promesonotum steeply sloped; eyes larger (≥ 8 ommatidia); worker caste dimorphic 3

3. Seen in profile, junction of postpetiole with gaster narrow (Figure 934)
..... *megacephala* (Fabricius)

[<https://www.antweb.org/specimenImages.do?name=casent0063124>]

Seen in profile, junction of postpetiole with gaster broad 4

4. Occipital lobes much attenuated and curved forward as short denticles; minute species (major worker HW ≤ 0.80 mm) (Figure 935)
..... *Pheidole* sp. JDM 933

[<https://www.antweb.org/specimenImages.do?name=antweb1041211>]

Occipital lobes lobate in appearance, not produced as short denticles; larger species (major worker HW ≥ 1 mm) 5

5. Seen in full-face view, frontal carinae well-developed and extending beyond the last quarter of the head, the antennal scapes fitting into a distinct scrobe; also in full-face view, frons with coarse striae that extend longitudinally almost to the vertex without curving or ramifying distally, although they may transform into reticula near the vertex 6

Seen in full-face view, frontal carinae much shorter, not reaching past the posterior half of the head; frons usually more finely striate, the striae usually either petering out as they reach the occipital lobes or else curving inward or outward, these striae sometimes transforming into reticulate or other sculpture posteriad; if striae extend to near the vertex, then the frontal carinae are very short and the antennal scrobe is rudimentary..... 7

6. Seen in full-face view, vertex broadly and shallowly emarginate, expressing a weak 'U'-shaped concavity (introduced) (Figure 936)..... *indica* Mayr
 [https://www.antweb.org/specimenImages.do?name=casent0101326]

Seen in full-face view, vertex narrowly emarginate medially, expressing a distinct 'V'-shaped concavity (Figure 937).....
 *hospes* Mayr

[https://www.antweb.org/specimenImages.do?name=casent0901401]

7. Seen in full-face view, longitudinal striae on frons continuing to the vertex without diminution or transformation into other sculpture, these striae curving only slightly as they traverse the occipital lobes; seen in profile, promesonotum strongly asymmetrical and humped and directed posteriad, with a long, sloping pronotal sector and an almost abruptly declivous mesonotal sector (*P. mjobergi* complex)..... 8



FIGURES 933–941 933) *Pheidole antipodum* major (CASENT0010804); 934) *Pheidole megacephala* major (CASENT0063124); 935) *Pheidole* sp. JDM 933 major (ANTWEB1041211); 936) *Pheidole indica* major syntype ('*P. voeltzkowi*') (CASENT0101326); 937) *Pheidole hospes* major syntype (CASENT0901401); 938) *Pheidole mjobergi* major syntype ('*P. (Pheidolacanthinus) mjobergi*') (CASENT0907763); 939) *Pheidole mjobergi* complex sp. JDM 1176 major (ANTWEB1041208); 940) *Pheidole* sp. JDM 164 major (ANTWEB1041204); 941) *Pheidole* sp. JDM 429 major (JDM32-003971-1).

- Seen in full-face view, longitudinal striae on frons either petering out at the base of the smooth or transversely rugose occipital lobes, or curving strongly inward or outward, sometimes to form strong reticulations; seen in profile, promesonotum more-or-less symmetrical and not directed posteriad as above 9
8. Seen in dorsal view, humeral angles of promesonotum produced laterally as small, anteriorly directed cuticular horns or processes (Figure 938) *mjobergi* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0907763>]
Seen in dorsal view, humeral angles of promesonotum in form of convex lobes (Figure 939)
..... *mjobergi complex sp.* JDM 1176
[<https://www.antweb.org/specimenImages.do?name=antweb1041208>]
9. Seen in dorsal view, dorsum of occipital lobes with coarsely reticulate and areolate or rugose sculpture; seen in full-face view, longitudinal rugae on frons typically concentric around centre of head and often meeting at its midline10
Seen in dorsal view, dorsum of occipital lobes either smooth, glossy and unsculptured or with transverse rugae only; seen in full-face view, longitudinal rugae on frons mostly vertical and not meeting at midline of head, at most only the outermost rugae curved inwardly11
10. Dorsum of occipital lobes densely areolate-rugose, the lobes broadly rounded above (Figure 940) *Pheidole sp.* JDM 164
[<https://www.antweb.org/specimenImages.do?name=antweb1041204>]
Dorsum of occipital lobes with mainly transverse rugae, areolate sculpture reduced to a few patches, the lobes narrowly rounded above (Figure 941) *Pheidole sp.* JDM 429
[<https://www.antweb.org/specimenImages.do?name=jdm32-003971-1>]
11. Seen in dorsal view, entire promesonotum glossy and unsculptured (introduced to WA) (Figure 942) *vigilans* (F. Smith)
[<https://www.antweb.org/specimenImages.do?name=casent0901543>]
Seen in dorsal view, promesonotum always with some sculpture (usually transverse rugulae [as used here 'rugae' (diminutive 'rugulae') refers to broader raised areas with a wrinkled appearance; 'striae' (diminutive 'striolae') to narrow ridges or streaks.] 12
12. Very large species (HW \geq 2.5 mm); occipital lobes glossy and unsculptured13
Smaller species (HW \leq 2.3 mm); if HW \sim 2.3 mm, then occipital lobes with transverse rugulae or other, similar sculpture.....14
13. Seen in full-face view, head square, gently widened posteriad, the occipital lobes not closely approximated, the cephalic sulcus between the lobes rather shallowly impressed (Figure 943).....*hartmeyer* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0904304>]
Seen in full-face view, head tending to longitudinally rectangular, the sides parallel and the occipital lobes closely approximated, the cephalic sulcus between them distinctly impressed (Figure 944).....
.....*deserticola foveifrons* Viehmeyer
[<https://www.antweb.org/specimenImages.do?name=focol1411>]
14. Seen in profile, frons of head noticeably flattened, feebly depressed near the vertex, the occipital lobe nearest the viewer slightly curved anteriad; seen in full-face view, one or two transverse rugae near the vertex particularly prominent; major worker very small (HW \sim 0.80 mm) (Figure 945).....
..... *turneri* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0908060>]
Seen in profile, frons of head either planar (but not depressed near the vertex) or weakly convex, the occipital lobe nearest the viewer not curved anteriad; seen in full-face view, either the occipital lobes are smooth, glossy and unsculptured, or the rugae are minute and barely visible, or the ant possesses multiple transverse rugae that are more-or-less of even size without any being particularly prominent; mostly larger ants15
15. In full-face view, occipital lobes with very fine, almost indistinct striolae; seen in profile, head narrow and evenly oblong in shape, slab-like; also in profile the promesonotum only weakly descending to the metanotal groove (Figure 946).....
..... *Pheidole sp.* JDM 934 (part)
[<https://www.antweb.org/specimenImages.do?name=antweb1041212>]

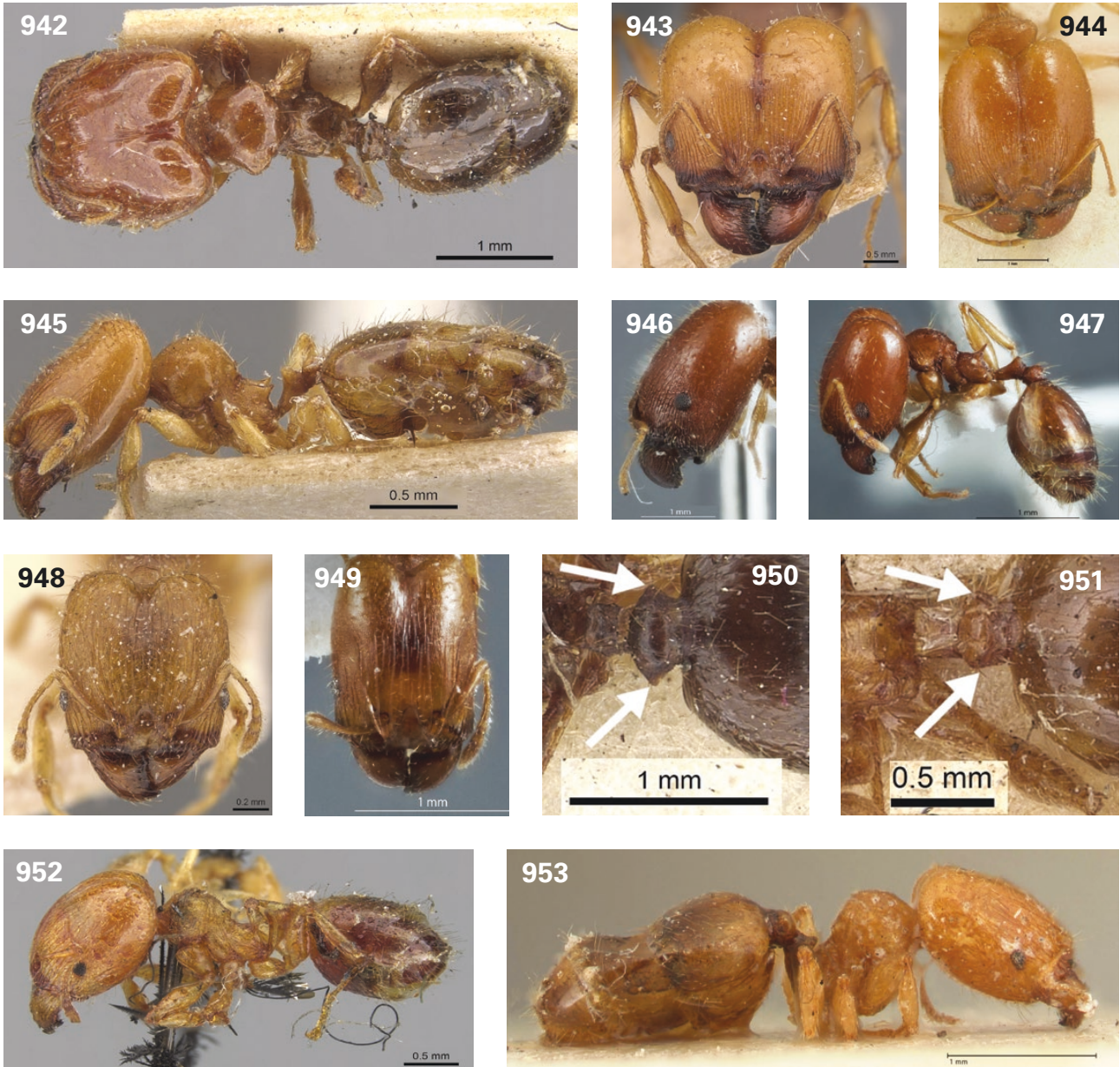
Seen in full-face view, occipital sculpture (if present) distinct; seen in profile, head narrowly spherical in shape, not oblong, and the promesonotum descends steeply to metanotal groove16

16. Seen in dorsal view, transverse rugae on occipital lobes limited to two or three faint ridges on dorsum of occipital lobes,

being barely visible in full-face view; seen in profile, propodeum armed with slightly curved spines, these long and acuminate, their length $\sim 4 \times$ their width at the base (Figure 947).....

..... *Pheidole* sp. JDM 934 (part)

[<https://www.antweb.org/specimenImages.do?name=antweb1041221>]



FIGURES 942–953

942) *Pheidole vigilans* holotype ('*Atta vigilans*') (CASENT0901543); 943) *Pheidole hartmeyeri* major syntype (CASENT0904304); 944) *Pheidole deserticola foveifrons* major 'type' (AntWeb) (FOCOL1411); 945) *Pheidole turneri* major syntype (CASENT0908060); 946) *Pheidole* sp. JDM 934 major (oblong head) (ANTWEB1041212); 947) *Pheidole* sp. JDM 934 major (narrowly spherical head) (ANTWEB1041221); 948) *Pheidole rugosula* major syntype ('*P. variabilis rugosula*') (CASENT0908062); 949) *Pheidole rugosula* complex sp. JDM 337 major (JDM32-003967-1); 950) *Pheidole bos* major syntype (CASENT0901546); 951) *Pheidole ampla* major (CASENT0908009); 952) *Pheidole variabilis* major syntype (CASENT0901548); 953) *Pheidole proxima* major 'type' (AntWeb) (FOCOL1419).

Occipital rugae (if present) multiple and distinct in full-face view; propodeal spines shorter and straight (except in major of *P. variabilis*), their length $\leq 3 \times$ their width across their base.....17

17. Seen in full-face view, fine striae on either side of frons continuously curved outwards towards genae as far as the vertex; seen in dorsal view, rugae on promesonotum mostly meeting its midpoint at an oblique angle, rarely transverse (Figures 948–949).....
..... *rugosula* Forel/
***rugosula* complex sp. JDM 337**

[<https://www.antweb.org/specimenImages.do?name=casent0908062>]

[<https://www.antweb.org/specimenImages.do?name=jdm32-003967-1>]

Seen in full-face view, fine striae on either side of frons either terminating in smooth, glossy, unsculptured cuticle, or forming a continuum with the transverse rugae on the occipital lobes; seen in dorsal view, rugae on promesonotum either mainly transverse or forming a reticulate pattern.....18

18. Larger species (HW ≥ 1.65 mm)19
Smaller species (HW ≤ 1.45 mm)..... 20
19. In dorsal/full-face view, postpetiole with distinct and often sharp anterior angles; seen in full-face view, occipital lobes nearly always with transverse rugae; seen in dorsal view, promesonotum often with reticulate sculpture (Figure 950) ***bos*** Forel

[<https://www.antweb.org/specimenImages.do?name=casent0901546>]

In dorsal/full-face view, postpetiolar shape variable but anterior angles rarely developed and never sharp; seen in full-face view, occipital lobes usually smooth and shining without transverse rugae; seen in dorsal view, promesonotum with transverse rugae (Figure 951) ***ampla*** Forel

[<https://www.antweb.org/specimenImages.do?name=casent0908009>]

20. Seen in profile, sides of mesosoma matt, uniformly microreticulate except for a patch on the mesopleuron; also in profile, propodeal spines longer, gently curved, their length $\sim 3 \times$ their width across their base (Figure 952) ***variabilis*** Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0901548>]

Seen in profile, sides of mesosoma mainly shining with reduced microreticulation; also in profile, spines shorter, straight, their length $\sim 2 \times$ their width across their base (Figure 953) ***proxima*** Mayr

[<https://www.antweb.org/specimenImages.do?name=focol1419>]

EXCURSUS 3

Pheidole related to *P. bos* and *P. ampla*

Species in this species-complex or radiation of *Pheidole* (the degree of evolutionary relationship is unclear for the moment) are among the most common representatives of the genus in the south-west of the state and also pose the largest taxonomic issues. There seem to be two recognisable forms in the Perth area, but in the drier wheatbelt regions the populations of what is here called *P. ampla* include another form that has a morphologically distinct major worker, but the minor worker is not distinctively different from typical *P. ampla*. On the other hand, *Pheidole bos* and *P. ampla perthensis* can fairly comfortably be regarded as synonyms of the same species, although it is unfortunate that a minor worker of *P. bos* illustrated in AntWeb is represented as a syntype (wrongly, despite the red 'typus' label, since Forel does not mention Ballarat, Vic, as a type locality). The two illustrated major workers represented as syntypes were collected in Fremantle, Western Australia, and pose no problems. The taxon *P. pyriformis* Clark represents no more than a particularly glossy, unsculptured individual of *P. bos*. I have found this tendency for nests to contain a spectrum of sculpturation from relatively strongly marked minor workers, through typically sculptured minor workers to minor workers with very reduced sculpture to be quite common in the species. This pattern can also be found in minor workers of *P. ampla* and *P. incurvata* complex sp. JDM 164, at the least. *Pheidole bos* complex sp. JDM 871 is a matt, strongly microreticulate species known from a handful of collections of minor workers from Pintharuka in the mid-west of the state and one minor worker from Ethel Creek. The uniform microreticulation is reminiscent of *P. bos eubos*, but the appearance of the mesosoma in profile is much more suggestive of a close relationship to *P. bos* itself, and the antennal scape colour and its length also exactly match the latter but not the former. There is a possibility that *P. bos* complex sp. JDM 871 is no more than a particularly matt version of the nominal taxon *bos* with the underlying microreticulate sculpture conserved here, although much reduced and superficial in *P. bos* and partially replaced by striate wrinkles (this tendency of ants living in drier areas

to be of a coarser, more matt appearance than conspecifics living in mesic regions is something I have noticed before and applies across a broad range of Formicidae). However, the profile of the promesonotum does not exactly agree with that of *P. bos*, so for the present this ant is best regarded as distinct.

Pheidole ampla also suffers from biogeographical spread among the type workers. The two AntWeb-illustrated syntype major workers from Wallabi Island in the Houtman Abrolhos may be the same species as the putative syntype minor worker (not a syntype as the type locality is not mentioned by Forel) collected in Gooseberry Hill in the Darling Range but, in the case of the latter, the promesonotum is rather convex and much more reminiscent of *P. bos*. *Pheidole ampla* minor workers can be pulled apart from *P. bos* by the differing profile of the promesonotum, the generally smaller eye in *P. bos* and the latter's darker, shorter antenna. Major workers (in general) can best be distinguished by the presence (*P. bos*) or absence (*P. ampla*) of transverse rugae on the occipital lobes, the presence (*bos*) or absence (*ampla*) of reticulate patterning on the promesonotal dorsum and by the dorsal appearance of the postpetiole. However, some smallish major workers from outer wheatbelt populations that are most easily referred to *P.*

ampla on the basis of the appearance of the minor worker are similar to *P. bos* in having occipital rugae but lack the extended anterior angles of the postpetiole found in *P. bos*. These major workers agree with the appearance of *P. bos baucis* type material Automontaged on AntWeb, and have the same incurved rugulae on the frons, but a syntype minor worker of *P. bos baucis*, although otherwise similar, has a distinctly small eye and in this regard is much more like the *P. bos* minor worker. The syntype minor worker also has more robust propodeal spines. Major workers of *P. ampla* in the Perth region are large and have bright, smooth, orange occipital lobes.

Genetic sequencing, using the PCR method, may be successful in establishing whether these two taxa are discrete species or are actually species complexes. This may also solve the problem of the identity of the '*P. bos baucis*-like' taxon.

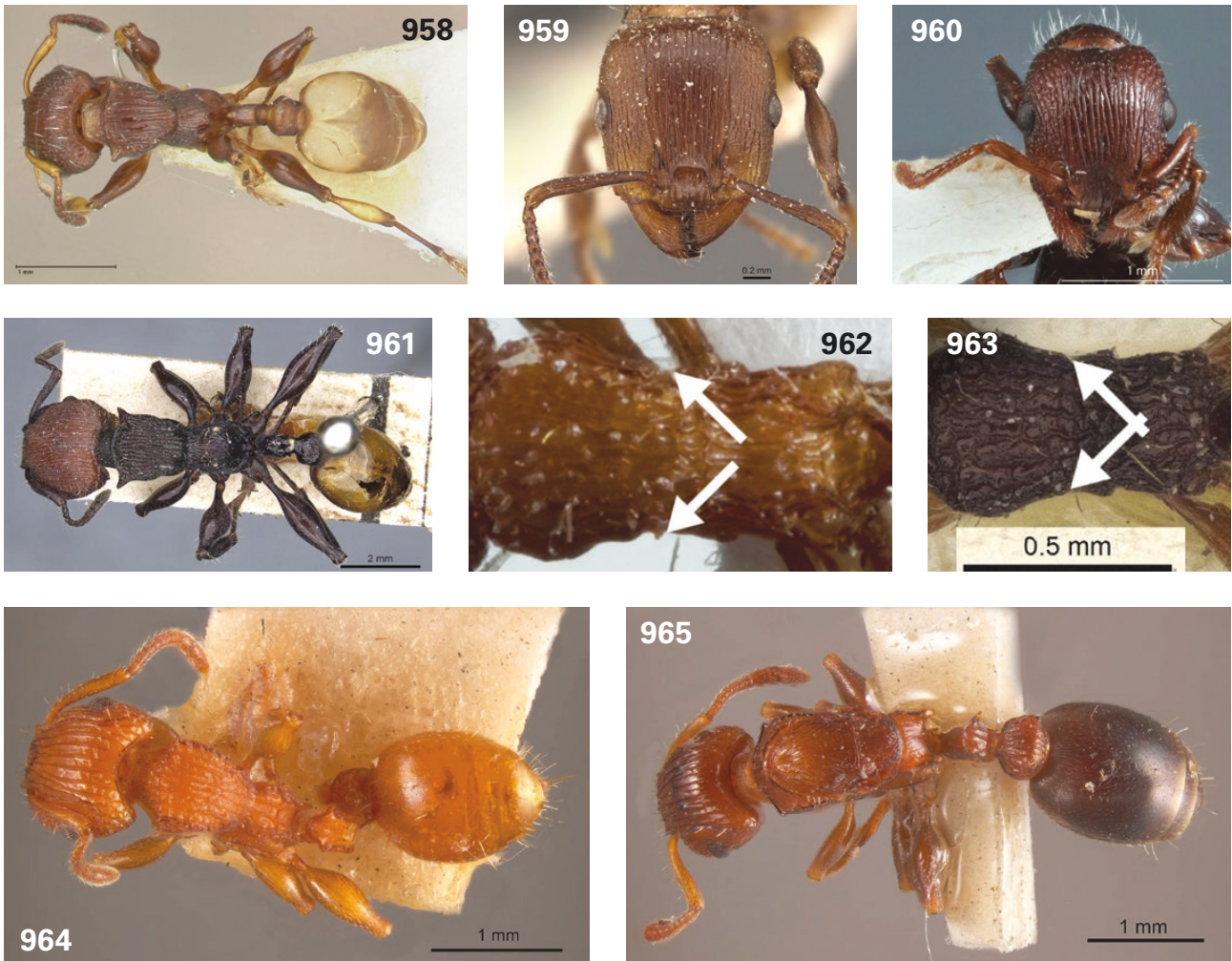
Podomyrma

1. First gastral tergite with distinct paired white maculae that are well separated (Figure 954) *adelaidae* (F. Smith)
[<https://www.antweb.org/specimenImages.do?name=casent0901997>]



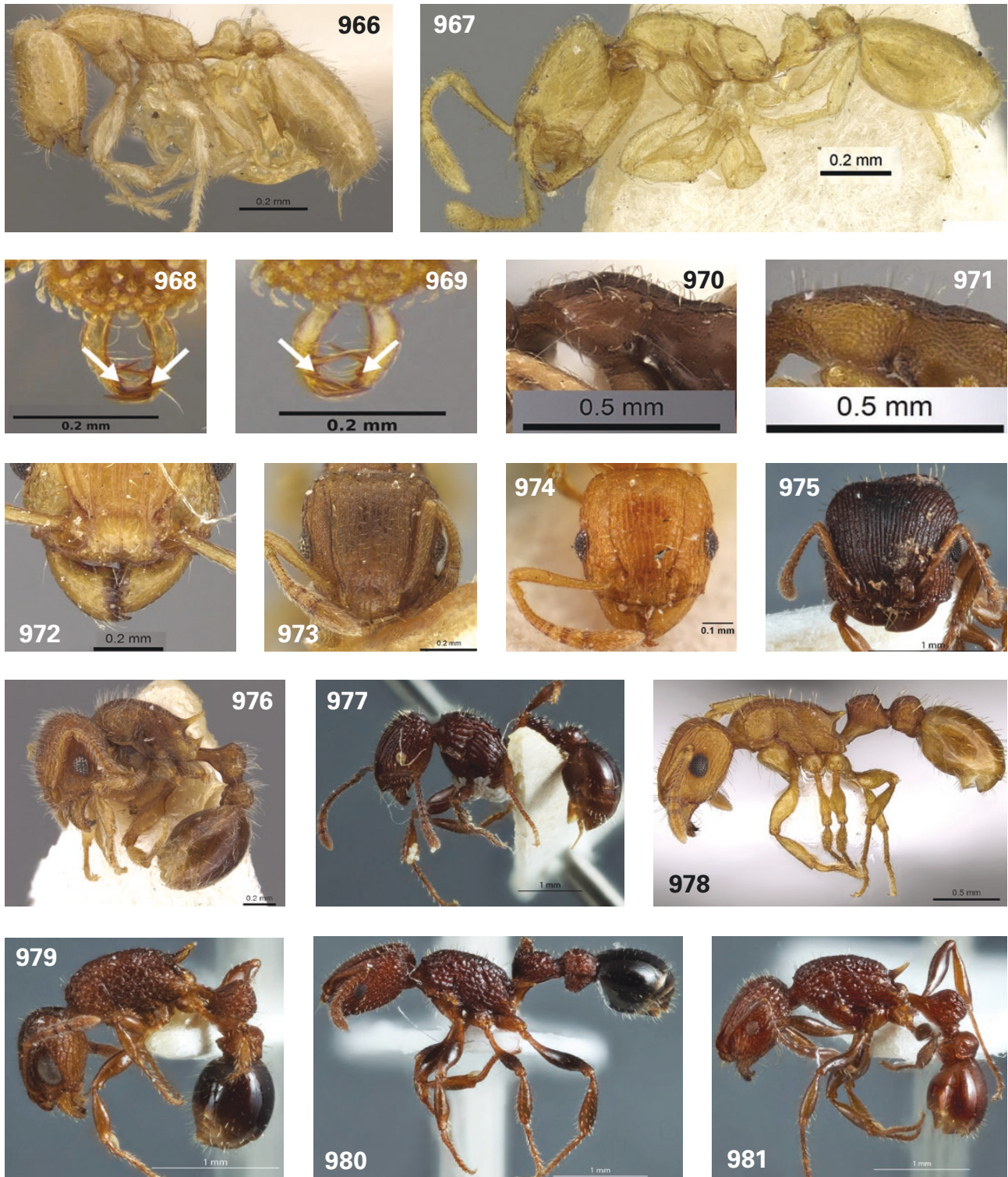
FIGURES 954–957 954) *Podomyrma adelaidae* holotype ('*Myrmica adelaidae*') (CASENT0901997); 955) *Podomyrma clarki* holotype ('*Pseudopodomyrma clarki*') (ANTWEB1008298); 956) *Podomyrma macrophthalma* 'type' (AntWeb) (FOCOL1965); 957) *Podomyrma elongata* syntype (CASENT0908972).

- First gastral tergite of uniform colour (may be lighter towards base of tergite) or with paired maculae that are conjoined..... 2
2. Propodeum unarmed 3
- Propodeum armed with spines or teeth at its posterior angles..... 8
3. Seen in dorsal view, mesosoma punctate, punctures well separated and deep; erect setae very sparse on surface of mesosoma and lacking on gaster (Figure 955).....
.....*clarki* (Crawley)
[<https://www.antweb.org/specimenImages.do?name=antweb1008298>]
- Seen in dorsal view mesosoma longitudinally striate or striate-reticulate; erect setae abundant and well distributed on body surfaces, including gaster 4
4. Seen in full-face view, frons of head with a few longitudinal striae with a broad, unsculptured space between them (Figure 956).....*macrophthalma* Viehmeyer (part)
[<https://www.antweb.org/specimenImages.do?name=focol1965>]
- Seen in full-face view, frons of head with many close, parallel striae, at least, medially 5
5. Seen in dorsal view, humeri smoothly rounded (Figure 957).....*elongata* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0908972>]
- Seen in dorsal view, humeri angulate and often armed with small denticle..... 6
6. Base of first gastral tergite distinctly pale or with conjoined white maculae, the rest dark; legs with contrasting dark and light colour pattern (i.e. on whole segment or part of femora and/or tibiae) (Figure 958)
.....*basalis* F. Smith
[<https://www.antweb.org/specimenImages.do?name=focol1961>]
- Whole gaster concolorous brown or black or gradually lightening in colour towards its base with at most a faint hint of conjoined maculae; legs also concolorous and dark..... 7
7. Seen in full-face view, frons longitudinally finely striate; seen in dorsal view, promesonotal angles strongly angular or dentate and gaster gradually lightening in colour towards its base without a hint of maculae; femora mostly devoid of sub-erect setae (Figure 959)*chasei* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0908968>]
- Seen in full-face view, frons longitudinally striate medially, the genae and area around the vertex striate-reticulate; seen in dorsal view, promesonotal angles very small and inconspicuous and gaster evenly dark with a faint suggestion of paired maculae near the base of the first gastral tergite; femora with very many sub-erect setae (Figure 960).....
.....*Podomyrma* sp. JDM 512
[<https://www.antweb.org/specimenImages.do?name=antweb1041217>]
8. Seen in profile, node with a transverse ridge only, spines or denticles lacking 9
- Seen in profile, node armed with paired spines directed dorsally or laterally 12
9. Seen in dorsal view, humeral angles acute and extended as pronounced denticles; body bicoloured (head, mesosoma and nodes blackish, first gastral tergite mainly golden, other gastral tergites blackish) (Figure 961)
.....*gastralis* Emery
[<https://www.antweb.org/specimenImages.do?name=casent0905751>]
- Seen in dorsal view, humeral angles rounded; body concolorous shades of orange or brown (legs may be lighter in colour).....10
10. Petiole short without peduncle, sessile; ant yellowish.....*Podomyrma* sp. JDM 1395
- Petiole with distinct peduncle (may be short), not sessile; ant reddish or brown11
11. Seen in full-face view, area around vertex alveolate; seen in dorsal view, promesonotum rugose or areolate-rugose
.....*christae* (Forel) (part)
- Seen in full-face view, area around vertex mainly smooth and shining with a few longitudinal striae; seen in dorsal view, promesonotum of similar appearance to vertex*macrophthalma* Viehmeyer (part)
12. First gastral tergite with many erect setae; seen in dorsal view, promesonotum deeply areolate-rugose or rugose; viewed from rear, paired denticles on node directed obliquely upward at angle of > 45°13
- First gastral tergite with at most a pair of erect setae; seen in dorsal view, promesonotal



FIGURES 958–965 958) *Podomyrma basalis* 'type' (AntWeb) ('*P. striata nigra*') (FOCOL1961); 959) *Podomyrma chasei* syntype (CASENT0908968); 960) *Podomyrma* sp. JDM 512 (ANTWEB1041217); 961) *Podomyrma gastralis* syntype ('*P. ruficeps gastralis*') (CASENT0905751); 962) *Podomyrma libra* (JDM32-004060); 963) *Podomyrma christae* syntype ('*Dacryon christae*') (CASENT0916588); 964) *Podomyrma ferruginea* holotype ('*Dacryon ferruginea*') (ANTWEB1008160); 965) *Podomyrma nitida* syntype ('*Dacryon nitida*') (ANTWEB1008161).

- sculpture not as above; viewed from rear, paired denticles on node directed laterally at angle of $< 30^\circ$ 14
13. Seen in dorsal view, each side of dorsum of promesonotum (just posteriad of promesonotal suture) armed with a small, sharp tooth directed vertically (Figure 962) *libra* (Forel)
 [https://www.antweb.org/specimenImages.do?name=jdm32-004060]
- Seen in dorsal view, dorsum of promesonotum unarmed (Figure 963).....
 *christae* (Forel) (part)
 [https://www.antweb.org/specimenImages.do?name=casent0916588]
14. Seen in full-face view, head longitudinally striate; seen in dorsal view, dorsum of promesonotum matt, dull (Figure 964)
 *ferruginea* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008160]
- Seen in full-face view, head with transverse striae interconnecting with longitudinal striae, forming a semireticulate pattern; seen in dorsal view, dorsum of promesonotum almost smooth, shining (Figure 965, dealate queen)
 *nitida* (Clark)
 [https://www.antweb.org/specimenImages.do?name=antweb1008161]



FIGURES 966–981

966) *Solenopsis belisarius* syntype (CASENT0908874); 967) *Solenopsis clarki* syntype (CASENT0902365); 968) *Strumigenys radix* (ANTWEB1032316); 969) *Strumigenys emmae* (ANIC32-063120); 970) *Strumigenys quinquedentata* (CASENT0217956); 971) *Strumigenys perplexa* (CASENT0900905); 972) *Tetramorium bicarinatum* syntype ('*Myrmica bicarinata*') (CASENT0235201); 973) *Tetramorium simillimum* syntype ('*Myrmica simillima*') (CASENT0249091); 974) *Tetramorium caldarium* (CASENT0101490); 975) *Tetramorium laticepalum* complex sp. JDM 1117 (ANTWEB1041218); 976) *Tetramorium lanuginosum* syntype ('*Triglyphothrix striatidens felix*') (CASENT0901052); 977) seen in profile, mesosoma distinctly arcuate (ANTWEB1041224); 978) seen in profile, mesosoma not arcuate (CASENT0280872); 979) *Tetramorium* sp. JDM 707 (ANTWEB1041223); 980) *Tetramorium* sp. JDM 1177 (ANTWEB1041225); 981) *Tetramorium* sp. JDM 1007 (JDM32-004201).

Solenopsis

1. Eye absent or represented by a minute, pigmented speck (Figure 966).....
..... *belisarius* Forel
[<https://www.antweb.org/specimenImages.do?name=casent0908874>]
Eye small but distinct (Figure 967).....
..... *clarki* Crawley
[<https://www.antweb.org/specimenImages.do?name=casent0902365>]

Stereomyrmex

- One species (*Stereomyrmex anderseni* [Taylor 1991])
(see Figure 81).
[<https://www.antweb.org/specimenImages.do?name=casent0172304>]

Strumigenys

1. Antenna with four segments..... 2
Antenna with six segments 3
2. Inner margin of mandible with small, conical, intercalary tooth between prominent, spiniform, preapical tooth and spiniform apical tooth (Figure 968) *radix* Bolton
[<https://www.antweb.org/specimenImages.do?name=antweb1032316>]
Inner margin of mandible with no conical intercalary tooth between prominent, spiniform, preapical tooth and spiniform apical tooth, although a low welt or minute denticle may be present (Figure 969)
..... *emmae* (Emery)
[<https://www.antweb.org/specimenImages.do?name=anic32-063120>]
3. Setae on promesonotum thickened and inwardly curved, like those on frons of head (Figure 970) *quinquedentata* Crawley
[<https://www.antweb.org/specimenImages.do?name=casent0217956>]
Setae on promesonotum normal, erect and unlike thickened, curved setae on frons (Figure 971) *perplexa* (F. Smith)
[<https://www.antweb.org/specimenImages.do?name=casent0900905>]

Syllophopsis

- One species (*Syllophopsis* sp. JDM 438) (see Figure 85).
[<https://www.antweb.org/specimenImages.do?name=jdm32-003585>]

Tetramorium

1. Antennae with 12 segments (introduced) 2
Antennae with 11 segments (native) 4
2. Seen in full-face view, clypeus notched; larger species (HW \geq 0.90 mm) (Figure 972).....
..... *bicarinatum* (Nylander)
[<https://www.antweb.org/specimenImages.do?name=casent0235201>]
Seen in full-face view, clypeus entire; smaller species (HW \leq 0.50 mm) 3
3. Seen in full-face view, antennal scrobe well-developed and indented below frontal carina; sculpture between frontal carina and eye almost exclusively microreticulate (Figure 973) *simillimum* (F. Smith)
[<https://www.antweb.org/specimenImages.do?name=casent0249091>]
Seen in full-face view, antennal scrobe undeveloped, the sculpture below frontal carina flat and not indented; cuticle between frontal carina and eye with a mix of microreticulate and reticulate sculpture (Figure 974) *caldarium* Roger
[<https://www.antweb.org/specimenImages.do?name=casent0101490>]
4. Seen in full-face view, clypeus with a distinct anteromedian notch and mandible smooth and shining, its inner and outer margins subparallel; seen in profile, mesosoma mostly planar with a faint indentation that indicates the obsolete metanotal groove (broad-headed species in the *T. striolatum* species-group) (Figure 975)
..... *laticephalum* complex sp. JDM 1117
[<https://www.antweb.org/specimenImages.do?name=antweb1041218>]
If mesosoma as above, then mandible striate and triangular 5
5. Ant with vestiture of many fine, downy erect setae, some of which are bifid or trifid in nature (possibly introduced) (Figure 976).....
..... *lanuginosum* Mayr
[<https://www.antweb.org/specimenImages.do?name=casent0901052>]
Ant without vestiture of fine, downy setae, all erect setae simple 6
6. In profile, mesosoma distinctly arcuate without a faint indentation that indicates

the obsolete metanotal groove; seen in full-face view, anteromedial margin of clypeus a rectangular projection that is clearly set off from the lateral clypeal sectors; also in full-face view, eyes placed below midpoint of head and mandible narrow, its inner and outer margins sub-parallel (*Tetramorium* species-group A) (see Figure 977) 7

[<https://www.antweb.org/specimenImages.do?name=antweb1041224>]

Seen in profile, mesosoma not arcuate and with a dip that indicates the obsolete metanotal groove; seen in full-face view, anteromedial margin of clypeus rounded on to the lateral clypeal sectors; also in full-face view, eyes placed at or even slightly above midpoint of head and mandible triangular (*T. striolatum* species-group) (see Figure 978).....10

[<https://www.antweb.org/specimenImages.do?name=casent0280872>]

7. Seen in profile, eye reniform, large ($EL \geq 0.30 \times$ length of side of head) and positioned obliquely to the vertical axis (Figure 979)
..... *Tetramorium* sp. JDM 707

[<https://www.antweb.org/specimenImages.do?name=antweb1041223>]

Seen in profile eye of medium size to rather small ($EL < 0.20 \times$ length of side of head) 8

8. Seen in dorsal view, mesosoma strongly impressed anteriorly with longitudinal porcate sculpture, the metanotal groove identifiable by a small cuticular ridge facing anteriorly (see Figure 977).....
..... *Tetramorium* sp. JDM 886

[<https://www.antweb.org/specimenImages.do?name=antweb1041224>]

Seen in dorsal view, mesosoma with rugose-alveolate sculpture, mesosoma uninterrupted by any prominence or other cuticular feature..... 9

9. Seen in profile, postpetiolar ventrite massively developed as a lobe directed obliquely anteriorly; seen in full-face view, scrobal furrow distinctly though weakly impressed below frontal carinae, and extending to weakly developed occipital lobes (Figure 980)..... *Tetramorium* sp. JDM 1177

[<https://www.antweb.org/specimenImages.do?name=antweb1041225>]

Seen in profile, postpetiolar ventrite prominent but not developed as a massive lobe directed obliquely anteriorly; seen in full-face view, scrobal furrow not present, the sculpture below the frontal carina striate-reticulate and the same as the rest of the frons (Figure 981) *Tetramorium* sp. JDM 1007

[<https://www.antweb.org/specimenImages.do?name=jdm32-004201>]

10. Seen in profile, petiolar node produced as a spur directed posteriorly; seen in dorsal view, lateral margins of first gastral tergite flattened to form flanges (Figure 982).....
..... *spininode* Bolton

[<https://www.antweb.org/specimenImages.do?name=casent0901041>]

Seen in profile, petiolar node cuboidal and not produced as a spur directed posteriorly; seen in dorsal view, lateral margins of first gastral tergite rounded towards their junction with first tergite of gaster11

11. Propodeum unarmed or with only vestigial denticles at posterior angles (Figure 983).....
..... *Tetramorium* sp. JDM 515

[<https://www.antweb.org/specimenImages.do?name=jdm32-004192>]

Propodeum armed with moderately stout spines..... 12

12. Concolorous black or blackish species with, in dorsal view, a totally unsculptured shining dorsum to the petiolar node and postpetiole (Figure 984)..... *Tetramorium* sp. JDM 522

[<https://www.antweb.org/specimenImages.do?name=jdm32-004194>]

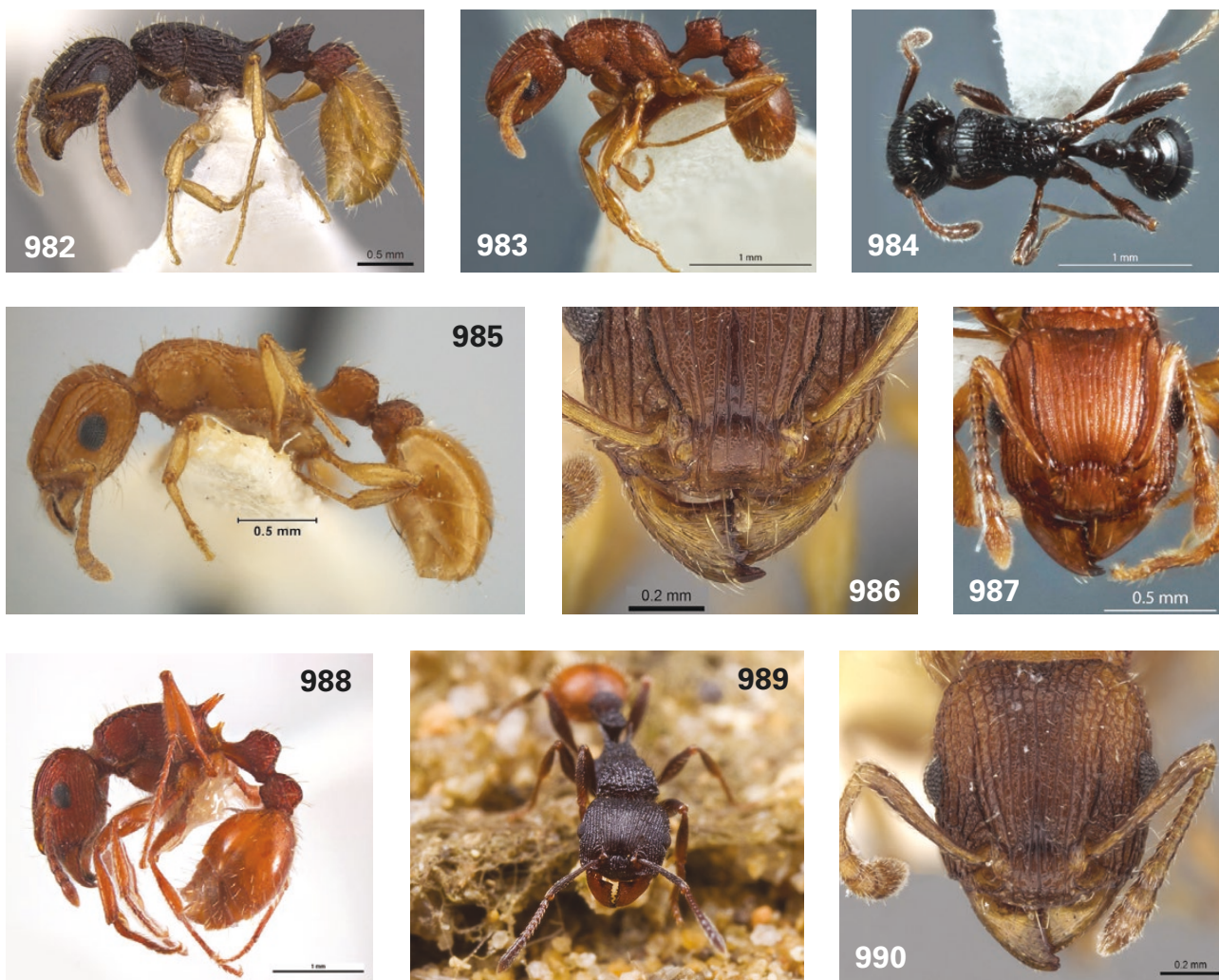
Species not concolorous black or blackish and always with some sculpture on the dorsum of the petiolar node, at least13

13. Seen in profile, eye very large ($EL \geq 0.35 \times$ length of side of head); also in profile, petiolar node rather long and low, distinctly wider than high (Figure 985)
..... *megalops* Bolton

[https://www.antwiki.org/wiki/Tetramorium_megalops]

Seen in profile, eye smaller ($EL \leq 0.30 \times$ length of side of head); also seen in profile, petiolar node usually higher and narrower, higher than wide or as high as wide.....14

14. Seen in full-face view, anterior clypeal margin weakly notched or at least medially



FIGURES 982–990 982) *Tetramorium spininode* paratype (CASENT0901041); 983) *Tetramorium* sp. JDM 515 (JDM32-004192); 984) *Tetramorium* sp. JDM 522 (DM32-004194); 985) *Tetramorium megalops* holotype (MCZ-ENT00032270); 986) *Tetramorium viehmeyeri* (CASENT0280873); 987) *Tetramorium* sp. JDM 141 (JDM32-004835); 988) *Tetramorium sjostedti* (Barrow Island, Western Australia); 989) *Tetramorium* sp. JDM 347 (Wandering, Western Australia); 990) *Tetramorium impressum* (CASENT0280871).

emarginate; antennal scape long, reaching to or almost to vertex, and antennal scrobe reasonably well-developed throughout much of its length; seen in profile, eye large (EW ~0.30 × length of side of head) (Figure 986).....*viehmeyeri* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0280873>]

Without the above combination of characters, in particular, eye always smaller and antennal scape usually much shorter, often failing to attain vertex by $\geq 1.5 \times$ its greatest width.....15

15. Seen in full-face view, antennal scrobe fairly well-developed and distinct, in profile, the frons indented slightly below the frontal carina; seen in profile, eye rather large (EW ~0.28 × length of side of head) (Figure 987)*Tetramorium* sp. JDM 141

[<https://www.antweb.org/specimenImages.do?name=jdm32-004835>]

Seen in full-face view, antennal scrobe not developed, the frontal carina (if distinct), a thin ridge that does not protrude above the frons when viewed in profile; eye variable in size, but often smaller16



FIGURES 991–992 991) *Tetramorium* sp. JDM 884 (JDM32-004197); 992) *Tetramorium striolatum* (*sensu lato*) (Barrow Island, Western Australia).

16. Seen in rear view, base of gaster distinctly longitudinally striate; seen in profile, nodes of petiole and postpetiole massively developed and blocky, the petiolar node at least as wide as high; large, heavily striated species (HW \geq 1.10 mm) (Figure 988).....
 *sjostedti* Forel

[<https://www.padil.gov.au/barrow-island/pest/main/136729>]

Without above combination of characters, specifically, if, seen in rear view, base of gaster is longitudinally striate, and, seen in profile, the nodes are well-developed, then ant smaller (HW \geq 0.95 mm) and body sculpture is not predominately striated.....17

17. Markedly bicoloured ants with blackish head and mesosoma and bright yellow gaster; in full-face and dorsal views, frons and mesosoma with strong, longitudinal costate sculpture tending to porcate in some individuals (Figure 989).....
 *Tetramorium* sp. JDM 347

[<https://www.flickr.com/photos/myrmecian/6029769100/>]

Species either concolorous or less strongly bicoloured (often reddish or reddish with brown infuscation and a lighter-coloured gaster) except for a few northern *P. impressum*, which have a finely striate frons and mesosomal dorsum; seen in dorsal view, sculpture less impressed, usually striate or striate-reticulate (particular near the humeral angles).....18

18. In semi-profile, frontal carina not developed and indistinguishable from other longitudinal

striations; frons without a strip on either side of the carinae that is largely free of sculpture apart from microreticulate sculpture; also in profile, propodeal spines tilted at \sim 135° to slope of propodeum; seen in full-face view, antennal scapes shorter, failing to reach vertex by \geq 2.5 \times their greatest width (Figure 990).....
 *impressum* (Viehmeyer)

[<https://www.antweb.org/specimenImages.do?name=casent0280871>]

In semi-profile, frontal carina weakly developed but distinct; frons often with a strip on either side of the carinae that is largely free of sculpture apart from microreticulate sculpture (especially in small workers); also in profile, propodeal spines usually tilted at \sim 110° to slope of propodeum; seen in full-face view, antennal scapes longer, failing to reach vertex by \sim 1.5 \times their greatest width.....19

19. Ant with brown or blackish gaster; mesosoma may be lighter in colour than head and gaster) (Figure 991)
 *Tetramorium* sp. JDM 884

[<https://www.antweb.org/specimenImages.do?name=jdm32-004197>]

Ant with orange or reddish gaster (head may be black or infuscated with dark dorsal patch, but gaster always concolorous with or lighter in colour than mesosoma) (Figure 992)
 *striolatum* (*sensu lato*) (see below)

[<https://www.padil.gov.au/barrow-island/pest/main/136750/10101>]

EXCURSUS 4

Tetramorium striolatum and its allies

The species clustered around *Tetramorium striolatum* Viehmeyer are among the most difficult Western Australian myrmecines to characterise taxonomically (except for several *Pheidole* in the *P. ampla* complex). Several additional names are available, but of these only *Tetramorium* sp. JDM 884 and *T. impressum* (Viehmeyer) can generally be distinguished, and the latter not with complete satisfaction. (I even have some doubt that Western Australian ants referred to *T. impressum* are conspecific with the holotype, which was described from New South Wales. Bolton [1977] also expresses scepticism about the conspecificity of eastern Australian material he examined.) The specimens here referred to *T. impressum* can mostly be determined based on their shorter antennal scape and the undifferentiated frontal carina (not the proportions of the node, *pace* Bolton, 1977, since this feature is too variable), but a few more-or-less ambiguous cases do exist. For the rest, most workers in the local collections seem to belong to *T. striolatum* Viehmeyer, and a number of these will key out relatively satisfactorily to that species. The *T. thalidum* Bolton form is supposedly identifiable through its very short, erect mesosomal setae, but this is a not uncommon condition in a lot of smaller workers and varies too much to be a reliable indicator. One worker from Broome in the JDM Collection keys out to the taxon exactly, while others are in an ambiguous case or the setae are long. *Tetramorium fuscipes* (Viehmeyer) ostensibly has a smooth dorsal surface to the postpetiole, well-developed frontal carinae reaching almost to the occiput (vertex), and the head is darker than the mesosoma. While the darker head capsule and smooth(ish) dorsal postpetiolar surface are often seen in northern populations in the *T. striolatum* complex, the ants are usually somewhat smaller than the syntype specimen of *T. fuscipes* featured in AntWeb. The lack of strong sculpture adjacent to the antennal carina seen in the syntype and used by Bolton (1977) to isolate *T. fuscipes* and several other taxa, is found in some but not all WA *Tetramorium* with dark heads. In addition to the two named species, *Tetramorium* sp. JDM 515 looks suspiciously like a *T. striolatum* in which the propodeal spines have not been developed for some reason; there is no other difference between the two species. As it currently stands, southern variants (such as one worker from Mt Gibson that has a completely smooth petiolar node and postpetiole) seem to be anomalous permutations around a theme and, apart from a single aberrant feature, conform closely to the other morphs. Perhaps the small northern ants with dark heads, compact, squarish petiolar nodes and smooth

postpetioles have the best claim to being genetically different, but equally they may simply represent biogeographical variation.

Bolton did his revision using limited material, and, while the species discussed above may be good, a truly workable combination of diagnostic features has yet to be determined. An integrated taxonomic study of the cluster using a wider range of material, nest series and nuclear and mitochondrial genes would be most helpful.

Trichomyrmex

One species (*Trichomyrmex destructor* [Jerdon 1851]) (see Figure 87).

[<https://www.antweb.org/specimenImages.do?name=casent0008623>]

PONERINAE

Anochetus

1. Seen in profile, propodeal angles produced as spines (Figure 993).....
..... *veronicae* Shattuck & Slipinska

[https://www.antwiki.org/wiki/Anochetus_veronicae]

Seen in profile, propodeal angles more-or-less rounded and lacking spines..... 2

2. Seen in full-face view, sculpture on front of head extending well above eyes and reaching (or nearly reaching) the posterior margin of head (Figure 994) *graeffei* Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0903977>]

Seen in full-face view, sculpture on front of head extending only slightly beyond eyes and ending well before posterior margin 3

3. Seen in profile, pronotum partially to completely sculptured; sides of propodeum with coarse striations; seen in dorsal view, dorsal propodeal surface coarsely sculptured with combination of irregular rugosity and striations; also in dorsal view, setae on dorsal surface of propodeum longer, erect or semi-erect (Figure 995)
..... *rectangularis* Mayr

[<https://www.antweb.org/specimenImages.do?name=casent0907410>]

Seen in profile, entire pronotum and sides of propodeum smooth and shining; seen in dorsal view, dorsal surface of propodeum with weak transverse striations (nearly absent in some specimens); also in dorsal view, setae on dorsal surface of propodeum very short, scattered and appressed 4

4. Seen in full-face view, eyes small (EL < 0.25 mm, EI < 20) and scapes shorter (SL < 1.00 mm) (Kimberley) (Figure 996).....
..... *avius* Shattuck & Slipinska

[https://www.antwiki.org/wiki/Anochetus_avius]

- Seen in full-face view, eyes large (EL > 0.30 mm, EI > 22) and scapes longer (SL > 1.05 mm) (southern) (Figure 997).....
..... *renatae* Shattuck & Slipinska

[https://www.antwiki.org/wiki/Anochetus_renatae]

Austroponera

- One species (*Austroponera rufonigra* [Clark 1934b]) (see Figure 102).

[<https://www.antweb.org/specimenImages.do?name=casent0249178>]

Brachyponera

- One species (*Brachyponera lutea* [Mayr 1862]) (see Figure 101).

[<https://www.antweb.org/specimenImages.do?name=casent0249181>]

Hypoponera

1. Bright yellow ants; mesosoma shining and smooth with pilosity largely inconspicuous and mostly consisting of small, appressed setae (Figure 998).....
..... *Hypoponera* sp. JDM 1376

[<https://www.antweb.org/specimenImages.do?name=jdm32-002685>]

Orange to brown ants; mesosoma usually obscured to some degree by fine, downy pubescence..... 2

2. In lateral view, sides of propodeum rather matt with many fine, parallel longitudinal striolae and other microreticulate or punctate sculpture; seen in dorsal view, metanotal groove impressed, this impression continued along the anterior junction of propodeum and mesopleuron; legs yellowish and much lighter in colour than the mesosoma (Figure 999).....
..... *eduardi* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0915868>]

In lateral view, sides of propodeum shining with longitudinal striolae mainly confined to metapleuron; seen in dorsal view,

metanotal groove present or absent, but where present as a dorsal sulcus this impression is indistinct laterally; legs concolorous with mesosoma or only slightly lighter in colour (Figure 1000).....
..... *congrua* (Wheeler)

[<https://www.antweb.org/specimenImages.do?name=casent0915192>]

Leptogenys

1. Reddish-brown or yellowish ants..... 2
Black ants..... 3
2. Larger ants (HW ~1.60 mm); seen in full-face view, masticatory margin of mandible strongly oblique with three to five distinct teeth and a variable number of tiny denticles; eye very small but clearly visible and multifaceted (Figure 1001).....
..... *fallax* (Mayr)

[<https://www.antweb.org/specimenImages.do?name=casent0915877>]

Smaller ants (HW ≤ 0.67 mm); seen in full-face view, masticatory margin of mandible weakly oblique and three-toothed (a couple of minute denticles may also be present); eye minute and consisting of one ommatidium only (Figure 1002)..... *tricolora* Taylor

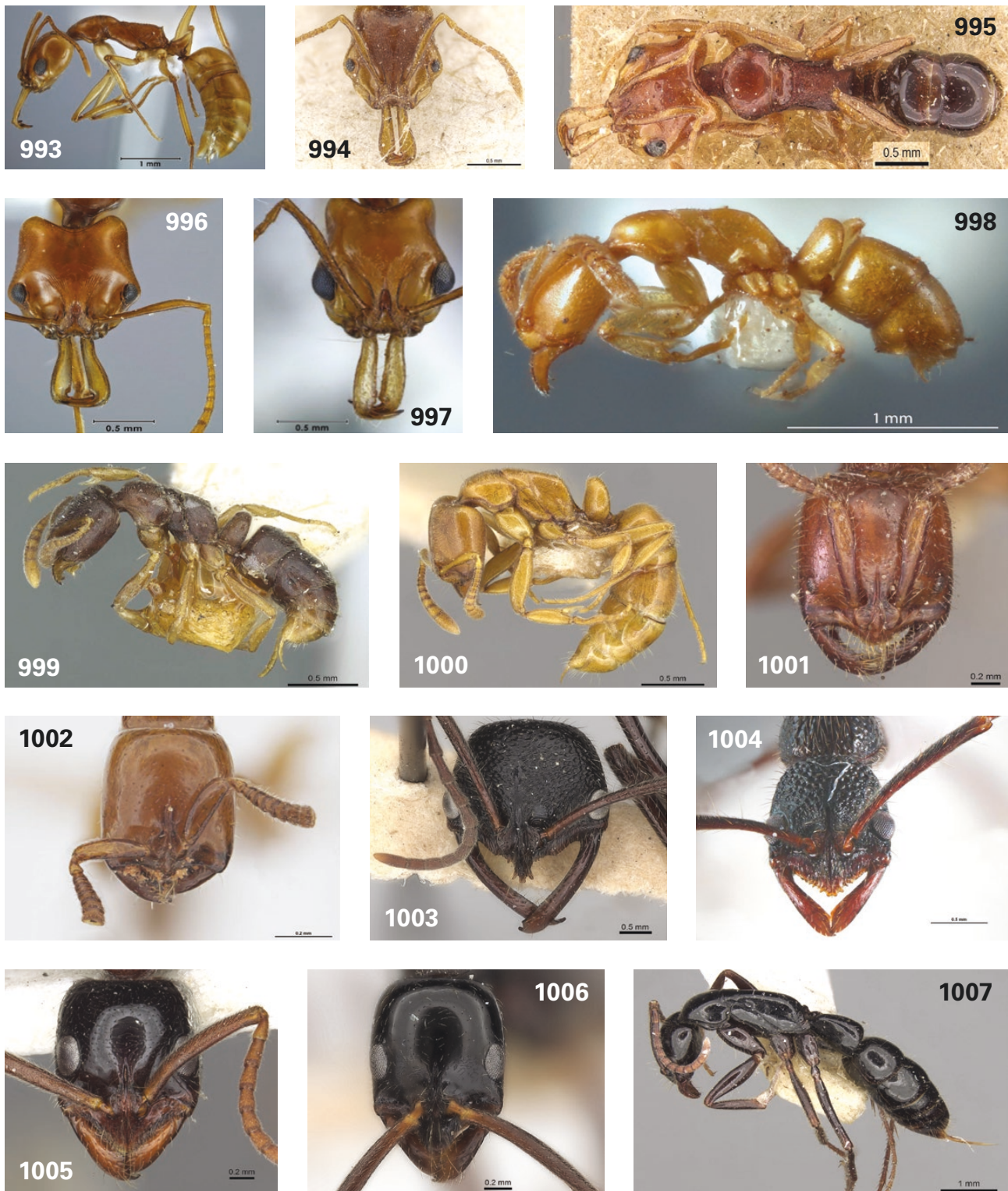
[<https://www.padil.gov.au/barrow-island/pest/main/142187>]

3. Ant matt with foveate or foveate-reticulate sculpture and foveate or striate sculpture on mesosoma; seen in full-face view, clypeus strongly projecting, its anterior margin with dentiform processes, and mandibles elongate, falcate; eye placed on front of frons, its anterior margin invisible when eye seen in profile..... 4

Ant mainly smooth and shining without reticulate or foveate sculpture on head and mesosoma; seen in full-face view, clypeus strongly projecting with smooth, non-dentiform anterior margin and mandibles shorter, weakly triangular in shape; seen in profile, eye placed laterally with all margins entirely visible..... 5

4. Seen in full-face view, mandible very elongate (much longer than side of head) and bowed, its diameter constant throughout its length, mandibles crossed when at rest; seen in profile, sculpture of side of mesosoma and petiolar node striate or striate-reticulate (Figure 1003)..... *clarki* Wheeler

[<https://www.antweb.org/specimenImages.do?name=casent0902622>]



FIGURES 993–1007 993) *Anochetus veronicae* holotype (ANIC32-015875); 994) *Anochetus graeffei* syntype ('*Anochetus punctiventris oceanicus*') (CASENT0903977); 995) *Anochetus rectangularis* syntype (CASENT0907410); 996) *Anochetus avius* holotype (ANIC32-044213); 997) *Anochetus renatae* (ANIC32-029652); 998) *Hypoponera* sp. JDM 1376 (JDM32-002685); 999) *Hypoponera eduardi* syntype ('*Ponera eduardi*') (CASENT0915868); 1000) *Hypoponera congrua* syntype ('*Ponera congrua*') (CASENT0915192); 1001) *Leptogenys fallax* syntype ('*Lobopelta fallax*') (CASENT0915877); 1002) *Leptogenys tricola* (Barrow Island, Western Australia); 1003) *Leptogenys clarki* (CASENT0902622); 1004) *Leptogenys* sp. JDM 1128 (Barrow Island, Western Australia); 1005) *Leptogenys exigua* syntype ('*L. (Lobopelta) cornigera exigua*') (CASENT0902623); 1006) *Leptogenys neutralis* (CASENT0217532); 1007) *Leptogenys centralis* (CASENT0281943).

Seen in full-face view, mandible less elongate (shorter than side of head) and more-or-less straight, increasing in diameter towards its tip, mandibles not crossed when at rest; seen in profile, sculpture of side of mesosoma and petiolar node foveate (Figure 1004).....
..... *Leptogenys* sp. JDM 1128

[<https://www.padil.gov.au/barrow-island/pest/main/136676>]

5. Seen in profile, first gastral sternite with a distinct prora; also seen in profile, petiolar node as high as wide (at least posteriorly) with a steeply declivous anterior face 6

Seen in profile, first gastral sternite without a prora; also seen in profile, petiolar node either much longer than high or its anterior face gradually sloping..... 7

6. Seen in full-face view, head broader ($CI \geq 78$); seen in profile, eye larger (eye length $\geq 0.30 \times$ length of side of head) (Figure 1005).....
..... *exigua* Crawley

[<https://www.antweb.org/specimenImages.do?name=casent0902623>]

Seen in full-face view, head narrower ($CI \leq 70$); seen in profile, eye smaller (eye length $\leq 0.27 \times$ length of side of head) (Figure 1006).....
..... *neutralis* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0217532>]

7. Seen in profile, petiolar node distinctly longer than high ($\geq 1.3 \times$ as long as high, often approaching $1.5 \times$ as long as high) (Figure 1007)..... *centralis* Wheeler

[<https://www.antweb.org/specimenImages.do?name=casent0281943>]

Seen in profile, petiolar node only slightly longer than high ($\leq 1.2 \times$ as long as high).....
..... *darlingtoni* Wheeler

[<https://mczbase.mcz.harvard.edu/name/Leptogenys+darlingtoni>]

Myopias

One species (*Myopias tasmaniensis* Wheeler 1923) (see Figure 100).

[<https://www.antweb.org/specimenImages.do?name=casent0172088>]

Odontomachus

1. Seen in dorsal view, first gastral tergite smooth and glossy apart from a finely punctate strip near the posterior margin; seen in full-

face view, head mostly smooth and glossy without distinct sculpture (Figure 1008).....
..... *ruficeps* F. Smith

[<https://www.antweb.org/specimenImages.do?name=casent0900648>]

Seen in dorsal view, first gastral tergite matt and completely striate; seen in full-face view, head rather matt and uniformly finely and longitudinally striolate (Figure 1009).....
..... *turneri* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0907440>]

Platythyrea

1. Seen in dorsal view, petiolar node longer than broad or, rarely, about as broad as or even slightly broader than long, but always much narrower than pronotum; maxillary palps short, not extending much beyond buccal cavity (*P. parallela* species-group)..... 2

Seen in dorsal view, petiolar node much broader than long, nearly, or quite as broad as pronotum; maxillary palps very long, extending almost to foramen magnum (*P. dentinodis* species-group)..... 3

2. Seen in profile, eye smaller ($EL \leq 0.20 \times$ length of side of head); seen in dorsal view, posterior margin of petiolar node broad, undulant and describing a bow (Figure 1010).....
..... *parallela* (F. Smith)

[<https://www.antweb.org/specimenImages.do?name=casent0907116>]

Seen in profile, eye larger ($EL \sim 0.30 \times$ length of side of head); seen in dorsal view, posterior margin of petiolar node a narrow, simple convexity (Figure 1011).....
..... *parallela* group sp. JDM 1171

[<https://www.antweb.org/specimenImages.do?name=antweb1041117>]

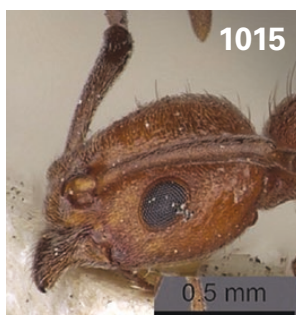
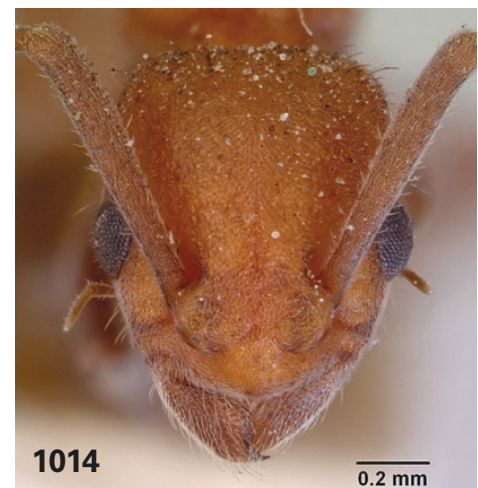
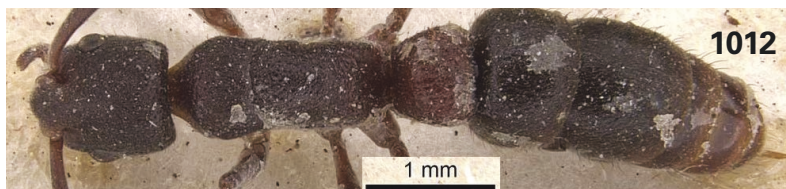
3. Petiolar node brownish-red, contrasting with dark brown of gaster (Figure 1012).....
..... *turneri* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0907118>]

Head and body concolorous brown, yellowish-brown or ferruginous..... 4

4. Colour dark brown; seen in profile, most erect setae of dorsal body surfaces < 0.08 mm long; seen in dorsal view, posterodorsal margin of petiolar node unarmed in the middle (Figure 1013)..... *micans* (Clark)

[<https://www.antweb.org/specimenImages.do?name=antweb1008181>]



FIGURES 1008–1017 1008) *Odontomachus ruficeps* holotype ('*O. septentrionalis*') (CASENT0900648); 1009) *Odontomachus turneri* syntype ('*O. ruficeps turneri*') (CASENT0907440); 1010) *Platythyrea parallela* syntype ('*P. pusilla australis*') (CASENT0907116); 1011) *Platythyrea* sp. JDM 1121 (ANTWEB1041117); 1012) *Platythyrea turneri* syntype (CASENT0907118); 1013) *Platythyrea micans* holotype ('*Eubothroponera micans*') (ANTWEB1008181); 1014) *Platythyrea brunripes* paratype ('*Eubothroponera brunripes*') (CASENT0172406); 1015) *Platythyrea dentinodis* syntype ('*Eubothroponera dentinodis*') (CASENT0900577); 1016) *Ponera leae* syntype (CASENT0907316); 1017) *Ponera* sp. JDM 1122 (ANTWEB1041118).

At least head and mesosoma yellowish-brown or ferruginous; seen in profile, most erect setae of dorsal body surfaces > 0.10 mm long; seen in dorsal view, posterodorsal margin of petiolar node with a weakly developed to sharp, upturned median tooth..... 5

5. Seen in full-face view, antennal scape with short, erect setae, mostly on its outer margin; seen in profile, erect setae numerous on mesosoma (Figure 1014).....
.....*brunnipes* (Clark)

[<https://www.antweb.org/specimenImages.do?name=casent0172406>]

Seen in full-face view, antennal scape devoid of erect setae; seen in profile, erect setae sparsely distributed on mesosoma (Figure 1015).....
.....*dentinodis* (Clark)

[<https://www.antweb.org/specimenImages.do?name=casent0900577>]

Ponera

1. Antennal club distinctly four-segmented; subpetiolar process with a toothed posterior face (Figure 1016).....
.....*leae* Forel

[<https://www.antweb.org/specimenImages.do?name=casent0907316>]

Antennal club distinctly five-segmented; subpetiolar process without a posterior face, the process merging with the petiolar ventrite posteriad (Figure 1017).....
.....*Ponera* sp. JDM 1122

[<https://www.antweb.org/specimenImages.do?name=antweb1041118>]

Pseudoneoponera

1. Seen in dorsal view, dorsum of petiolar node armed with a thin, horizontal tooth on either side, the teeth directed posteriad (Figure 1018).....
.....*Pseudoneoponera* sp. JDM 984

[<https://www.antweb.org/specimenImages.do?name=antweb1041119>]

Dorsum of petiolar node unarmed 2

2. Seen in dorsal view, first and second gastral tergites with microreticulate sculpture only, this sculpture largely obscured by dense, thick, yellow pubescence (Figure 1019).....
.....*sublaevis* (Emery)

[<https://www.antweb.org/specimenImages.do?name=casent0903892>]

Seen in dorsal view, first and second gastral tergites with parallel, longitudinal rugae

that are usually very distinct (may be reduced on second gastral tergite)..... 3

3. Seen in full-face view, pits on mandible elongate and frequently confluent, their edges often constituting an irregular finely striolate pattern (Figure 1020).....
.....*piliventris regularis* (Forel)

[<https://www.antweb.org/specimenImages.do?name=casent0907259>]

Seen in full-face view, pits on mandible largely circular or oval and mostly separated from one another by many times their own diameter 4

4. Smaller species (HW ≤ 2.50 mm); seen in profile, eye smaller (EL ≤ 0.16 × length of side of head); ant moderately shining and clothed with a coarse, off-white or yellowish pilosity that does not hide the underlying cuticular sculpture (Figure 1021).....
.....*porcata* (Emery)

[<https://www.antweb.org/specimenImages.do?name=casent0903894>]

Larger species (HW ≥ 2.60 mm); seen in profile, eye larger (EL ≥ 0.29 × length of side of head); ant matt and clothed in fine, yellow pubescence (along with yellow erect setae) that hides underlying cuticular sculpture when seen in certain lights (Figure 1022).....
.....*denticulata* (W. F. Kirby)

[<https://www.antweb.org/specimenImages.do?name=casent0902502>]

PROCERATIINAE

Discothyrea

1. Seen in profile, propodeal angles produced as broad, flat teeth directed vertically (Figure 1023).....
.....*bidens* Clark

[<https://www.antweb.org/specimenImages.do?name=casent0172123>]

Seen in profile, propodeal angles unarmed..... 2

2. Seen in profile, postpetiolar node thin, squamiform, without a distinct dorsal surface and closely aligned with gaster so presclerite is not visible (Figure 1024).....
.....*clavicornis* Emery

[<https://www.antweb.org/specimenImages.do?name=casent0903858>]

Seen in profile, postpetiolar node thick and broad with a distinct dorsal surface and less closely aligned to gaster so presclerite often visible..... 3

3. One-segmented antennal club ovate, $\leq 2 \times$ as long as its greatest width; seen in dorsal view, dorsal face of propodeum passing more-or-less smoothly over to its declivous face without a distinct transverse carina or ridge (Figure 1025)
 *turtoni* Clark

[<https://www.antweb.org/specimenImages.do?name=casent0172090>]

One-segmented antennal club more elongate, $\sim 3 \times$ as long as its greatest width; seen in dorsal view, dorsal face of propodeum distinguished from its declivous face by a distinct emarginate separation that may be carinate in some workers (Figure 1026).....
 *crassicornis* Clark

[<https://www.antweb.org/specimenImages.do?name=antweb1008163>]



FIGURES 1018–1028 1018) *Pseudoneoponera* sp. JDM 984 (ANTWEB1041119); 1019) *Pseudoneoponera sublaevis* syntype ('*Bothroponera sublaevis*') (CASENT0903892); 1020) *Pseudoneoponera regularis* syntype ('*Bothroponera piliventris regularis*') (CASENT0907259); 1021) *Pseudoneoponera porcata* syntype ('*Bothroponera porcata*') (CASENT0903894); 1022) *Pseudoneoponera denticulata* syntype ('*Bothroponera denticulata*') (CASENT0902502); 1023) *Discothyrea bidens* paratype (CASENT0172123); 1024) *Discothyrea clavicornis* syntype (CASENT0903858); 1025) *Discothyrea turtoni* (CASENT0172090); 1026) *Discothyrea crassicornis* holotype (ANTWEB1008163); 1027) *Tetraponera nitida* holotype ('*Pseudomyrma nitida*') (CASENT0901931); 1028) *Tetraponera punctulata* syntype ('*Sima punctulata kimberleyensis*') (CASENT0907468).

Probolomyrmex

One species (*Probolomyrmex latalongus* Shattuck, Gunawardene & Heterick 2012) (see Figure 103).

[https://www.antwiki.org/wiki/Probolomyrmex_latalongus]

PSEUDOMYRMECINAE

Tetraoponera

1. Seen in profile, petiole with a pair of acute, posteroventral teeth, formed from ventrolateral extensions of petiolar sternite; seen in dorsal view, pronotum with dense punctate sculpture on its anterior quarter which contrasts with shiny (and less densely sculptured) posterior half of head and with the more sparsely punctate posterior regions of the pronotum; seen in full-face view, scapes shorter than eye length (Figure 1027) *nitida* (F. Smith)

[<https://www.antweb.org/specimenImages.do?name=casent0901931>]

Seen in profile, petiole lacking a pair of posteroventral teeth; seen in dorsal view, pronotal sculpture variable but punctures more evenly distributed, not concentrated solely on anterior quarter (although they may be sparse medially) and usually not occurring in a density that contrasts strongly with that of the posterior half of the head; seen in full-face view, scapes longer than eye length (Figure 1028).....*punctulata* F. Smith

[<https://www.antweb.org/specimenImages.do?name=casent0907468>]

ACKNOWLEDGEMENTS

Ms Michele Esposito (California Academy of Sciences) was most helpful and patient in setting up my Digital Imaging System images on AntWeb, so that they could be linked to couplets in this paper, and I also express gratitude to AntWeb for permission to use their images.

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APPENDIX 1 List of ant taxa that may be species complexes.

The following species reveal a degree of morphological variability that may indicate the presence of more than one species in a cryptic complex. Undescribed taxa are marked with an asterisk (*).

DOLICHODERINAE

Iridomyrmex anceps (Roger, 1863)
Iridomyrmex bicknelli Emery, 1898
Iridomyrmex chasei Forel, 1902
Iridomyrmex coeruleus Heterick & Shattuck, 2011
Iridomyrmex dromus Clark, 1938
Iridomyrmex mjobergi Forel, 1915
Ochetellus glaber (Mayr, 1862)
Papyrius nitidus (Mayr, 1862)
Tapinoma minutum broomense Forel, 1915

DORYLINAE

Lioponera gilesi (Clark, 1924)
Lioponera inconspicua (Clark, 1924)

ECTATOMMINAE

Rhytidoponera metallica (F. Smith, 1858)
 * *Rhytidoponera metallica* group sp. JDM 1023
Rhytidoponera tyloxys Brown, 1958
Rhytidoponera tenuis (Forel, 1900)
Rhytidoponera violacea (Forel, 1907b)

FORMICINAE

Camponotus capito ebeninithorax Forel, 1915
 * *Camponotus claripes* complex sp. JDM 779
Camponotus gibbinotus Forel, 1902
Camponotus simpsoni McArthur, 2003
Melophorus aeneovirens (Lowne, 1865a)
Melophorus bagoti Lubbock, 1883
Melophorus marius Forel, 1907a
Melophorus curtus Forel, 1902
Melophorus fieldi Forel, 1910
Melophorus ludius Forel, 1902
Melophorus sulla Forel, 1910
Melophorus turneri Forel, 1910
Melophorus wheeleri Forel, 1910
Nylanderia glabrior (Forel, 1902)
Nylanderia cf. *obscura* (Mayr, 1862)
Nylanderia rosae (Forel, 1902)
Plagiolepis clarki Wheeler, 1934

Polyrhachis gab Forel, 1879
 * *Polyrhachis* sp. JDM 804
 * *Polyrhachis* sp. JDM 1011
Stigmacros froggatti Forel, 1902
Stigmacros hirsuta McAreavey, 1957
Stigmacros spinosa McAreavey, 1957
 * *Stigmacros* sp. JDM 396

MYRMECIINAE

Myrmecia infima Forel, 1900

MYRMICINAE

Chelaner leae (Forel, 1913)
Chelaner longiceps (Wheeler, 1934)
Chelaner rufoniger (Heterick, 2001)
Meranoplus aureolus Crawley, 1921
Meranoplus curvoispina Forel, 1910
Meranoplus oceanicus F. Smith, 1862
 * *Meranoplus puryi* complex sp. JDM 673
 * *Meranoplus puryi* complex sp. JDM 889
Meranoplus unicolor Forel, 1902
Monomorium antipodum Forel, 1901b
 * *Monomorium antipodum* complex sp. JDM 717
Monomorium laeve Mayr, 1876
Monomorium nanum Heterick, 2001
Monomorium rothsteini Forel, 1902
Monomorium silaceum Heterick, 2001
Monomorium sordidum Forel, 1902
Monomorium sydneyense Forel, 1902
Pheidole ampla Forel, 1893
Pheidole bos Forel, 1893
Pheidole proxima Forel, 1910
Pheidole vigilans (F. Smith, 1858)
 * *Pheidole* sp. JDM 338
 * *Pheidole* sp. JDM 934
Podomyrma macrophthalma Viehmeyer, 1925
Solenopsis clarki Crawley, 1922b
 * *Tetramorium striolatum* (*sensu lato*)

PONERINAE

Hypoponera congrua (Wheeler, 1934)

APPENDIX 2

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Figure	Specimen Number	Photographer/Author	Source
Figure 1	CASENT0173649	April Nobile	www.antweb.org (modified)
Figure 2	CASENT0063125	April Nobile	www.antweb.org (modified)
Figure 3	CASENT010251	April Nobile	www.antweb.org (modified)
Figure 4	CASENT0173649	April Nobile	www.antweb.org (modified)
Figure 5	CASENT0281863	Estella Ortega	www.antweb.org (modified)
Figure 6	CASENT010251	April Nobile	www.antweb.org (modified)
Figure 7	CASENT0235685	Will Ericson	www.antweb.org (modified)
Figure 8	FOCOLO805	Christiana Klingenberg	www.antweb.org (modified)
Figure 9	CASENT0249290	Estella Ortega	www.antweb.org (modified)
Figure 10	CASENT0902499	Will Ericson	www.antweb.org (modified)
Figure 12	JDM32-002113	Brian Heterick	www.antweb.org (modified)
Figure 13	CASENT0250098	Bradley Reynolds	www.antweb.org (modified)
Figure 14	CASENT0270594	Ryan Perry	www.antweb.org (modified)
Figure 15	CASENT0250098	Bradley Reynolds	www.antweb.org (modified)
Figure 16	CASENT0172003	April Nobile	www.antweb.org (modified)
Figure 17	CASENT0922017	Zach Lieberman	www.antweb.org (modified)
Figure 18	CASENT0270594	Ryan Perry	www.antweb.org (modified)
Figure 19	ANTWEB1008311	Lucinda Gibson	www.antweb.org (modified)
Figure 20	CASENT0249187	Will Ericson	www.antweb.org (modified)
Figure 21	JDM32-003522	Brian Heterick	www.antweb.org (modified)
Figure 22	CASENT0280871	Estella Ortega	www.antweb.org (modified)
Figure 23	CASENT0280871	Estella Ortega	www.antweb.org (modified)
Figure 24	CASENT0106098	Steve Shattuck	www.antwiki.org (modified)
Figure 25	CASENT0280871	Estella Ortega	www.antweb.org (modified)
Figure 26	CASENT0106017	Michael Branstetter	www.antweb.org (modified)
Figure 27	CASENT0106098	Steve Shattuck	www.antwiki.org (modified)
Figure 28	ANTWEB1008539	Roberto Keller	www.antweb.org (modified)
Figure 29	ANTWEB1041131	Brian Heterick	www.antweb.org
Figure 30	CASENT0172816	April Nobile	www.antweb.org
Figure 31	CASENT0172206	April Nobile	www.antweb.org
Figure 32	CASENT0104536	April Nobile	www.antweb.org
Figure 33	CASENT0909800	Will Ericson	www.antweb.org
Figure 34	JDM32-000175	Brian Heterick	www.antweb.org
Figure 35	CASENT0178491	April Nobile	www.antweb.org
Figure 36	CASENT0909477	Will Ericson	www.antweb.org
Figure 37	CASENT0104328	April Nobile	www.antweb.org
Figure 38	CASENT0905059	Zach Lieberman	www.antweb.org
Figure 39	CASENT0009951	April Nobile	www.antweb.org
Figure 40	CASENT0172052	April Nobile	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 41	CASENT0905056	Zach Lieberman	www.antweb.org
Figure 42	CASENT0915577	Zach Lieberman	www.antweb.org
Figure 43	JDM32-00410	Brian Heterick	www.antweb.org
Figure 44	CASENT0901480	Will Ericson	www.antweb.org
Figure 45	JDM32-002647	Brian Heterick	www.antweb.org
Figure 46	FOCOLO340-1	Christiana Klingenberg	www.antweb.org
Figure 47	CASENT0249325	Estella Ortega	www.antweb.org
Figure 48	CASENT0902746	Will Ericson	www.antweb.org
Figure 49	CASENT0909884	Zach Lieberman	www.antweb.org
Figure 50	CASENT0217738	Shannon Hartman	www.antweb.org
Figure 51	CASENT0909884	Zach Lieberman	www.antweb.org
Figure 52	CASENT0909935	Will Ericson	www.antweb.org
Figure 53	CASENT0070232	April Nobile	www.antweb.org
Figure 54	JDM32-002207	Brian Heterick	www.antweb.org
Figure 55	ANTWEB1041154	Brian Heterick	www.antweb.org
Figure 56	CASENT0280186	Will Ericson	www.antweb.org
Figure 57	ANTWEB1041154	Brian Heterick	www.antweb.org
Figure 58	CASENT0906855	Michele Esposito	www.antweb.org
Figure 59	CASENT0281470	Zach Lieberman	www.antweb.org
Figure 60	CASENT0903128	Will Ericson	www.antweb.org
Figure 61	ANTWEB1041155	Brian Heterick	www.antweb.org
Figure 62	CASENT0104236	April Nobile	www.antweb.org
Figure 63	ANIC32-900190-1	Zach Lieberman	www.antweb.org
Figure 64	JDM32-002051	Brian Heterick	www.antweb.org
Figure 65	CASENT0227590	Estelle Ortega	www.antweb.org
Figure 66	CASENT0172006	April Nobile	www.antweb.org
Figure 67	CASENT0003155	April Nobile	www.antweb.org
Figure 68	CASENT0914014	Zach Lieberman	www.antweb.org
Figure 69	CASENT0280691	Estelle Ortega	www.antweb.org
Figure 70	CASENT0280688	Estelle Ortega	www.antweb.org
Figure 71	CASENT0172474	April Nobile	www.antweb.org
Figure 72	CASENT0900020	Will Ericson	www.antweb.org
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Figure 74	CASENT0922918	Wade Lee	www.antweb.org
Figure 75	CASENT0908375	Zach Lieberman	www.antweb.org
Figure 76	CASENT0902365	Ryan Perry	www.antweb.org
Figure 77	CASENT0908903	Zach Lieberman	www.antweb.org
Figure 78	ANIC32-009464	Steve Shattuck	www.antwiki.org
Figure 79	CASENT0280872	Estella Ortega	www.antweb.org
Figure 80	CASENT0901997	Will Ericson	www.antweb.org
Figure 81	CASENT0172304	April Nobile	www.antweb.org
Figure 82	CASENT0908685	Zach Lieberman	www.antweb.org
Figure 83	CASENT0010805	April Nobile	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 84	CASENT0917761	Kate Martynova	www.antweb.org
Figure 85	JDM32-003585	Brian Heterick	www.antweb.org
Figure 86	CASENT0914965	Zach Lieberman	www.antweb.org
Figure 87	CASENT0008623	April Nobile	www.antweb.org
Figure 88	ANIC32-015672-1	Brian Heterick	www.antweb.org
Figure 89	CASENT0902293	Ryan Perry	www.antweb.org
Figure 90	CASENT0908029	Zach Lieberman	www.antweb.org
Figure 91	CASENT0280942	Shannon Hartman	www.antweb.org
Figure 92	CASENT0010804	April Nobile	www.antweb.org
Figure 93	CASENT0106211	Michael Branstetter	www.antweb.org
Figure 94	CASENT0172406	April Nobile	www.antweb.org
Figure 95	CASENT0260505	Shannon Hartman	www.antweb.org
Figure 96	ANTWEB1041118	Brian Heterick	www.antweb.org
Figure 97	CASENT0915192	Zach Lieberman	www.antweb.org
Figure 98	CASENT0217532	Shannon Hartman	www.antweb.org
Figure 99	ANTWEB1041119	Brian Heterick	www.antweb.org
Figure 100	CASENT0172088	April Nobile	www.antweb.org
Figure 101	CASENT0249181	Will Ericson	www.antweb.org
Figure 102	CASENT0249178	Will Ericson	www.antweb.org
Figure 103	ANIC32-011632	Steve Shattuck	www.antwiki.org
Figure 104	CASENT0922241	Michele Esposito	www.antweb.org
Figure 105	CASENT0907468	Will Ericson	www.antweb.org
Figure 106	CASENT0102519	April Nobile	www.antweb.org
Figure 107	CASENT0102195	April Nobile	www.antweb.org
Figure 108	CASENT0102193	April Nobile	www.antweb.org
Figure 109	CASENT0102521	April Nobile	www.antweb.org
Figure 110	CASENT0172816	April Nobile	www.antweb.org
Figure 111	ANTWEB1008137	Museum Victoria	www.antweb.org (modified)
Figure 112	ANTWEB1041131	Brian Heterick	www.antweb.org (modified)
Figure 113	CASENT0172203	April Nobile	www.antweb.org (modified)
Figure 114	CASENT0172386	April Nobile	www.antweb.org (modified)
Figure 115	CASENT0909544	Zach Lieberman	www.antweb.org
Figure 116	CASENT0909543	Zach Lieberman	www.antweb.org
Figure 117	CASENT0905056	Zach Lieberman	www.antweb.org
Figure 118	CASENT1008611	Lucinda Gibson	www.antweb.org
Figure 119	CASENT0103285	April Nobile	www.antweb.org (modified)
Figure 120	JDM32-004610	Brian Heterick	www.antweb.org (modified)
Figure 121	CASENT0909518	Zach Lieberman	www.antweb.org (modified)
Figure 122	ANTWEB1008633	Lucinda Gibson	www.antweb.org (modified)
Figure 123	CASENT0249557	Shannon Hartman	www.antweb.org (modified)
Figure 124	CASENT0909477	Will Ericson	www.antweb.org (modified)
Figure 125	ANTWEB1008175	Lucinda Gibson	www.antweb.org
Figure 126	CASENT0902980	Zach Lieberman	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 127	ANTWEB1008172	Lucinda Gibson	www.antweb.org
Figure 128	ANTWEB1008169	Lucinda Gibson	www.antweb.org
Figure 129		Steve Shattuck and Sharon Marsden	www.antwiki.org
Figure 130		Steve Shattuck and Sharon Marsden	www.antwiki.org
Figure 131	ANTWEB1008173	Lucinda Gibson	www.antweb.org
Figure 132	CASENT0906227	Estella Ortega	www.antweb.org
Figure 133	CASENT0249560	Shannon Hartman	www.antweb.org
Figure 134	ANTWEB1008170	Lucinda Gibson	www.antweb.org
Figure 135	ANTWEB1008171	Lucinda Gibson	www.antweb.org
Figure 136	CASENT0907611	Will Ericson	www.antweb.org (modified)
Figure 137	JDM32-000175	Brian Heterick	www.antweb.org (modified)
Figure 138	CASENT0172060	Brian Heterick	www.antweb.org
Figure 139	CASENT0172058	April Nobile	www.antweb.org
Figure 140	CASENT0172045	April Nobile	www.antweb.org
Figure 141	ANTWEB1008639	April Nobile	www.antweb.org
Figure 142	JDM32-000260	Steve Shattuck	www.antweb.org
Figure 143	CASENT0172063	April Nobile	www.antweb.org
Figure 144	CASENT0172062	April Nobile	www.antweb.org
Figure 145	CASENT0172064	April Nobile	www.antweb.org
Figure 146	CASENT0903101	Will Ericson	www.antweb.org
Figure 147	CASENT0172052	April Nobile	www.antweb.org
Figure 148	CASENT0172061	April Nobile	www.antweb.org
Figure 149	CASENT0903086	Zach Lieberman	www.antweb.org
Figure 150	CASENT0903085	Zach Lieberman	www.antweb.org
Figure 151	CASENT0903100	Will Ericson	www.antweb.org
Figure 152	CASENT0172037	April Nobile	www.antweb.org
Figure 153	CASENT0915580	Zach Lieberman	www.antweb.org (modified)
Figure 154	CASENT0911557	Will Ericson	www.antweb.org
Figure 155	CASENT0172049	April Nobile	www.antweb.org (modified)
Figure 156	CASENT0909521	Zach Lieberman	www.antweb.org (modified)
Figure 157	CASENT0172041	April Nobile	www.antweb.org (modified)
Figure 158	CASENT0172039	April Nobile	www.antweb.org (modified)
Figure 159	CASENT0903087	Zach Lieberman	www.antweb.org (modified)
Figure 160	ANIC32037651	Zach Lieberman	www.antweb.org
Figure 161	CASENT0903102	Will Ericson	www.antweb.org
Figure 162	ANIC32000054	Zach Lieberman	www.antweb.org (modified)
Figure 163	CASENT0903082	Zach Lieberman	www.antweb.org
Figure 164	CASENT0909555	Zach Lieberman	www.antweb.org
Figure 165	ANIC32-039583	Steve Shattuck	www.antwiki.org
Figure 166	CASENT0903088	Zach Lieberman	www.antweb.org
Figure 167	CASENT0903090	Zach Lieberman	www.antweb.org
Figure 168	CASENT0903102	Will Ericson	www.antweb.org (modified)
Figure 169	CASENT0905045	Zach Lieberman	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 170	CASENT0909532	Zach Lieberman	www.antweb.org
Figure 171	CASENT0903091	Zach Lieberman	www.antweb.org
Figure 172	CASENT0903099	Will Ericson	www.antweb.org (modified)
Figure 173	CASENT0909504	Zach Lieberman	www.antweb.org (modified)
Figure 174	CASENT0909499	Will Ericson	www.antweb.org
Figure 175	ANIC32-039936	Steve Shattuck	www.antwiki.org
Figure 176	CASENT0909537	Zach Lieberman	www.antweb.org (modified)
Figure 177	ANTWEB1008644	Lucinda Gibson	www.antweb.org (modified)
Figure 178	ANTWEB1008193	Lucinda Gibson	www.antweb.org (modified)
Figure 179	CASENT0905833	Will Ericson	www.antweb.org
Figure 180	CASENT0903097	Will Ericson	www.antweb.org
Figure 181	CASENT0905053	Zach Lieberman	www.antweb.org
Figure 182	CASENT0909532	Zach Lieberman	www.antweb.org (modified)
Figure 183	ANIC32039031	Zach Lieberman	www.antweb.org (modified)
Figure 184	CASENT0905045	Zach Lieberman	www.antweb.org
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Figure 186	CASENT0909532	Zach Lieberman	www.antweb.org
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Figure 188	ANIC32039031	Zach Lieberman	www.antweb.org
Figure 189	ANIC32-037500	Steve Shattuck	www.antwiki.org
Figure 190	ANIC32-000054	Zach Lieberman	www.antweb.org (modified)
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Figure 192	CASENT0903094	Will Ericson	www.antweb.org (modified)
Figure 193	CASENT0903105	Will Ericson	www.antweb.org
Figure 194	ANIC32-047828	Steve Shattuck	www.antwiki.org
Figure 195	CASENT0249721	Estela Ortega	www.antweb.org
Figure 196	CASENT0907614	Will Ericson	www.antweb.org
Figure 197	CASENT0909546	Zach Lieberman	www.antweb.org (modified)
Figure 198	ANIC32017917	Zach Lieberman	www.antweb.org
Figure 199	CASENT0909547	Zach Lieberman	www.antweb.org (modified)
Figure 200	CASENT0903089	Zach Lieberman	www.antweb.org (modified)
Figure 201	CASENT0909561	Zach Lieberman	www.antweb.org
Figure 202		Lucinda Gibson	www.padil.gov.au
Figure 203	CASENT0909529	Zach Lieberman	www.antweb.org
Figure 204	CASENT0905059	Zach Lieberman	www.antweb.org
Figure 205	CASENT0172342	April Nobile	www.antweb.org
Figure 206	CASENT0104328	April Nobile	www.antweb.org
Figure 207	CASENT0915546	Zach Lieberman	www.antweb.org (modified)
Figure 208	CASENT0104536	April Nobile	www.antweb.org
Figure 209		Caroline Harding	www.padil.gov.au
Figure 210	CASENT0909778	Will Ericson	www.antweb.org
Figure 211	ANIC32-023646	Steve Shattuck	www.antwiki.org
Figure 212	CASENT0901480	Will Ericson	www.antweb.org (modified)

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Figure 213	ANTWEB1008243	Museum Victoria	www.antweb.org (modified)
Figure 214	JDM32-002649	Brian Heterick	www.antweb.org
Figure 215	ANTWEB1008252	Museum Victoria	www.antweb.org
Figure 216		Lucinda Gibson	www.padil.gov.au
Figure 217	CASENT0902758	Will Ericson	www.antweb.org (modified)
Figure 218	ANTWEB1008233	Museum Victoria	www.antweb.org (modified)
Figure 219	ANTWEB1008226	Museum Victoria	www.antweb.org (modified)
Figure 220	ANTWEB1041114	Brian Heterick	www.antweb.org (modified)
Figure 221	ANTWEB1041181	Brian Heterick	www.antweb.org (modified)
Figure 222	CASENT0907063	Will Ericson	www.antweb.org (modified)
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Figure 224	CASENT0907069	Will Ericson	www.antweb.org
Figure 225	CASENT0902752	Will Ericson	www.antweb.org (modified)
Figure 226	CASENT0907066	Will Ericson	www.antweb.org (modified)
Figure 227	ANTWEB1008230	Museum Victoria	www.antweb.org
Figure 228	ANTWEB1008223	Museum Victoria	www.antweb.org
Figure 229	ANTWEB1008236	Museum Victoria	www.antweb.org
Figure 230	ANTWEB1008248	Museum Victoria	www.antweb.org
Figure 231	ANTWEB1008228	Museum Victoria	www.antweb.org
Figure 232	JDM32-002652	Brian Heterick	www.antweb.org
Figure 233	ANTWEB1008250	Museum Victoria	www.antweb.org (modified)
Figure 234	CASENT0902761	Will Ericson	www.antweb.org
Figure 235	ANTWEB1041113	Brian Heterick	www.antweb.org
Figure 236	JDM32-002624	Brian Heterick	www.antweb.org
Figure 237	ANTWEB1008251	Museum Victoria	www.antweb.org
Figure 238	ANTWEB1041115	Brian Heterick	www.antweb.org (modified)
Figure 239	ANTWEB1008225	Museum Victoria	www.antweb.org
Figure 240	ANTWEB1008235	Museum Victoria	www.antweb.org
Figure 241	ANTWEB1008242	Museum Victoria	www.antweb.org
Figure 242	ANTWEB1008227	Museum Victoria	www.antweb.org
Figure 243	ANTWEB0915333	Museum Victoria	www.antweb.org (modified)
Figure 244	CASENT0911270	Will Ericson	www.antweb.org
Figure 245	CASENT0173060	April Nobile	www.antweb.org
Figure 246	CASENT0902770	Will Ericson	www.antweb.org (modified)
Figure 247	ANTWEB1041127	Brian Heterick	www.antweb.org
Figure 248	ANTWEB1008185	Museum Victoria	www.antweb.org (modified)
Figure 249	JDM32-002659	Brian Heterick	www.antweb.org (modified)
Figure 250		Robert Taylor	www.antwiki.org
Figure 251	CASENT0172106	April Nobile	www.antweb.org (modified)
Figure 252	JDM32-003036	Brian Heterick	www.antweb.org (modified)
Figure 253	CASENT0010638	April Nobile	www.antweb.org
Figure 254	CASENT0915133	Will Ericson	www.antweb.org
Figure 255	CASENT0907142	Will Ericson	www.antweb.org

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Figure 256	ANTWEB1008715	Lucinda Gibson	www.antweb.org
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Figure 258	ANTWEB1008311	Lucinda Gibson	www.antweb.org (modified)
Figure 259	ANTWEB1008317	Lucinda Gibson	www.antweb.org (modified)
Figure 260	CASENT0907149	Zach Lieberman	www.antweb.org
Figure 261	CASENT0900527	Ryan Perry	www.antweb.org (modified)
Figure 262	JDM32-002929	Brian Heterick	www.antweb.org
Figure 263	ANTWEB1008155	Lucinda Gibson	www.antweb.org
Figure 264	ANTWEB1008154	Museum Victoria	www.antweb.org (modified)
Figure 265	CASENT0900528	Ryan Perry	www.antweb.org (modified)
Figure 266	CASENT0907162	Zach Lieberman	www.antweb.org
Figure 267	CASENT0903830	Zach Lieberman	www.antweb.org
Figure 268	ANIC32-146017-1	Brian Heterick	www.antweb.org
Figure 269	ANTWEB1041120	Brian Heterick	www.antweb.org
Figure 270	CASENT0907141	Will Ericson	www.antweb.org
Figure 271		Lucinda Gibson	www.padil.gov.au
Figure 272	ANTWEB1041122	Brian Heterick	www.antweb.org
Figure 273	ANTWEB1041123	Brian Heterick	www.antweb.org
Figure 274	ANTWEB1008305	Museum Victoria	www.antweb.org (modified)
Figure 275	ANTWEB1041390	Brian Heterick	www.antweb.org (modified)
Figure 276	JDM32-003021	Brian Heterick	www.antweb.org
Figure 277	ANTWEB1041126	Brian Heterick	www.antweb.org
Figure 278	ANTWEB1041132	Brian Heterick	www.antweb.org (modified)
Figure 279	CASENT0900523	Ryan Perry	www.antweb.org (modified)
Figure 280	CASENT0281284	Estella Ortega	www.antweb.org (modified)
Figure 281	JDM32-002934	Brian Heterick	www.antweb.org (modified)
Figure 282	ANTWEB1041125	Brian Heterick	www.antweb.org
Figure 283	JDM32-002936	Brian Heterick	www.antweb.org (modified)
Figure 284	CASENT0915136	Will Ericson	www.antweb.org
Figure 285	CASENT0915142	Will Ericson	www.antweb.org
Figure 286	ANTWEB1041124	Brian Heterick	www.antweb.org
Figure 287	ANTWEB1041121	Brian Heterick	www.antweb.org
Figure 288	JDM32-002868	Brian Heterick	www.antweb.org (modified)
Figure 289	CASENT0900520	Ryan Perry	www.antweb.org (modified)
Figure 290	CASENT0909906	Will Ericson	www.antweb.org
Figure 291	CASENT0249913	Will Ericson	www.antweb.org
Figure 292		Farhan Bokhari	www.antwiki.org
Figure 293	CASENT0905537	Will Ericson	www.antweb.org
Figure 294	CASENT0910762	Will Ericson	www.antweb.org
Figure 295		Farhan Bokhari	www.flickr.com
Figure 296	JDM32-001233	Brian Heterick	www.antweb.org (modified)
Figure 297	CASENT0910306	Will Ericson	www.antweb.org
Figure 298	JDM32-001282	Brian Heterick	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 299	CASENT0910310	Will Ericson	www.antweb.org
Figure 300	CASENT0910312	Will Ericson	www.antweb.org
Figure 301		Farhan Bokhari	www.antwiki.org
Figure 302	CASENT0910178	Zach Lieberman	www.antweb.org (modified)
Figure 303	ANTWEB1041384	Brian Heterick	www.antweb.org
Figure 304	CASENT0910182	Zach Lieberman	www.antweb.org
Figure 305	ANTWEB1041238	Brian Heterick	www.antweb.org (modified)
Figure 306	CASENT0905316	Zach Lieberman	www.antweb.org
Figure 307	CASENT0172149	April Nobile	www.antweb.org
Figure 308	CASENT0280204	Will Ericson	www.antweb.org (modified)
Figure 309	ANTWEB1041153	Brian Heterick	www.antweb.org (modified)
Figure 310	CASENT0911964	Zach Lieberman	www.antweb.org (modified)
Figure 311	ANTWEB1008149	Lucinda Gibson	www.antweb.org
Figure 312	JDM32-001456	Brian Heterick	www.antweb.org
Figure 313	CASENT0903545	Zach Lieberman	www.antweb.org
Figure 314	CASENT0903549	Zach Lieberman	www.antweb.org
Figure 315	CASENT0172154	April Nobile	www.antweb.org
Figure 316	JDM32-001457	Brian Heterick	www.antweb.org
Figure 317	CASENT0910298	Will Ericson	www.antweb.org (modified)
Figure 318	JDM32-000954	Brian Heterick	www.antweb.org (modified)
Figure 319	CASENT0172148	April Nobile	www.antweb.org (modified)
Figure 320	CASENT0172146	April Nobile	www.antweb.org (modified)
Figure 321	JDM32-000950	Brian Heterick	www.antweb.org (modified)
Figure 322	JDM32-001317	Brian Heterick	www.antweb.org (modified)
Figure 323	JDM32-001333	Brian Heterick	www.antweb.org
Figure 324	CASENT0910100	Will Ericson	www.antweb.org (modified)
Figure 325	ANTWEB1008151	Lucinda Gibson	www.antweb.org (modified)
Figure 326	JDM32-001230	Brian Heterick	www.antweb.org (modified)
Figure 327	CASENT0910411	Zach Lieberman	www.antweb.org (modified)
Figure 328	CASENT0172140	April Nobile	www.antweb.org
Figure 329	ANTWEB1041145	Brian Heterick	www.antweb.org
Figure 330	ANTWEB1041144	Brian Heterick	www.antweb.org
Figure 331	ANTWEB1041152	Brian Heterick	www.antweb.org
Figure 332	CASENT0172161	April Nobile	www.antweb.org
Figure 333	CASENT0910402	Zach Lieberman	www.antweb.org
Figure 334	CASENT0172130	April Noble	www.antweb.org
Figure 335	JDM32-001300	Brian Heterick	www.antweb.org (modified)
Figure 336	CASENT0911752	Will Ericson	www.antweb.org
Figure 337	CASENT0217628	Estella Ortega	www.antweb.org
Figure 338	CASENT0910375	Will Ericson	www.antweb.org
Figure 339		Lucinda Gibson	www.padil.gov.au
Figure 340	CASENT0911757	Will Ericson	www.antweb.org (modified)
Figure 341	ANTWEB1008145	Lucinda Gibson	www.antweb.org (modified)

Figure	Specimen Number	Photographer/Author	Source
Figure 342	ANTWEB101143	Brian Heterick	www.antweb.org (modified)
Figure 343	JDM32-001374	Brian Heterick	www.antweb.org (modified)
Figure 344	JDM32-001186	Brian Heterick	www.antweb.org (modified)
Figure 345	JDM32-000946	Brian Heterick	www.antweb.org (modified)
Figure 346	CASENT0903540	Zach Lieberman	www.antweb.org (modified)
Figure 347	CASENT0911755	Will Ericson	www.antweb.org (modified)
Figure 348	JDM32-001458-2	Brian Heterick	www.antweb.org (modified)
Figure 349	CASENT0910378	Will Ericson	www.antweb.org (modified)
Figure 350	CASENT0910390	Zach Lieberman	www.antweb.org
Figure 351	ANTWEB1041149	Brian Heterick	www.antweb.org (modified)
Figure 352	CASENT0915777	Harald Bruckner	www.antweb.org
Figure 353	ANTWEB1008622	Lucinda Gibson	www.antweb.org (modified)
Figure 354	JDM32-001249-2	Brian Heterick	www.antweb.org (modified)
Figure 355	CASENT0172151	April Nobile	www.antweb.org
Figure 356	CASENT0172139	April Nobile	www.antweb.org
Figure 357	CASENT0280218	Shannon Hartman	www.antweb.org
Figure 358	JDM32-001462	Brian Heterick	www.antweb.org
Figure 359	JDM32-001466	Brian Heterick	www.antweb.org
Figure 360	JDM32-001467	Brian Heterick	www.antweb.org (modified)
Figure 361	ANTWEB1041150	Brian Heterick	www.antweb.org (modified)
Figure 362	CASENT0915747	Daniela Lehne	www.antweb.org
Figure 363	JDM32-001253	Brian Heterick	www.antweb.org
Figure 364	ANTWEB1041147	Brian Heterick	www.antweb.org (modified)
Figure 365	CASENT0903539	Zach Lieberman	www.antweb.org
Figure 366	JDM32-001285	Brian Heterick	www.antweb.org (modified)
Figure 367	CASENT0172129	April Nobile	www.antweb.org
Figure 368	JDM32-001419-2	Brian Heterick	www.antweb.org
Figure 369	CASENT0910404	Zach Lieberman	www.antweb.org (modified)
Figure 370	CASENT0910391	Zach Lieberman	www.antweb.org (modified)
Figure 371	JDM32-001371	Brian Heterick	www.antweb.org (modified)
Figure 372	ANTWEB1041130	Brian Heterick	www.antweb.org
Figure 373	CASENT0910366	Will Ericson	www.antweb.org
Figure 374	JDM32-001340	Brian Heterick	www.antweb.org (modified)
Figure 375	JDM32-001080	Brian Heterick	www.antweb.org (modified)
Figure 376	CASENT0910367	Will Ericson	www.antweb.org (modified)
Figure 377	CASENT0172172	April Nobile	www.antweb.org
Figure 378	JDM32-001228	Brian Heterick	www.antweb.org
Figure 379	JDM32-001303-2	Brian Heterick	www.antweb.org (modified)
Figure 380	CASENT0910385	Zach Lieberman	www.antweb.org (modified)
Figure 381	CASENT0217640	Estella Ortega	www.antweb.org (modified)
Figure 382	CASENT0910400	Zach Lieberman	www.antweb.org
Figure 383	CASENT0912082	Will Ericson	www.antweb.org
Figure 384	CASENT0915770	Harald Bruckner	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 385	JDM32-001093	Brian Heterick	www.antweb.org
Figure 386	ANTWEB1041134	Brian Heterick	www.antweb.org
Figure 387	CASENT0910372	Will Ericson	www.antweb.org (modified)
Figure 388	CASENT0910374	Will Ericson	www.antweb.org
Figure 389	JDM32-001087-2	Brian Heterick	www.antweb.org
Figure 390	JDM32-001084	Brian Heterick	www.antweb.org (modified)
Figure 391	FOCOL2255		www.antweb.org (modified)
Figure 392	JDM32-001012	Brian Heterick	www.antweb.org
Figure 393	CASENT0915751	Daniela Lehner	www.antweb.org
Figure 394	JDM32-001101	Brian Heterick	www.antweb.org (modified)
Figure 395		Farhan Bokhari	www.flickr.com
Figure 396	ANTWEB1041138	Brian Heterick	www.antweb.org
Figure 397	ANTWEB1041140	Brian Heterick	www.antweb.org (modified)
Figure 398	CASENT0910293	Zach Lieberman	www.antweb.org
Figure 399	JDM32-001154	Brian Heterick	www.antweb.org
Figure 400	CASENT0910291	Zach Lieberman	www.antweb.org (modified)
Figure 401	CASENT0910384	Zach Lieberman	www.antweb.org (modified)
Figure 402	ANTWEB1041135	Brian Heterick	www.antweb.org
Figure 403	ANTWEB1041137	Brian Heterick	www.antweb.org
Figure 404	JDM32-000931	Brian Heterick	www.antweb.org
Figure 405	ANTWEB1041128	Brian Heterick	www.antweb.org
Figure 406	FOCOL2328	Christiana Klingenberg	www.antweb.org
Figure 407	ANTWEB1041180	Brian Heterick	www.antweb.org (modified)
Figure 408	CASENT0910305	Will Ericson	www.antweb.org (modified)
Figure 409	CASENT0903532	Zach Lieberman	www.antweb.org
Figure 410	CASENT0910309	Will Ericson	www.antweb.org
Figure 411	CASENT0910311	Will Ericson	www.antweb.org
Figure 412		Steve Shattuck	www.antwiki.org
Figure 413	CASENT0280203	Will Ericson	www.antweb.org
Figure 414	CASENT0280205	Will Ericson	www.antweb.org (modified)
Figure 415	JDM32-001382	Brian Heterick	www.antweb.org
Figure 416	JDM32-001305	Brian Heterick	www.antweb.org
Figure 417	CASENT0172173	April Nobile	www.antweb.org
Figure 418	ANTWEB1008153	Lucinda Gibson	www.antweb.org
Figure 419	CASENT0910299	Will Ericson	www.antweb.org
Figure 420	JDM32-001316	Brian Heterick	www.antweb.org
Figure 421	ANTWEB1008143	Museum Victoria	www.antweb.org
Figure 422	CASENT0172147	April Nobile	www.antweb.org
Figure 423	ANTWEB1041151	Brian Heterick	www.antweb.org (modified)
Figure 424	CASENT0906927	Michele Esposito	www.antweb.org
Figure 425	JDM32-001409	Brian Heterick	www.antweb.org
Figure 426	CASENT0910410	Zach Lieberman	www.antweb.org (modified)
Figure 427	ANTWEB1041163	Brian Heterick	www.antweb.org (modified)

Figure	Specimen Number	Photographer/Author	Source
Figure 428	CASENT0172132	April Nobile	www.antweb.org
Figure 429	CASENT0915758	Daniela Lehner	www.antweb.org
Figure 430	CASENT0910096	Will Ericson	www.antweb.org
Figure 431	CASENT0910181	Zach Lieberman	www.antweb.org
Figure 432	CASENT0910177	Zach Lieberman	www.antweb.org
Figure 433	ANTWEB1041383	Brian Heterick	www.antweb.org
Figure 434	CASENT0911756	Will Ericson	www.antweb.org (modified)
Figure 435	JDM32-001301	Brian Heterick	www.antweb.org
Figure 436	CASENT0911751	Will Ericson	www.antweb.org
Figure 437	JDM32-000990	Brian Heterick	www.antweb.org
Figure 438	ANTWEB1041141	Brian Heterick	www.antweb.org
Figure 439	CASENT0172131	April Nobile	www.antweb.org
Figure 440	CASENT0910401	Zach Lieberman	www.antweb.org
Figure 441	JDM32-001165	Brian Heterick	www.antweb.org
Figure 442	CASENT0910379	Zach Lieberman	www.antweb.org (modified)
Figure 443	CASENT0915754	Daniela Lehner	www.antweb.org
Figure 444	ANTWEB1041142	Brian Heterick	www.antweb.org
Figure 445	CASENT0911754	Will Ericson	www.antweb.org (modified)
Figure 446	CASENT0910364	Will Ericson	www.antweb.org
Figure 447	JDM32-001458-1	Brian Heterick	www.antweb.org (modified)
Figure 448	CASENT0172150	April Nobile	www.antweb.org
Figure 449	CASENT0915769	Harald Bruckner	www.antweb.org
Figure 450	CASENT0172138	April Nobile	www.antweb.org
Figure 451	ANTWEB1041385	Brian Heterick	www.antweb.org
Figure 452	ANTWEB1041382	Brian Heterick	www.antweb.org
Figure 453	ANTWEB1041162	Brian Heterick	www.antweb.org (modified)
Figure 454	JDM32-001249-1	Brian Heterick	www.antweb.org
Figure 455	CASENT0280215	Steve Shattuck	www.antwiki.org
Figure 456	JDM32-001354	Brian Heterick	www.antweb.org
Figure 457	ANTWEB1041148	Brian Heterick	www.antweb.org
Figure 458	ANTWEB1041146	Brian Heterick	www.antweb.org
Figure 459	ANTWEB1008152	Lucinda Gibson	www.antweb.org (modified)
Figure 460	CASENT0910395	Zach Lieberman	www.antweb.org
Figure 461	JDM32-001296-1	Brian Heterick	www.antweb.org
Figure 462	JDM32-001419-1	Brian Heterick	www.antweb.org (modified)
Figure 463	JDM32-001257	Brian Heterick	www.antweb.org (modified)
Figure 464	ANTWEB1041129	Brian Heterick	www.antweb.org
Figure 465	CASENT0172172	April Nobile	www.antweb.org
Figure 466	JDM32-000957	Brian Heterick	www.antweb.org
Figure 467	CASENT0910385	Zach Lieberman	www.antweb.org
Figure 468	JDM32-0001079	Brian Heterick	www.antweb.org
Figure 469	JDM32-001303-1	Brian Heterick	www.antweb.org
Figure 470	JDM32-000973	Brian Heterick	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 471	JDM32-001342	Brian Heterick	www.antweb.org (modified)
Figure 472	JDM32-001120	Brian Heterick	www.antweb.org (modified)
Figure 473	CASENT0910399	Zach Lieberman	www.antweb.org
Figure 474	CASENT0903542	Zach Lieberman	www.antweb.org
Figure 475	JDM32-001092	Brian Heterick	www.antweb.org
Figure 476	FOCOL2257	Christiana Klingenberg	www.antweb.org (modified)
Figure 477	CASENT0910373	Will Ericson	www.antweb.org
Figure 478	ANTWEB1041133	Brian Heterick	www.antweb.org
Figure 479	JDM32-001083	Brian Heterick	www.antweb.org
Figure 480	JDM32-001017	Brian Heterick	www.antweb.org
Figure 481	CASENT0910371	Will Ericson	www.antweb.org (modified)
Figure 482	JDM32-001087-1	Brian Heterick	www.antweb.org
Figure 483	CASENT0915750	Daniela Lehner	www.antweb.org
Figure 484	CASENT0910368	Will Ericson	www.antweb.org
Figure 485	ANTWEB1041136	Brian Heterick	www.antweb.org
Figure 486	ANTWEB1041139	Brian Heterick	www.antweb.org
Figure 487	JDM32-001137	Brian Heterick	www.antweb.org
Figure 488	CASENT0910290	Zach Lieberman	www.antweb.org
Figure 489	CASENT0910292	Zach Lieberman	www.antweb.org
Figure 490	FOCOL2326	Christiana Klingenberg	www.antweb.org
Figure 491	CASENT0903579	Will Ericson	www.antweb.org (modified)
Figure 492	CASENT0280186	Will Ericson	www.antweb.org
Figure 493	JDM32-001255	Brian Heterick	www.antweb.org
Figure 494	CASENT0910599	Will Ericson	www.antweb.org
Figure 495	JDM32-001576	Brian Heterick	www.antweb.org
Figure 496	ANTWEB1008199	Museum Victoria	www.antweb.org
Figure 497	ANIC32-900028	Brian Heterick	www.antweb.org
Figure 498	CASENT0172019	April Nobile	www.antweb.org
Figure 499	ANIC32-900080-1	Paige Maroni	www.antweb.org (modified)
Figure 500	ANIC32-900082-1	Paige Maroni	www.antweb.org
Figure 501	ANIC32-900127-1	Brian Heterick	www.antweb.org
Figure 502	ANIC32-900128	Brian Heterick	www.antweb.org (modified)
Figure 503	ANIC32-900077	Steve Shattuck	www.antweb.org
Figure 504	CASENT0280499	Shannon Hartman	www.antweb.org (modified)
Figure 505	ANTWEB1008984	Brian Heterick	www.antweb.org
Figure 506	ANIC32-900003-1	Paige Maroni	www.antweb.org
Figure 507	ANIC32-900117-1	Paige Maroni	www.antweb.org
Figure 508	ANIC32-002000-1	Steve Shattuck	www.antweb.org
Figure 509	ANIC32-900071	Paige Maroni	www.antweb.org
Figure 510	CASENT0903265	Will Ericson	www.antweb.org
Figure 511	JDM32-004555	Steve Shattuck	www.antweb.org
Figure 512	ANIC32-900191-1	Steve Shattuck	www.antweb.org
Figure 513	ANTWEB1008665	Lucinda Gibson	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 514	ANTWEB1038563	Paige Maroni	www.antweb.org (modified)
Figure 515	ANIC32-900095	Paige Maroni	www.antweb.org (modified)
Figure 516	JDM32-001497-1	Steve Shattuck	www.antweb.org (modified)
Figure 517	ANIC32-900210	Steve Shattuck	www.antweb.org (modified)
Figure 518	ANIC32-066621	Paige Maroni	www.antweb.org
Figure 519	JDM32-066663-1	Steve Shattuck	www.antweb.org
Figure 520	JDM32-900179-1	Steve Shattuck	www.antweb.org
Figure 521	ANIC32-900180-1	Steve Shattuck	www.antweb.org
Figure 522	ANIC32-900145-1	Steve Shattuck	www.antweb.org
Figure 523	ANIC32-900181	Steve Shattuck	www.antweb.org
Figure 524	CASENT0909819	Zach Lieberman	www.antweb.org
Figure 525	ANIC32-900057-1	Steve Shattuck	www.antweb.org (modified)
Figure 526	ANIC32-900170	Steve Shattuck	www.antweb.org
Figure 527	ANTWEB1008994	Brian Heterick	www.antweb.org
Figure 528	ANIC32-900093	Paige Maroni	www.antweb.org
Figure 529	JDM32-001966-1	Steve Shattuck	www.antweb.org
Figure 530	JDM32-004668-1	Steve Shattuck	www.antweb.org
Figure 531	ANIC32-900174-1	Steve Shattuck	www.antweb.org
Figure 532	ANIC32-900148-1	Steve Shattuck	www.antweb.org (modified)
Figure 533	ANIC32-900175-1	Steve Shattuck	www.antweb.org (modified)
Figure 534	ANIC32-001958-1	Steve Shattuck	www.antweb.org
Figure 535	ANIC32-900112	Brian Heterick	www.antweb.org
Figure 536	ANIC32-066597-1	Brian Heterick	www.antweb.org
Figure 537	JDM32-00204	Steve Shattuck	www.antwiki.org
Figure 538	ANIC32-900209-1	Steve Shattuck	www.antweb.org
Figure 539	ANIC32-900177-1	Steve Shattuck	www.antweb.org
Figure 540	ANIC32-900172	Steve Shattuck	www.antweb.org
Figure 541	CASENT0903266	Will Ericson	www.antweb.org
Figure 542	ANTWEB1008988	Paige Maroni	www.antweb.org
Figure 543	ANIC32-900113-1	Steve Shattuck	www.antweb.org
Figure 544	CASENT0280488	Shannon Hartman	www.antweb.org (modified)
Figure 545	CASENT0280489	Shannon Hartman	www.antweb.org
Figure 546	ANIC32-900054-1	Paige Maroni	www.antweb.org
Figure 547	ANIC32-004561-1	Steve Shattuck	www.antweb.org
Figure 548	ANIC32-900119-1	Paige Maroni	www.antweb.org
Figure 549	ANIC32-900121-1	Paige Maroni	www.antweb.org
Figure 550	JDM32-004585	Steve Shattuck	www.antwiki.org
Figure 551	ANTWEB1038577	Paige Maroni	www.antweb.org
Figure 552	ANIC32-900147-1	Paige Maroni	www.antweb.org
Figure 553	ANTWEB1038566	Paige Maroni	www.antweb.org
Figure 554	ANIC32-053441-1	Brian Heterick	www.antweb.org
Figure 555	ANIC32-066647	Steve Shattuck	www.antweb.org
Figure 556	ANIC32-066657-1	Steve Shattuck	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 557	CASENT0905127	Will Ericson	www.antweb.org
Figure 558	ANTWEB1038575	Paige Maroni	www.antweb.org (modified)
Figure 559	JDM32-004589	Brian Heterick	www.antweb.org
Figure 560	ANIC32-900184-1	Steve Shattuck	www.antweb.org
Figure 561	CASENT0909812	Zach Lieberman	www.antweb.org
Figure 562	ANIC32-900173	Steve Shattuck	www.antweb.org
Figure 563	CASENT0909823	Zach Lieberman	www.antweb.org
Figure 564	ANTWEB1041111	Brian Heterick	www.antweb.org (modified)
Figure 565	ANTWEB1008664	Lucinda Gibson	www.antweb.org
Figure 566	ANIC32-006700-1	Paige Maroni	www.antweb.org
Figure 567	ANIC32-900183	Steve Shattuck	www.antweb.org
Figure 568	ANIC32-900142-2	Steve Shattuck	www.antweb.org (modified)
Figure 569	CASENT0903262	Will Ericson	www.antweb.org
Figure 570	ANIC32-900134	Steve Shattuck	www.antweb.org
Figure 571	ANIC32-900211	Steve Shattuck	www.antweb.org
Figure 572	JDM32-004852-1	Brian Heterick	www.antweb.org (modified)
Figure 573	ANIC32-900187	Paige Maroni	www.antweb.org
Figure 574	ANIC32-900189-1	Paige Maroni	www.antweb.org
Figure 575	JDM32-001885-1	Steve Shattuck	www.antweb.org
Figure 576	CASENT0217731	Shannon Hartman	www.antweb.org
Figure 577	JDM32-002051	Brian Heterick	www.antweb.org
Figure 578	CASENT0909837	Zach Lieberman	www.antweb.org
Figure 579	CASENT0909832	Zach Lieberman	www.antweb.org
Figure 580	CASENT0280564	Will Ericson	www.antweb.org
Figure 581	ANTWEB1041165	Brian Heterick	www.antweb.org (modified)
Figure 582	CASENT0915721	Harald Bruckner	www.antweb.org
Figure 583	CASENT0911022	Will Ericson	www.antweb.org (modified)
Figure 584	CASENT0903128	Will Ericson	www.antweb.org (modified)
Figure 585	ANTWEB1041154	Brian Heterick	www.antweb.org (modified)
Figure 586	CASENT0281146	Cerise Chen	www.antweb.org
Figure 587	CASENT0281139	Cerise Chen	www.antweb.org
Figure 588	CASENT0909942	Zach Lieberman	www.antweb.org
Figure 589	CASENT0905178	Will Ericson	www.antweb.org
Figure 590		Lucinda Gibson	www.padil.gov.au
Figure 591	CASENT0911017	Will Ericson	www.antweb.org
Figure 592	ANTWEB1041155	Brian Heterick	www.antweb.org
Figure 593	MCZ-21395	Steve Shattuck	www.antwiki.org
Figure 594	JDM32-002113	Brian Heterick	www.antweb.org (modified)
Figure 595	CASENT0217737	Shannon Hartman	www.antweb.org (modified)
Figure 596	JDM32-002114	Brian Heterick	www.antweb.org
Figure 597	CASENT0217738	Shannon Hartman	www.antweb.org
Figure 598	CASENT0910810	Will Ericson	www.antweb.org (modified)
Figure 599	CASENT0903335	Will Ericson	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 600	CASENT0906605	Michele Esposito	www.antweb.org
Figure 601	ANTWEB1041173	Brian Heterick	www.antweb.org
Figure 602	CASENT0910807	Will Ericson	www.antweb.org
Figure 603	ANTWEB1008702	Sarah McCaffrey	www.antweb.org
Figure 604	CASENT0910804	Zach Lieberman	www.antweb.org
Figure 605		Rudolf Kohout	www.antwiki.org
Figure 606	CASENT0281367	Cerise Chen	www.antweb.org (modified)
Figure 607		Rudolf Kohout	www.antwiki.org
Figure 608	ANTWEB1008707	Lucinda Gibson	www.antweb.org
Figure 609		Rudolf Kohout	www.antwiki.org
Figure 610	JDM32-004514	Brian Heterick	www.antweb.org (modified)
Figure 611		Steve Shattuck	www.antwiki.org
Figure 612	CASENT0910803	Zach Lieberman	www.antweb.org
Figure 613		Steve Shattuck	www.antwiki.org (modified)
Figure 614		Steve Shattuck	www.antwiki.org
Figure 615	CASENT0903302	Zach Lieberman	www.antweb.org
Figure 616	ANTWEB1041182	Brian Heterick	www.antweb.org (modified)
Figure 617	ANTWEB1041222	Brian Heterick	www.antweb.org (modified)
Figure 618		Steve Shattuck	www.antwiki.org
Figure 619	ANTWEB1008263	Lucinda Gibson	www.antweb.org
Figure 620	CASENT0906566	Estella Ortega	www.antweb.org
Figure 621	JDM32-002210	Brian Heterick	www.antweb.org
Figure 622	ANTWEB1041167	Brian Heterick	www.antweb.org (modified)
Figure 623	ANTWEB1041166	Brian Heterick	www.antweb.org (modified)
Figure 624		Farhan Bokhari	www.flickr.com
Figure 625	JDM32-002212	Brian Heterick	www.antweb.org
Figure 626	CASENT0910779	Zach Lieberman	www.antweb.org (modified)
Figure 627	CASENT0905559	Zach Lieberman	www.antweb.org (modified)
Figure 628	CASENT0910782	Zach Lieberman	www.antweb.org (modified)
Figure 629	ANTWEB1041170	Brian Heterick	www.antweb.org (modified)
Figure 630	ANTWEB1041432	Brian Heterick	www.antweb.org
Figure 631	ANTWEB1008708	Brian Heterick	www.antweb.org
Figure 632		Lucinda Gibson	www.padil.gov.au
Figure 633	CASENT0910772	Will Ericson	www.antweb.org
Figure 634	ANTWEB108699	Lucinda Gibson	www.padil.gov.au
Figure 635	CASENT0910777	Zach Lieberman	www.antweb.org (modified)
Figure 636	JDM32-002162	Brian Heterick	www.antweb.org (modified)
Figure 637	ANTWEB1041227	Brian Heterick	www.antweb.org
Figure 638	ANTWEB1041226	Brian Heterick	www.antweb.org
Figure 639	CASENT0915621	Isidor Plonski	www.antweb.org
Figure 640	JDM32-002199	Brian Heterick	www.antweb.org
Figure 641	CASENT0910775	Zach Lieberman	www.antweb.org
Figure 642	ANTWEB1041168	Brian Heterick	www.antweb.org (modified)

Figure	Specimen Number	Photographer/Author	Source
Figure 643	CASENT0281348	Michele Esposito	www.antweb.org
Figure 644	ANTWEB1008266	Lucinda Gibson	www.antweb.org (modified)
Figure 645	ANTWEB1008267	Lucinda Gibson	www.antweb.org
Figure 646	ANTWEB1041171	Brian Heterick	www.antweb.org
Figure 647	CASENT0910821	Will Ericson	www.antweb.org
Figure 648		Lucinda Gibson	www.padil.gov.au
Figure 649	ANTWEB1041172	Brian Heterick	www.antweb.org
Figure 650	JDM32-002131	Brian Heterick	www.antweb.org
Figure 651	JDM32-002150	Brian Heterick	www.antweb.org (modified)
Figure 652	CASENT0910822	Will Ericson	www.antweb.org
Figure 653	CASENT0910824	Will Ericson	www.antweb.org
Figure 654	CASENT0905580	Will Ericson	www.antweb.org
Figure 655	ANTWEB1008274	Lucinda Gibson	www.antweb.org
Figure 656	ANTWEB1008275	Lucinda Gibson	www.antweb.org
Figure 657	JDM32-002253	Brian Heterick	www.antweb.org
Figure 658	CASENT0217811	Will Ericson	www.antweb.org (modified)
Figure 659	JDM32-002267	Brian Heterick	www.antweb.org (modified)
Figure 660	CASENT0281473	Zach Lieberman	www.antweb.org
Figure 661	ANTWEB1041183	Brian Heterick	www.antweb.org (modified)
Figure 662	ANTWEB1041177	Brian Heterick	www.antweb.org
Figure 663	ANTWEB1008340	Lucinda Gibson	www.antweb.org
Figure 664	JDM32-002362	Brian Heterick	www.antweb.org
Figure 665	ANTWEB1008354	Museum Victoria	www.antweb.org
Figure 666	JDM32-002373	Brian Heterick	www.antweb.org
Figure 667	ANTWEB1008327	Lucinda Gibson	www.antweb.org
Figure 668	ANTWEB1008329	Lucinda Gibson	www.antweb.org
Figure 669	CASENT0172181	April Nobile	www.antweb.org (modified)
Figure 670	JDM32-002377	Brian Heterick	www.antweb.org
Figure 671	JDM32-002370-2	Brian Heterick	www.antweb.org
Figure 672	CASENT0217812	Will Ericson	www.antweb.org
Figure 673	JDM32-002334	Brian Heterick	www.antweb.org
Figure 674	ANTWEB1008334	Lucinda Gibson	www.antweb.org
Figure 675	CASENT0281495	Zach Lieberman	www.antweb.org
Figure 676	JDM32-004663	Brian Heterick	www.antweb.org
Figure 677	JDM32-002378	Brian Heterick	www.antweb.org (modified)
Figure 678	CASENT0912434	Zach Lieberman	www.antweb.org (modified)
Figure 679	JDM32-002375	Brian Heterick	www.antweb.org
Figure 680	ANTWEB1008342	Brian Heterick	www.antweb.org
Figure 681	ANTWEB1008719	Brian Heterick	www.antweb.org
Figure 682	ANTWEB1041179	Brian Heterick	www.antweb.org (modified)
Figure 683	JDM32-002382	Brian Heterick	www.antweb.org
Figure 684	JDM32-002367	Brian Heterick	www.antweb.org (modified)
Figure 685	CASENT0903231	Will Ericson	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 686	ANTWEB1008348	Lucinda Gibson	www.antweb.org (modified)
Figure 687	JDM32-002343	Brian Heterick	www.antweb.org
Figure 688	ANTWEB1041178	Brian Heterick	www.antweb.org
Figure 689	ANTWEB1008349	Lucinda Gibson	www.antweb.org (modified)
Figure 690	ANTWEB1008350	Lucinda Gibson	www.antweb.org
Figure 691	CASENT0903230	Will Ericson	www.antweb.org
Figure 692	JDM32-002347	Brian Heterick	www.antweb.org
Figure 693	JDM32-002376	Brian Heterick	www.antweb.org
Figure 694	ANTWEB1008719	Lucinda Gibson	www.antweb.org
Figure 695	ANTWEB1008337	Lucinda Gibson	www.antweb.org
Figure 696	CASENT0906280	Estella Ortega	www.antweb.org
Figure 697	CASENT0909935	Will Ericson	www.antweb.org
Figure 698	ANTWEB1041176	Brian Heterick	www.antweb.org
Figure 699	JDM32-002547	Brian Heterick	www.antweb.org
Figure 700	ANTWEB1008284	Lucinda Gibson	www.antweb.org (modified)
Figure 701	CASENT0907090	Zach Lieberman	www.antweb.org (modified)
Figure 702	CASENT0914018	Zach Lieberman	www.antweb.org
Figure 703	CASENT0217502	Shannon Hartman	www.antweb.org
Figure 704	CASENT0902793	Zach Lieberman	www.antweb.org
Figure 705	CASENT0915831	Anna Pal	www.antweb.org
Figure 706	FOCOLO814	Christiana Klingenberg	www.antweb.org
Figure 707	ANTWEB1041175	Brian Heterick	www.antweb.org (modified)
Figure 708		Fred and Jean Hort	www.flickr.com
Figure 709	CASENT0902790	Zach Lieberman	www.antweb.org
Figure 710	CASENT0914017	Zach Lieberman	www.antweb.org (modified)
Figure 711	JDM32-002522	Brian Heterick	www.antweb.org
Figure 712	JDM32-002458	Brian Heterick	www.antweb.org (modified)
Figure 713	CASENT0914022	Zach Lieberman	www.antweb.org (modified)
Figure 714	CASENT0912436	Zach Lieberman	www.antweb.org (modified)
Figure 715	CASENT0915833	Anna Pal	www.antweb.org (modified)
Figure 716	CASENT0914024	Zach Lieberman	www.antweb.org
Figure 717	CASENT0907095	Zach Lieberman	www.antweb.org (modified)
Figure 718	ANTWEB1008278	Lucinda Gibson	www.antweb.org
Figure 719	JDM32-002400	Brian Heterick	www.antweb.org
Figure 720	ANTWEB1008286	Lucinda Gibson	www.antweb.org
Figure 721	ANTWEB1041430	Brian Heterick	www.antweb.org
Figure 722	CASENT0902806	Zach Lieberman	www.antweb.org
Figure 723	CASENT0902801	Zach Lieberman	www.antweb.org (modified)
Figure 724	CASENT0907087	Zach Lieberman	www.antweb.org
Figure 725	CASENT0902804	Zach Lieberman	www.antweb.org
Figure 726	CASENT0907076	Will Ericson	www.antweb.org
Figure 727	CASENT0902802	Zach Lieberman	www.antweb.org
Figure 728		Robert Taylor	www.antwiki.org

Figure	Specimen Number	Photographer/Author	Source
Figure 729	JDM2-002441	Brian Heterick	www.antweb.org
Figure 730	ANTWEB1008282	Lucinda Gibson	www.antweb.org
Figure 731	ANTWEB1008288	Lucinda Gibson	www.antweb.org
Figure 732	CASENT0902808	Zach Lieberman	www.antweb.org
Figure 733	ANTWEB1008211	Museum Victoria	www.antweb.org (modified)
Figure 734	CASENT0902810	Zach Lieberman	www.antweb.org
Figure 735	ANTWEB1008295	Lucinda Gibson	www.antweb.org
Figure 736	CASENT0914036	Zach Lieberman	www.antweb.org (modified)
Figure 737	CASENT0902811	Zach Lieberman	www.antweb.org (modified)
Figure 738	ANIC32-017982	Steve Shattuck	www.antwiki.org
Figure 739	ANIC32-031016	Steve Shattuck	www.antwiki.org
Figure 740	CASENT0280943	Shannon Hartman	www.antweb.org (modified)
Figure 741	ANIC32-001132	Steve Shattuck	www.antwiki.org
Figure 742	CASENT0106211	Michael Branstetter	www.antweb.org
Figure 743	ANIC32-051957	Steve Shattuck	www.antwiki.org
Figure 744	CASENT0908350	Zach Lieberman	www.antweb.org
Figure 745	CASENT0914965	Zach Lieberman	www.antweb.org (modified)
Figure 746	CASENT0919732	Flavia Esteves	www.antweb.org (modified)
Figure 747	CASENT0908343	Will Ericson	www.antweb.org (modified)
Figure 748	CASENT0901419	Ryan Perry	www.antweb.org
Figure 749	ANTWEB1041174	Brian Heterick	www.antweb.org
Figure 750		Lucinda Gibson	www.padil.gov.au (modified)
Figure 751	CASENT0908904	Zach Lieberman	www.antweb.org
Figure 752	CASENT0902325	Will Ericson	www.antweb.org
Figure 753	JDM32-003562	Brian Heterick	www.antweb.org
Figure 754	ANTWEB1041388	Brian Heterick	www.antweb.org
Figure 755	JDM32-003494	Brian Heterick	www.antweb.org
Figure 756	CASENT0902320	Will Ericson	www.antweb.org
Figure 757		Farhan Bokhari	www.flickr.com
Figure 758	ANTWEB1041389	Brian Heterick	www.antweb.org (modified)
Figure 759	CASENT0902321	Will Ericson	www.antweb.org
Figure 760	JDM32-003501	Brian Heterick	www.antweb.org
Figure 761	CASENT0902292	Ryan Perry	www.antweb.org
Figure 762		Brian Heterick	www.antweb.org
Figure 763	CASENT0902311	Will Ericson	www.antweb.org
Figure 764	CASENT0902313	Will Ericson	www.antweb.org
Figure 765	CASENT0902298	Ryan Perry	www.antweb.org
Figure 766	ANTWEB1041200	Brian Heterick	www.antweb.org
Figure 767	ANTWEB1041199	Brian Heterick	www.antweb.org (modified)
Figure 768	ANTWEB1041201	Brian Heterick	www.antweb.org
Figure 769	ANTWEB1008205	Museum Victoria	www.antweb.org
Figure 770	CASENT0902301	Ryan Perry	www.antweb.org
Figure 771	CASENT0902300	Zach Lieberman	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 772	ANTWEB1041203	Brian Heterick	www.antweb.org
Figure 773	ANTWEB1041381	Brian Heterick	www.antweb.org
Figure 774	CASENT0902310	Will Ericson	www.antweb.org
Figure 775	CASENT0902326	Will Ericson	www.antweb.org
Figure 776	CASENT0902294	Zach Lieberman	www.antweb.org
Figure 777	JDM32-003548	Brian Heterick	www.antweb.org
Figure 778	CASENT0908671	Zach Lieberman	www.antweb.org
Figure 779	CASENT0908678	Zach Lieberman	www.antweb.org
Figure 780	ANTWEB1008681	Lucinda Gibson	www.antweb.org
Figure 781	CASENT0902312	Will Ericson	www.antweb.org
Figure 782	CASENT0902293	Ryan Perry	www.antweb.org
Figure 783	CASENT0217887	Estella Ortega	www.antweb.org (modified)
Figure 784	ANTWEB1041202	Brian Heterick	www.antweb.org
Figure 785	CASENT0900008	Will Ericson	www.antweb.org
Figure 786	CASENT0280689	Estella Ortega	www.antweb.org
Figure 787	CASENT0900006	Will Ericson	www.antweb.org (modified)
Figure 788	CASENT0280687	Estella Ortega	www.antweb.org (modified)
Figure 789	CASENT0900010	Will Ericson	www.antweb.org (modified)
Figure 790	MCZ-31163	Museum of Comparative Zoology	www.antwiki.org (modified)
Figure 791	CASENT0909352	Zach Lieberman	www.antweb.org (modified)
Figure 792	CASENT0908380	Will Ericson	www.antweb.org (modified)
Figure 793	CASENT0908379	Zach Lieberman	www.antweb.org (modified)
Figure 794	CASENT0908376	Zach Lieberman	www.antweb.org (modified)
Figure 795	CASENT0908379	Zach Lieberman	www.antweb.org (modified)
Figure 796	JDM32-003244	Zach Lieberman	www.antweb.org (modified)
Figure 797	CASENT0917801	Kate Martynova	www.antweb.org (modified)
Figure 798	CASENT0919693	Flavia Esteves	www.antweb.org (modified)
Figure 799	CASENT0908382	Will Ericson	www.antweb.org (modified)
Figure 800	JDM32-003247	Brian Heterick	www.antweb.org
Figure 801	JDM32-003260	Brian Heterick	www.antweb.org (modified)
Figure 802	CASENT0908602	Zach Lieberman	www.antweb.org
Figure 803	CASENT0908377	Zach Lieberman	www.antweb.org (modified)
Figure 804	CASENT0193616	Bonnie Blaimer	www.antweb.org (modified)
Figure 805	CASENT0919690	Anna Pal	www.antweb.org (modified)
Figure 806	ANTWEB1041184	Brian Heterick	www.antweb.org (modified)
Figure 807	CASENT0902135	Ryan Perry	www.antweb.org (modified)
Figure 808	CASENT0280691	Estella Ortega	www.antweb.org (modified)
Figure 809	ANIC32-003693	Steve Shattuck	www.antwiki.org (modified)
Figure 810	CASENT0900025	Will Ericson	www.antweb.org (modified)
Figure 811	ANIC32-003773	Steve Shattuck	www.antwiki.org (modified)
Figure 812	CASENT0911156	Zach Lieberman	www.antweb.org (modified)
Figure 813	ANIC32-007280	Steve Shattuck	www.antwiki.org (modified)
Figure 814	CASENT0900028	Will Ericson	www.antweb.org (modified)

Figure	Specimen Number	Photographer/Author	Source
Figure 815	CASENT0909353	Zach Lieberman	www.antweb.org (modified)
Figure 816	ANIC32-003699	Steve Shattuck	www.antwiki.org (modified)
Figure 817	ANTWEB1041387	Brian Heterick	www.antweb.org (modified)
Figure 818	CASENT0908938	Will Ericson	www.antweb.org (modified)
Figure 819	CASENT0922904	Wade Lee	www.antweb.org (modified)
Figure 820	CASENT0919723	Anna Pal	www.antweb.org (modified)
Figure 821	CASENT0908939	Will Ericson	www.antweb.org (modified)
Figure 822	CASENT0919717	Anna Pal	www.antweb.org (modified)
Figure 823	CASENT0902044	Ryan Perry	www.antweb.org (modified)
Figure 824	CASENT0919719	Anna Pal	www.antweb.org
Figure 825			www.antwiki.org (modified)
Figure 826	CASENT0908937	Will Ericson	www.antweb.org
Figure 827	ANTWEB1041386	Brian Heterick	www.antweb.org
Figure 828	CASENT0919724	Anna Pal	www.antweb.org (modified)
Figure 829	CASENT0919715	Anna Pal	www.antweb.org (modified)
Figure 830	ANTWEB1041198	Brian Heterick	www.antweb.org
Figure 831	ANTWEB1041196	Brian Heterick	www.antweb.org
Figure 832	ANTWEB1041220	Brian Heterick	www.antweb.org
Figure 833	CASENT0902047	Ryan Perry	www.antweb.org (modified)
Figure 834	JDM32-003336	Brian Heterick	www.antweb.org
Figure 835	CASENT0902049	Ryan Perry	www.antweb.org
Figure 836	JDM32-003330	Brian Heterick	www.antweb.org
Figure 837	ANTWEB1041193	Brian Heterick	www.antweb.org
Figure 838	JDM32-003453	Brian Heterick	www.antweb.org
Figure 839	CASENT0902050	Ryan Perry	www.antweb.org
Figure 840	CASENT0902046	Ryan Perry	www.antweb.org (modified)
Figure 841	CASENT0908945	Will Ericson	www.antweb.org (modified)
Figure 842	CASENT0908944	Will Ericson	www.antweb.org
Figure 843	ANTWEB1041194	Brian Heterick	www.antweb.org
Figure 844	ANTWEB1041195	Brian Heterick	www.antweb.org (modified)
Figure 845	ANTWEB1041197	Brian Heterick	www.antweb.org
Figure 846	JDM32-003456	Brian Heterick	www.antweb.org
Figure 847	JDM32-003468	Brian Heterick	www.antweb.org
Figure 848	CASENT0902052	Ryan Perry	www.antweb.org (modified)
Figure 849	JDM32-003382	Brian Heterick	www.antweb.org
Figure 850	CASENT0902043	Ryan Perry	www.antweb.org (modified)
Figure 851	ANTWEB1041186	Brian Heterick	www.antweb.org
Figure 852	JDM32-003422	Brian Heterick	www.antweb.org
Figure 853	JDM32-003425	Brian Heterick	www.antweb.org
Figure 854	CASENT0906545	Estella Ortega	www.antweb.org
Figure 855	JDM32-003465	Brian Heterick	www.antweb.org
Figure 856	ANTWEB1041219	Brian Heterick	www.antweb.org (modified)
Figure 857	JDM32-000600	Brian Heterick	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 858		Lucinda Gibson	www.padil.gov.au (modified)
Figure 859	JDM32-003473	Brian Heterick	www.antweb.org
Figure 860	FOCOL1935	Christiana Klingenberg	www.antweb.org
Figure 861	ANTWEB1041191	Brian Heterick	www.antweb.org
Figure 862	ANTWEB1041189	Brian Heterick	www.antweb.org (modified)
Figure 863	ANTWEB1041190	Brian Heterick	www.antweb.org
Figure 864	ANTWEB1041187	Brian Heterick	www.antweb.org
Figure 865	CASENT0902048	Ryan Perry	www.antweb.org
Figure 866	ANTWEB1041192	Brian Heterick	www.antweb.org
Figure 867	CASENT0913021	Will Ericson	www.antweb.org (modified)
Figure 868	JDM32-003462	Brian Heterick	www.antweb.org
Figure 869	ANTWEB1041185	Brian Heterick	www.antweb.org (modified)
Figure 870	JDM32-003436	Brian Heterick	www.antweb.org
Figure 871		Sarah McCaffrey	www.padil.gov.au
Figure 872		Lucinda Gibson	www.padil.gov.au
Figure 873	CASENT0911195	Zach Lieberman	www.antweb.org (modified)
Figure 874	CASENT0172468	April Nobile	www.antweb.org (modified)
Figure 875	CASENT0172474	April Nobile	www.antweb.org (modified)
Figure 876	CASENT0172477	April Nobile	www.antweb.org (modified)
Figure 877	JDM32-003820	Brian Heterick	www.antweb.org
Figure 878	CASENT0902303	Zach Lieberman	www.antweb.org
Figure 879	CASENT0902297	Zach Lieberman	www.antweb.org (modified)
Figure 880	CASENT0902291	Zach Lieberman	www.antweb.org (modified)
Figure 881	CASENT0902323	Will Ericson	www.antweb.org
Figure 882		Lucinda Gibson	www.padil.gov.au (modified)
Figure 883	CASENT0902302	Zach Lieberman	www.antweb.org
Figure 884	JDM32-003579	Brian Heterick	www.antweb.org
Figure 885	CASENT0913586	Zach Lieberman	www.antweb.org (modified)
Figure 886	CASENT0916010	Anna Pal	www.antweb.org
Figure 887		Lucinda Gibson	www.padil.gov.au (modified)
Figure 888	CASENT0908769	Will Ericson	www.antweb.org
Figure 889	CASENT0902289	Zach Lieberman	www.antweb.org
Figure 890	CASENT0916019	Anna Pal	www.antweb.org
Figure 891		Lucinda Gibson	www.padil.gov.au
Figure 892	CASENT0902315	Will Ericson	www.antweb.org
Figure 893	CASENT0904587	Zach Lieberman	www.antweb.org
Figure 894	CASENT0902287	Zach Lieberman	www.antweb.org
Figure 895	ANIC32-015689-1	Brian Heterick	www.antweb.org (modified)
Figure 896	CASENT0902324	Will Ericson	www.antweb.org (modified)
Figure 897	ANIC32-015672-1	Brian Heterick	www.antweb.org (modified)
Figure 898	CASENT0171086	Eli M. Sarnat	www.antweb.org (modified)
Figure 899	CASENT0217889	Estella Ortega	www.antweb.org
Figure 900	CASENT0908698	Will Ericson	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 901	CASENT0902314	Will Ericson	www.antweb.org (modified)
Figure 902	CASENT0905835	Will Ericson	www.antweb.org (modified)
Figure 903	CASENT012458	April Nobile	www.antweb.org
Figure 904	CASENT0915459	Will Ericson	www.antweb.org (modified)
Figure 905	CASENT0101327	Nick Olgeirson	www.antweb.org (modified)
Figure 906	CASENT0056016	Shannon Hartman	www.antweb.org (modified)
Figure 907	ANTWEB1041214	Brian Heterick	www.antweb.org
Figure 908	ANTWEB1008698	Lucinda Gibson	www.antweb.org (modified)
Figure 909	CASENT0908016	Zach Lieberman	www.antweb.org
Figure 910	ANTWEB1041210	Brian Heterick	www.antweb.org (modified)
Figure 911	CASENT0901400	Ryan Perry	www.antweb.org
Figure 912	CASENT0908046	Will Ericson	www.antweb.org (modified)
Figure 913		Lucinda Gibson	www.padil.gov.au
Figure 914	JDM32-004001-2	Brian Heterick	www.antweb.org (modified)
Figure 915	CASENT0904305	Will Ericson	www.antweb.org (modified)
Figure 916	ANTWEB1041205	Brian Heterick	www.antweb.org (modified)
Figure 917	ANTWEB1041207	Brian Heterick	www.antweb.org (modified)
Figure 918	JDM32-003971-2	Brian Heterick	www.antweb.org (modified)
Figure 919	ANTWEB1041213	Brian Heterick	www.antweb.org (modified)
Figure 920	CASENT0908010	Zach Lieberman	www.antweb.org (modified)
Figure 921	ANTWEB1041216	Brian Heterick	www.antweb.org (modified)
Figure 922	ANTWEB1008221	Lucinda Gibson	www.antweb.org (modified)
Figure 923	CASENT0908030	Zach Lieberman	www.antweb.org (modified)
Figure 924	FOCOL1410	Christiana Klingenberg	www.antweb.org (modified)
Figure 925	CASENT0901547	Will Ericson	www.antweb.org
Figure 926	CASENT0908063	Will Ericson	www.antweb.org
Figure 927	JDM32-003967-2	Brian Heterick	www.antweb.org (modified)
Figure 928	JDM32-004012	Brian Heterick	www.antweb.org
Figure 929	CASENT0907764	Will Ericson	www.antweb.org (modified)
Figure 930	ANTWEB1041209	Brian Heterick	www.antweb.org (modified)
Figure 931	CASENT0908045	Will Ericson	www.antweb.org
Figure 932	CASENT0917761	Kate Martynova	www.antweb.org
Figure 933	CASENT0010804	April Nobile	www.antweb.org (modified)
Figure 934	CASENT0063124	April Nobile	www.antweb.org
Figure 935	ANTWEB1041211	Brian Heterick	www.antweb.org
Figure 936	CASENT0101326	Nick Olgeirson	www.antweb.org
Figure 937	CASENT0901401	Ryan Perry	www.antweb.org
Figure 938	CASENT0907763	Will Ericson	www.antweb.org (modified)
Figure 939	ANTWEB1041208	Brian Heterick	www.antweb.org (modified)
Figure 940	ANTWEB1041204	Brian Heterick	www.antweb.org
Figure 941	JDM32-003971-1	Brian Heterick	www.antweb.org
Figure 942	CASENT0901543	Will Ericson	www.antweb.org
Figure 943	CASENT0904304	Will Ericson	www.antweb.org

Figure	Specimen Number	Photographer/Author	Source
Figure 944	FOCOL1411	Christiana Klingenberg	www.antweb.org
Figure 945	CASENT0908060	Will Ericson	www.antweb.org (modified)
Figure 946	ANTWEB1041212	Brian Heterick	www.antweb.org (modified)
Figure 947	ANTWEB1041221	Brian Heterick	www.antweb.org
Figure 948	CASENT0908062	Will Ericson	www.antweb.org
Figure 949	JDM32-003967-1	Brian Heterick	www.antweb.org (modified)
Figure 950	CASENT0901546	Will Ericson	www.antweb.org (modified)
Figure 951	CASENT0908009	Alexandra Westrich	www.antweb.org (modified)
Figure 952	CASENT0901548	Will Ericson	www.antweb.org
Figure 953	FOCOL1419	Christiana Klingenberg	www.antweb.org
Figure 954	CASENT0901997	Will Ericson	www.antweb.org
Figure 955	ANTWEB1008298	Lucinda Gibson	www.antweb.org (modified)
Figure 956	FOCOL1965	Christiana Klingenberg	www.antweb.org (modified)
Figure 957	CASENT0908972	Will Ericson	www.antweb.org (modified)
Figure 958	FOCOL1961	Christiana Klingenberg	www.antweb.org
Figure 959	CASENT0908968	Will Ericson	www.antweb.org
Figure 960	ANTWEB1041217	Brian Heterick	www.antweb.org
Figure 961	CASENT0905751	Will Ericson	www.antweb.org
Figure 962	JDM32-004060	Brian Heterick	www.antweb.org (modified)
Figure 963	CASENT0916588	Flavia Esteves	www.antweb.org (modified)
Figure 964	ANTWEB1008160	Lucinda Gibson	www.antweb.org
Figure 965	ANTWEB1008161	Lucinda Gibson	www.antweb.org
Figure 966	CASENT0908874	Zach Lieberman	www.antweb.org
Figure 967	CASENT0902365	Ryan Perry	www.antweb.org (modified)
Figure 968	ANTWEB1032316	Julio Chaul	www.antweb.org (modified)
Figure 969	ANIC32-063120	Julio Chaul	www.antweb.org (modified)
Figure 970	CASENT0217956	Estella Ortega	www.antweb.org (modified)
Figure 971	CASENT0900905	Ryan Perry	www.antweb.org (modified)
Figure 972	CASENT0235201	Will Ericson	www.antweb.org (modified)
Figure 973	CASENT0249091	Ryan Perry	www.antweb.org
Figure 974	CASENT0101490	April Nobile	www.antweb.org (modified)
Figure 975	ANTWEB1041218	Brian Heterick	www.antweb.org
Figure 976	CASENT0901052	Will Ericson	www.antweb.org
Figure 977	ANTWEB1041224	Brian Heterick	www.antweb.org
Figure 978	CASENT0280872	Estella Ortega	www.antweb.org
Figure 979	ANTWEB1041223	Brian Heterick	www.antweb.org
Figure 980	ANTWEB1041225	Brian Heterick	www.antweb.org
Figure 981	JDM32-004201	Brian Heterick	www.antweb.org
Figure 982	CASENT0901041	Will Ericson	www.antweb.org
Figure 983	JDM32-004192	Brian Heterick	www.antweb.org
Figure 984	JDM32-004194	Brian Heterick	www.antweb.org
Figure 985	MCZ-ENT00032270		www.antwiki.org
Figure 986	CASENT0280873	Estella Ortega	www.antweb.org (modified)

Figure	Specimen Number	Photographer/Author	Source
Figure 987	JDM32-004835	Brian Heterick	www.antweb.org
Figure 988		Lucinda Gibson	www.padil.gov.au
Figure 989		Farhan Bokhari	www.flickr.com
Figure 990	CASENT0280871	Estella Ortega	www.antweb.org
Figure 991	JDM32-004197	Brian Heterick	www.antweb.org
Figure 992		Lucinda Gibson	www.padil.gov.au
Figure 993	ANIC32-015875	Steve Shattuck	www.antwiki.org
Figure 994	CASENT0903977	Zach Lieberman	www.antweb.org
Figure 995	CASENT0907410	Zach Lieberman	www.antweb.org (modified)
Figure 996	ANIC32-044213	Steve Shattuck	www.antwiki.org
Figure 997	ANIC32-029652	Steve Shattuck	www.antwiki.org
Figure 998	JDM32-002685	Brian Heterick	www.antweb.org
Figure 999	CASENT0915868	Anna Pal	www.antweb.org
Figure 1000	CASENT0915192	Zach Lieberman	www.antweb.org
Figure 1001	CASENT0915877	Anna Pal	www.antweb.org
Figure 1002		Sarah McCaffrey	www.padil.gov.au
Figure 1003	CASENT0902622	Zach Lieberman	www.antweb.org
Figure 1004		Lucinda Gibson	www.padil.gov.au
Figure 1005	CASENT0902623	Zach Lieberman	www.antweb.org
Figure 1006	CASENT0217532	Shannon Hartman	www.antweb.org
Figure 1007	CASENT0281943	Shannon Hartman	www.antweb.org
Figure 1008	CASENT0900648	Ryan Perry	www.antweb.org (modified)
Figure 1009	CASENT0907440	Will Ericson	www.antweb.org (modified)
Figure 1010	CASENT0907116	Zach Lieberman	www.antweb.org
Figure 1011	ANTWEB1041117	Brian Heterick	www.antweb.org
Figure 1012	CASENT0907118	Will Ericson	www.antweb.org (modified)
Figure 1013	ANTWEB1008181	Lucinda Gibson	www.antweb.org (modified)
Figure 1014	CASENT0172406	April Nobile	www.antweb.org
Figure 1015	CASENT0900577	Ryan Perry	www.antweb.org (modified)
Figure 1016	CASENT0907316	Will Ericson	www.antweb.org
Figure 1017	ANTWEB1041118	Brian Heterick	www.antweb.org
Figure 1018	ANTWEB1041119	Brian Heterick	www.antweb.org
Figure 1019	CASENT0903892	Will Ericson	www.antweb.org
Figure 1020	CASENT0907259	Will Ericson	www.antweb.org (modified)
Figure 1021	CASENT0903894	Will Ericson	www.antweb.org
Figure 1022	CASENT0902502	Will Ericson	www.antweb.org (modified)
Figure 1023	CASENT0172123	April Nobile	www.antweb.org
Figure 1024	CASENT0903858	Will Ericson	www.antweb.org (modified)
Figure 1025	CASENT0172090	April Nobile	www.antweb.org (modified)
Figure 1026	ANTWEB1008163	Lucinda Gibson	www.antweb.org (modified)
Figure 1027	CASENT0901931	Ryan Perry	www.antweb.org
Figure 1028	CASENT0907468	Will Ericson	www.antweb.org