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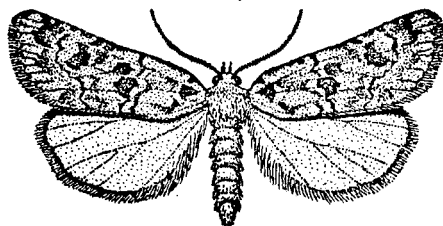
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# EOS

REVISTA ESPAÑOLA DE ENTOMOLOGÍA



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## F E D E R R A T A S

(EOS, t. LII)

En las páginas que a continuación se relacionan, las CABECERAS están alteradas. Por tanto, deben considerarse rectificadas así:

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Páginas 389-391-393-395-397: DESCRIPCIÓN DE «BURSOPLOPHORA IBERICA» NOV. G., NOV. SP.

# A provisional list of Iberian *Formicidae* with a key to the worker caste

(Hym. Aculeata)

BY

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(Lawnswood, Leeds).

Material is being collected towards a complete mapping of the ants of Spain, Balearics and Portugal under the organisation of Professor A. de Haro, Universidad Autónoma, Bellaterra, Barcelona. To encourage collectors and facilitate recording, the following list of species and keys to the worker castes have been prepared. Both lists and keys are of a provisional nature as some of the earlier records are doubtful and in many cases correct synonymy has not been established and must await extensive revisionary studies. Keys to the worker caste only are possible at this time since ♂♂ are still unknown for many of the species groups apart from *Myrmica*, *Lasius* and *Formica*. Both lists and keys include species known to occur in the French Pyrenees but not yet recorded for Spain since they are likely to be present and eventually discovered in adjacent areas on the Spanish side of the frontier. Out of a total of 200 species listed here, a few have been omitted from the keys where specimens have not been available for examination and original descriptions have been inadequate to distinguish them clearly. At the same time, some species names are included even where it is suspected that further study may show them to be synonyms or where no certain records exist. It is hoped that collectors will point out defects in the keys and provide additional records so that a fuller and more accurate text can be prepared in due course.

## LIST OF SPECIES:

Refs.: I = Ceballos, 1956; II = Collingwood and Yarrow, 1969; III = Schmitz, 1955;  
IV = Unpublished or other records.

		<i>French Pyr.</i>	<i>Spain S C N</i>	<i>Balea- ric I.</i>	<i>Portu- gal</i>
<b>DORYLINAE</b>					
I	<i>Dorylus (Typhlopone) fulvus</i> Westwood		X	X	
<b>PONERINAE</b>					
<b>ODONTOMACHINI</b>					
I II	<i>Anochetus ghiliani</i> Spin. ... ..		X		
I	<i>A. sedilloti</i> Em. ... ..		X		
<b>PONERINI</b>					
I II	<i>Ponera coarctata</i> Latr. ( <i>P. testacea</i> Em.)		XXX	X	X
I	<i>Hypoponera punctatissima</i> (Rog.) ... ..		XX		
I II	<i>H. eduardi</i> (Forel) ... ..		X	X	
I II	<i>Cryptopone ochracea</i> (Mayr) ... ..		XX	X	
<b>AMBLYOPONINI</b>					
I II	<i>Amblyopone denticulatum</i> (Roger) ... ..		X		
<b>PROCERATINI</b>					
I II IV	<i>Proceratium melinum</i> (Roger) ... ..	X		XX	
<b>MYRMICINAE</b>					
<b>DACETINI</b>					
I II	<i>Smithistruma baudueri</i> (Em.) ... ..		XXX		
<b>MYRMICINI</b>					
I II IV	<i>Myrmica ruginodis</i> Nyl. ... ..	X		XXX	
I II	<i>M. sulcinodis</i> Nyl. ... ..	X		X	

		French Pyr.	Spain S C N	Balea- ric I.	Portu- gal
IV	<i>M. gallieni</i> Bondroit ... ..		X		
I II III	<i>M. aloba</i> Forel ( <i>M. rolandi</i> Bond., <i>partim</i> , <i>M. albuferensis</i> Lomn.) ... ..	X	XX	X	X
I	<i>M. rugulosa</i> Nyl. ... ..	X	X		
II	<i>M. specioides</i> Bond. ... ..	X	X		
I II	<i>M. scabrinodis</i> Nyl. ( <i>M. rolandi</i> Bond., <i>partim</i> ) ... ..	X	XXX		
I II	<i>M. sabuleti</i> Mein. ... ..	X	XXX		
II	<i>M. schencki</i> Em. ... ..	X	X		
I II	<i>M. lobicornis</i> Nyl. ( <i>M. wesmaeli</i> Bond.)	X	XX		
I II	<i>M. rubra</i> L. ... ..	X	XX		
I	<i>Manica rubida</i> (L.) ... ..		X?		

PHEIDOLINI

I II	<i>Stenammina westwoodii</i> West. ... ..		XXX		
II	<i>S. sardoum</i> Em. ... ..		X		
I II III	<i>Aphaenogaster gibbosa</i> Latr. ( <i>A. gibbosa</i> v. <i>barcinensis</i> Men.; v. <i>laevior</i> For.) ... ..	X	XXX		X
I II	<i>A. striativentris</i> Forel ( <i>A. gibbosa</i> v. <i>striativentris</i> For.) ... ..		X		
I II	<i>A. strioloides</i> Forel ... ..		X		
I II	<i>A. subterranea</i> (Latr.) ... ..	X	XX	X	
II	<i>A. subterraneoides</i> Em. ... ..		X		
I II III	<i>A. dulcineae</i> Sants. ( <i>A. pallida</i> v. <i>dulcineae</i> Sants.) ... ..		X		X
I II III	<i>A. senilis</i> Mayr ( <i>A. testaceopilosa</i> v. <i>senilis</i> Mayr, v. <i>fuentei</i> Medina) ... ..	X	XXX		X
I II	<i>A. gemella</i> (Rog.) ... ..		X	X	X
I II III	<i>A. iberica</i> Em. ( <i>A. ionica</i> Viehmeyer) ... ..		XXX		X
I II	<i>A. angusta</i> Sants. ... ..		X		
I	<i>A. splendida</i> Rog. ... ..		X		
I	<i>A. crocea</i> André ... ..		X		
I	<i>A. sardoa</i> Em. ... ..		X		
I II	<i>Goniomma hispanicum</i> André ... ..		XX		

		French Pyr.	Spain S C N	Balea- ric I.	Portu- gal
II	<b>G. blanci</b> André ... ..		X		
II	<b>G. tunetica</b> Forel ... ..		X		X
I	<b>Oxyopomyrmex sauleyi</b> Em. ( <i>O. sauleyi</i> v. <i>cabreræ</i> For.) ... ..		X		
I II III	<b>Messor barbarus</b> (L.) ( <i>ambiguus</i> Sants., <i>nigriceps</i> Sants.) ... ..	X	XXX	X	X
I II III	<b>M. capitatus</b> (Latr.) ( <i>barbarus</i> r. <i>nigra</i> André) ... ..	X	XXX		X
I II	<b>M. ibericus</b> Em. ( <i>sordida</i> Bond., <i>sordi-</i> <i>da</i> Forel?) ... ..		XXX		
I II	<b>M. hispanicus</b> Sants. ( <i>hispanicus</i> v. <i>lu-</i> <i>sitanica</i> Sants.) ... ..		X	X	X
I II III	<b>M. bouvieri</b> Bond. ( <i>M. sanctus</i> subsp. <i>bouvieri</i> Bond., <i>M. sancta</i> v. <i>gran-</i> <i>diceps</i> Stitz) ... ..	X	XXX	X	X
II	<b>M. maroccana</b> Em. ... ..		XX		X
I	<b>M. meridionalis</b> (André) ( <i>wasmanni</i> Krausse?) ... ..		X		
I II	<b>M. structor</b> (Latr.) ... ..	X	XXX	X	X
I	<b>M. rufitarsis</b> (Fab.) ( <i>structor</i> v. <i>tyrrhe-</i> <i>na</i> Em.?) ... ..			X	
II	<b>M. lobicornis</b> Forel ... ..		X		
IV	<b>M. sp.</b> ... ..		X		X
I II III	<b>Pheidole pallidula</b> Nyl. ( <i>pallidula</i> v. <i>ci-</i> <i>atricosa</i> Sants.) ... ..	X	XXX	X	X
I	<b>P. megacephala</b> Fab.? ... ..		XX		
III	<b>P. symbiotica</b> Wasmann ( <i>pallidula</i> v. <i>symbiotica</i> Wasmann) ... ..				X

## MYRMECININI

II III	<b>Myrmecina graminicola</b> Latr. ... ..	X	XXX	X	X
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## CREMASTOGASTRINI

I II III	<b>Cremastogaster scutellaris</b> Ol. ... ..	X	XXX	X	X
III	<b>C. algerica</b> Lucas ... ..				X

		French Pyr.	Spain S C N	Balea- ric I.	Portu- gal
I II III	<i>C. auberti</i> Em. ( <i>auberti</i> v. <i>iberica</i> Forel)	X	XXX		X
I	<i>C. laestrygon</i> Em. ( <i>C. laestrygon</i> subsp. <i>vaucheri</i> Em.) ... ..		X		
I II	<i>C. laestrygon submaura</i> Lomn. ... ..			X	
I	<i>C. fuentei</i> Menozzi ( <i>C. inermis</i> subsp. <i>fuentei</i> Men.) ... ..		X		
I II	<i>C. sordidula</i> Nyl. ... ..	X	XXX	X	X

## SOLENOPSIDINI

I	<i>Phacota sicheli</i> Roger ... ..		X		
I IV	<i>Monomorium minutum</i> ( <i>andrei</i> Saunders) ... ..		X		
I	<i>M. pharaonis</i> (L.) ... ..		X		
III	<i>M. salomonis</i> (L.) ( <i>salomonis</i> v. <i>obscurata</i> ) ... ..		XX	X	
I II	<i>M. subopacum</i> Em. ... ..		X	X	
I II	<i>Diplorhoptum fugax</i> (Latr.) ... ..	X	X		
II	<i>D. monticola</i> Bernard. ... ..	X	X		
IV	<i>D. robusta</i> Em. ... ..		XX		
II	<i>D. nicaense</i> Bernard ... ..	X	X		
I II	<i>D. latro</i> Forel ... ..		XXX		
I II	<i>D. orbula</i> Em. ... ..		XX		
I II	<i>D. fairchildi</i> Wheeler ... ..		X	X	
I II III	<i>D. lusitanica</i> Em. ... ..		X		X
III	<i>D. oraniensis</i> Em. ... ..				X

## LEPTOTHORACINI

IV	<i>Chalepoxenus</i> sp. Sants. ... ..		X		
II	<i>Harpogoxenus sublaevis</i> (Nyl.) ... ..	X			
I II	<i>Temnothorax recedens</i> (Nyl.) ( <i>T. recedens</i> v. <i>pictus</i> , v. <i>suberis</i> Forel) ... ..		XXX	X	
I	<i>T. mordax</i> Sants. ... ..		X		
I	<i>Leptothorax acervorum</i> (Fab.) ... ..	X	X		
II	<i>L. muscorum</i> (Nyl.) ... ..	X			
IV	<i>L. grecleri</i> Mayr ... ..		X		

		French Pyr.	Spain S C N	Balea- ric I.	Portu- gal
I	<i>L. rottenbergi</i> Em. ....		XX		
I II	<i>L. fuentei</i> Sants. ....		XX		
I II	<i>L. baeticus</i> Em. ....		X		
I II	<i>L. angustulus</i> Nyl. ....	X	X X	X	
I II	<i>L. nigrita</i> Em. ....	X	XXX		
I II IV	<i>L. specularis</i> Em. ( <i>L. exilis</i> v. <i>specularis</i> Em.) ....		XX	X	
I	<i>L. flavispinus</i> André ....		X		
I II	<i>L. nylanderi</i> (Foerst) ( <i>L. cingulata</i> Sch.)	X	XX		X
I II	<i>L. lichtensteini</i> Bond. ....		XXX	X	X
I II	<i>L. corticalis</i> (Schenck) ....		XX		X
I II	<i>L. cervantesi</i> Sants. ....		XXX		
I II	<i>L. niger</i> Forel ....	X	X		
I II	<i>L. tuberum</i> (Fab.) ....	X	XX		X
I	<i>L. melanocephalum</i> Em. ....		X		
I II IV	<i>L. unifasciatus</i> (Latr.) ....	X	XXX		X
II	<i>L. interruptus</i> (Sch.) ....		X X		
IV	<i>L. leviceps</i> Em. ....		X		
I	<i>L. subcingulata</i> Em. ( <i>L. luteus</i> v. <i>subcingulata</i> Em.) ....		XX		
I II	<i>L. luteus</i> Forel ....		XX		
II	<i>L. massiliensis</i> Bond. ....		X		
I	<i>L. glaber</i> Sants. ....		X		
II	<i>L. tristis</i> Forel ....		X		
II	<i>L. rabaudi</i> Bond. ....		XX		
II IV	<i>L. berlandi</i> Bond. ....		XXX		
I II IV	<i>L. racovitzae</i> Em. ....		XXX		X
I	<i>L. affinis</i> Mayr ....		X		
I	<i>L. schaufussi</i> Mayr ....		X		
I	<i>L. ibericus</i> Menozzi ....		?		
II	<i>Formicoxenus nitidulus</i> Nyl. ....	X	X		

## TETRAMORIINI

II	<i>Strongylognathus testaceus</i> Sch. ....	X	X		
I II	<i>S. caeciliae</i> For. ( <i>afér</i> Em.) ....		XXX		



		<i>French Pyr.</i>	<i>Spain S C N</i>	<i>Balea- ric I.</i>	<i>Portu- gal</i>
I II III	<i>Tetramorium caespitum</i> L. ... ..	X	XXX	X	X
IV	<i>T. fortis</i> Forel ( <i>T. silvestrianum</i> Em.)		X		
I II	<i>T. hispanica</i> Em. ( <i>ruginodis</i> Stitz) ...	X	XXX	X	X
I II III	<i>T. semilaevis</i> André ... ..	X	XXX	X	X
I II	<i>T. punicum</i> Smith ... ..		XX	X	
I II III	<i>T. meridionale</i> Em. ... ..	X	XXX	X	X
I II	<i>T. maura</i> Sants. ... ..		?		X
II	<i>Anergates atratulus</i> Sch. ... ..		X		

CARDIOCONDYLINI

II	<i>Cardiocondyla elegans</i> Nyl. ... ..		X		
I II IV	<i>C. batesi</i> Forel ... ..		XX		

DOLICHODERINAE

DOLICHODERINI

I IV	<i>Dolichoderus</i> ( <i>Hypoclinea</i> ) <i>quadripunctatus</i> (L.) ... ..	X	X X		
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TAPINOMINI

I	<i>Liometopum microcephalum</i> (Panz.) ...		?		
I II	<i>Bothriomyrmex meridionalis</i> Rog. ...		X		X
I IV	<i>B. saundersi</i> Sants. ( <i>rogeri</i> Em.) ...		X		
I II	<i>B. laticeps</i> Emery ... ..	X	X		
I	<i>B. hispanicus</i> Sants. ... ..		XX		
I II	<i>Iridomyrmex humilis</i> Mayr ... ..	X	XXX	X	X
I II III	<i>Tapinoma erraticum</i> (Latr.) ... ..	X	XXX		X
I II III	<i>T. nigerrimum</i> Nyl. ( <i>T. ibericum</i> Sants.)	X	XXX	X	X
I II III	<i>T. simrothi</i> Krausse ... ..		X X		X

FORMICINAE

PLAGIOLEPIDINI

I II III	<i>Plagiolepis pygmaea</i> (Latr.) ... ..	X	XXX	X	X
I II III	<i>P. schmitzii</i> Forel ( <i>barbara</i> Sants., <i>crozi</i> Sants.) ... ..	X	XXX	X	X
I	<i>Acantholepis frauenfeldi</i> Mayr ( <i>v. nigra</i> )			X	

		French Pyr.	Spain S C N	Balea- ric I.	Portu- gal
<b>LASIINI</b>					
I II III	<i>Lasius niger</i> (L.) ... ..	X	XXX	X	X
I II III	<i>L. emarginatus</i> (Ol.) ... ..	X	XX		X
I II III	<i>L. alienus</i> (Foerst.) ... ..	X	XXX		X
I II III IV	<i>L. brunneus</i> (Latr.) ... ..	X	XXX		X
I II	<i>L. fuliginosus</i> (Latr.) ... ..	X	XX		
I II	<i>L. umbratus</i> (Nyl.) ... ..		X		
II	<i>L. rabaudi</i> Bond. ... ..		XX		
I II	<i>L. mixtus</i> (Nyl.) ... ..	X	XX		
IV	<i>L. distinguenda</i> Em. ... ..		X		
II	<i>L. affinis</i> (Sch.) ... ..		X		
I	<i>L. carniolicus</i> Mayr ... ..	X	X		
IV	<i>L. sp.</i> ... ..		X		
I II III	<i>L. flavus</i> (Fabr.) ( <i>L. umbratus</i> v. <i>sanchos</i> Sants.) ... ..	X	XXX		X
<b>CAMPONOTINI</b>					
I II	<i>Camponotus herculeanus</i> L. ... ..	X	X		
I II	<i>C. ligniperdus</i> Latr. ... ..	X	XX		
I II	<i>C. vagus</i> Sch. ... ..	X	XX		X
I II IV	<i>C. fallax</i> Nyl. ( <i>C. caryae</i> Fitch) ... ..	X	XXX		X
I II III	<i>C. cruentatus</i> Latr. ... ..	X	XXX		X
I II III	<i>C. micans</i> Nyl. ( <i>C. rufuglaucus</i> Jerd.) ... ..		XX		X
I II III	<i>C. sylvaticus</i> Ol. ... ..	X	XXX		X
I II IV	<i>C. catalana</i> Em. ... ..		XX		X
I II IV	<i>C. pilicornis</i> Rog. ... ..		XXX	X	X
I II IV	<i>C. massiliensis</i> For. ... ..		XXX		
I II	<i>C. aethiops</i> (Latr.) ... ..	X	XXX		
I II	<i>C. marginata</i> (Latr.) ( <i>C. aethiops</i> v. <i>marginata</i> ) ... ..		X		
I II	<i>C. barbaricus</i> Em. ( <i>baetica</i> Em.) ... ..		X		
I II	<i>C. foreli</i> Em. ... ..	X	XXX		
I II IV	<i>C. sicheli</i> Mayr ( <i>C. sicheli</i> v. <i>rubra</i> Karavajev) ... ..		XX	X	
I	<i>C. gestroi</i> Emery ... ..		X		

		French Pyr.	Spain S C N	Balea- ric I.	Portu- gal
I II	<i>C. lateralis</i> Ol. ( <i>C. armouri</i> Wheel., <i>balearis</i> Sants.) ... ..	X	XXX	X	X
I II IV	<i>C. figaro</i> Em. ... ..		XX		X
I II	<i>C. merula</i> Los. ( <i>picea</i> Leach, <i>piceo-feveolata</i> Mayr) ... ..	X	XXX	X	X
II IV	<i>Colobopsis truncatus</i> (Spin.) ... ..		XXX		

## FORMICINI

I II	<i>Cataglyphis albicans</i> Roj. ... ..		XX		
I II	<i>C. iberica</i> Em. ... ..		XX		X
I II III	<i>C. rosenhauri</i> Em. ( <i>C. rubra</i> v. <i>rosenhauri</i> Em.) ... ..		XX		?
I II	<i>C. viaticoides</i> André ... ..		XX		
I II III	<i>C. viaticus</i> Fab. ( <i>C. viaticus</i> v. <i>velox</i> Sants.) ... ..		XX		X
I II III	<i>C. hispanica</i> For. ... ..		XX		X
I	<i>C. cana</i> Em. ( <i>C. vaucheri</i> v. <i>cana</i> Em.) ... ..		X		X
I	<i>C. otini</i> Sants. ... ..		X		
I	<i>C. altisquamis</i> André ... ..		X		
I II	<i>C. cursor</i> Fonsc. ( <i>C. cursor</i> v. <i>tibialis</i> Bond.) ... ..	X	XXX		
I	<i>C. pallidus</i> Mayr ... ..		X		
I II	<i>Polyergus rufescens</i> Latr. ... ..	X	X		
I II III	<i>Formica subrufa</i> Roger ... ..	X	XXX		X
I II III	<i>F. fusca</i> L. ... ..	X	XXX		X
I II	<i>F. lemani</i> Bond. ... ..	X	XXX		
I II III	<i>F. cunicularia</i> Latr. ... ..	X	XXX		X
I II III	<i>F. pyrenaica</i> Bond. ... ..	X	XX		X
II III	<i>F. gerardi</i> Bond. ... ..	X	XXX		X
I II III	<i>F. rufibarbis</i> Fab. ( <i>F. cinereo-rufibarbis</i> Forel) ... ..	X	XXX		X
I II	<i>F. decipiens</i> Bond. ... ..	X	X		
I II	<i>F. cinerea</i> Mayr ... ..	X	X		
I II	<i>F. gagates</i> L. ... ..	X	X		
II	<i>F. transcaucasica</i> Nas. ( <i>picea</i> Nyl.) ...	X			

		French Pyr.	Spain S C N	Balea- ric I.	Portu- gal
I II	<i>F. exsecta</i> Nyl. ( <i>nec F. exsecta</i> ssp. <i>dalcqui</i> Bond.) ... ..	X	XX		
IV	<i>F. prèssilabris</i> Nyl. ... ..	X	X		
I II	<i>F. sanguinea</i> Latr. ( <i>v. flavorubra</i> Forel <i>v. strennua</i> Sants.) ... ..	X	XXX		X
I II	<i>F. rufa</i> L. ... ..	X	XX		X
IV	<i>F. polycytena</i> Foerst. ... ..		X		
II	<i>F. lugubris</i> Zett. ... ..	X	X		
I II	<i>F. pratensis</i> Retz. ... ..	X	XXX		X
II	<i>F. nigricans</i> Em. ( <i>cordieri</i> Bond.) ... ..	X	XXX		X
I II III	<i>F. dusmeti</i> Em. ... ..		XX		X
I II III	<i>Proformica nasuta</i> Nyl. ... ..		XXX		X
II	<i>P. depilis</i> Sants. ( <i>P. nasuta v. depilis</i> Sants.) ... ..	X	XX		
II IV	<i>P. ferreri</i> Bond. ... ..		XX		
II	<i>P. longiseta</i> S. N. ... ..		X		

## KEYS TO THE WORKER CASTE.

## PONERINAE

1. Mandibles very long, abruptly bent to tridentate apex, inserted close together near the centre line; eyes large; occipital angles produced posteriorly ... .. **Anochetus**.
- Mandibles inserted at front angles of head; occiput simply angled or rounded; eyes minute or absent ... .. 2.
2. Gaster sharply curved under so that apex is pointed forward ... .. **Proceratium melinum** (Roger).
- Gaster not curved forward ... .. 3.
3. Petiole with strongly projecting ventral median tooth; eyes set behind middle of head; mandibles long, narrow and pointed with strongly dentate internal border ... .. **Amblyopone denticulatum** (Roger).
- Subpetiolar process blunt or reduced; eyes if present set well forward on sides of head; mandibles triangular with simple or denticulate terminal border ... .. **Ponerini, Odontomachini**.

**Anochetus**

1. Eyes very large, about 1/5 head length; mesonotum transversely striate ... .. **sedilloti** (Emery).
- Eyes about 1/8 head length; mesonotum thickly punctulate ... .. **ghiliani** (Spinola) **Ponerini**.

**Cryptopone, Poner, Hypoponera**

1. Eyes absent; mandibles with terminal border evenly and coarsely toothed; mid and hind tibiae with two spurs ... .. **Cryptopone ochracea** (Mayr).
- Eyes minute, mandibles with basal teeth very small or indistinct; mid and hind tibiae single spurred ... .. 2.
2. Frontal furrow continued as a fine but distinct line to occipital border; scape not reaching as far as hind margin of head ... .. **Hypoponera punctatissima** (Roger).
- Frontal furrow not continuing beyond frontal ridges; scape reaching at least as far as hind margin of head ... .. 3.
3. Front border of head curving in towards close set mandibles with evenly set distinct posterior teeth; maxillary palps one-jointed ... .. **H. eduardi** (Förel).
- Mandibles set close to sides of head; intermediate and posterior teeth indistinct; maxillary palps two-jointed ... .. **P. coarctata** (Latr.).

**MYRMICINAE**

1. Head elongate cordate, mandibles set very closely, antennae very short 4 jointed, petiole node with membranous outgrowth ... .. **Smithistruma baudueri** (Em.).
- Head not cordate; antennae at least 10 jointed; petiole without membrane ... .. 2.
2. Propodeum simple without trace of spines or teeth ... .. 3.
- Propodeum bituberculate or with two spines or teeth ... .. 7.

3. Antennae 10 segmented with distinct 2 jointed club ... .. **Diplorhoptrum.**
- Antennae 11 or 12 segmented ... .. 4.
4. Antennae 11 segmented with 2 jointed club; very rare ... .. **Phacota sicheli** Roger.
- Antennae 12 segmented ... .. 5.
5. Clypeus bicarinate; antennal club 3 jointed; length 2-3.5 mm ... .. **Monomorium.**
- Clypeus more or less evenly striated; antennae broadening gradually to indefinite 4 or 5 jointed club; length 4-11 mm ... 6.
6. Mid and hind tibiae with pectinate spurs, monomorphic ... .. **Manica rubida** L.
- Mid and hind tibiae with simple spurs, size varying from small workers with narrow heads to large workers with broad heads ... .. **Messor** (in part).
7. Postpetiole attached to upper surface of gaster which is convex ventrally and acutely pointed at apex ... .. **Cremastogaster.**
- Postpetiole attached to gaster at or below mid-line; gaster equally convex dorsally and ventrally and not sharply pointed at apex ... .. 8.
8. Postpetiole with ventral process or tooth projecting forwards ... .. 9.
- Postpetiole without ventral process ... .. 12.
9. Mandibles without teeth; frontal ridges carried to back of head ... .. **Harpagoxenus sublaevis** (Nylander).
- Mandibles dentate; frontal ridges short ... .. 10.
10. Antennae 12 segmented ... .. **Chalepoxenus.**
- Antennae 11 segmented ... .. 11.
11. Petiole node sharply peaked, triangular in side view; body shining; slender; ventral teeth on petiole and postpetiole sharp ... .. **Formicoxenus nitidulus** (Nylander).
- Petiole node with rounded peak; body rather dull; ventral teeth on petiole nodes broad ... .. **Epimyrma.**
12. Mandibles sickle-shaped without teeth ... .. **Strongylognathus.**
- Mandibles with at least 2 apical teeth or with whole border dentate ... .. 13.
13. Postpetiole much wider than long; twice width of petiole ... .. **Cardiocondyla.**

- Postpetiole cubical or not much wider than long; less than  $1\frac{1}{2}$  times width of petiole ... .. 14.
14. Eyes large, set well forward of middle and drawn out anteroventrally ... .. 15.
- Eyes at middle of head, rounded ... .. 16.
15. Antennae with 11 segments ... **Oxyopomyrmex saulcyi** Em.
- Antennae with 12 segments ... .. **Goniomma**.
16. Antennae with 11 segments ... .. **Leptothorax** (part).
- Antennae with 12 segments ... .. 17.
17. Middle and hind tibiae with pectinate spurs ... .. **Myrmica**.
- Middle and hind tibiae with spurs simple or absent ... .. 18.
18. Eyes minute; petiole drawn out anteriorly with a long stalk ... .. **Stenammas**.
- Eyes large and distinct; petiole with anterior stalk not longer than node ... .. 19.
19. Petiole quadrangular, bituberculate above, appearing as small dorsal tooth in side view ... **Myrmecina graminicola** (Latr.).
- Petiole node rounded, domed, angular or peaked without dorsal projection ... .. 20.
20. Pronotum angled; clypeus raised posteriorly into a ridge in front on the antennal insertions ... .. **Tetramorium**.
- Pronotum rounded; clypeus not raised posteriorly ... .. 21.
21. Last 3 funicular segments together about as long as half the funiculus ... .. 22.
- Last 3 funicular segments much less than half length of funiculus ... .. 24.
22. Thorax strongly waisted ... .. 23.
- Thorax short and robust without mesopleural constriction ... .. **Leptothorax**.
23. Strongly dimorphic species with large workers having massive heads; mandibles broad; terminal funicular segment less than twice as long as preceding one ... .. **Pheidole pallidula** Nyl.
- Monomorphic, head always slender; mandibles narrow; terminal funicular segment longer than twice preceding one ... .. **Temnothorax recedens** (Nyl.).
24. Mandibular outline semicircular; head of larger workers almost square ... .. **Messor**.
- Mandibular outline strongly triangular; head elongate ... .. **Aphaenogaster**.

**Myrmica**

1. Antennal scapes simply curved near the base without angle, swelling or tooth-like process at the bend ... .. 2.
- Scapes angled near base and with a more or less distinct swelling, flange or tooth-like process at the bend ... .. 6 a.
2. Scapes sharply curved near base; frontal triangle rugose to strongly striate ... .. 3.
- Scapes obliquely and gradually curved; frontal triangle smooth and shining ... .. 6.
3. Petiole node small and peaked in profile, elongate rectilinear from above; length 3-3.8 mm; sculpture weak ... .. *rugulosa* Nyl.
- Petiole node massive, more or less truncate in profile; length 3.6-5 mm; sculpture coarse ... .. 4.
4. Head longer than wide; mesopropodeal furrow shallow; propodeal spines sub-parallel from above ... .. *sulcinodis* Nyl.
- Head about as wide as long; mesopropodeal furrow deep; propodeal spines divergent ... .. 5.
5. Antennal scapes slender; petiole oblong from above; width across postpetiole as wide or wider than greatest distance across frontal ridges ... .. *gallieni* Bond.
- Scapes shorter and thicker sometimes slightly thickened at bend (but never angled); petiole quadrate from above; postpetiole narrower than greatest width across frontal laminae ... .. *aloba* Forel.
6. Interspinal area smooth; epinotum transversely striate above; petiole more or less peaked; spines short ... .. *rubra* (L.).
- Space between spines with transverse striae; whole thorax longitudinally rugose; petiole more massive, distinctly truncate above, spines long and coarse ... .. *ruginodis* Nyl.
- 6a. Scape with transverse more or less upright lamina at bend ... 7.
- Scape simply angled or with extended lateral process at bend ... .. 8.
7. Transverse lamina produced into large saucer-like flange; frons conspicuously narrow (1/4 head width); postpetiole scarcely higher than long ... .. *schencki* Emery.



- Lamina appears as small upright tooth; postpetiole clearly higher than long in profile ... .. **lobicornis** Nyl.
- 8. Postpetiole cubical, height to length ratio 10:8, petiole node sloping backwards from the dorsal crest without a clear break to its junction with the postpetiole ... .. **specioides** Bond.
- Postpetiole high and narrow, height to length ratio 10:7, petiole truncate above or with large dorsal area dropping abruptly to form a distinct step to its junction with the postpetiole ... 9.
- 9. Petiole node massively rounded in profile; scape with more or less extensive lateral flange at bend ... .. **sabuleti** Mein.
- Petiole node truncate above, concave anteriorly; scape simply angled or with small semicircular extension at the bend ... ..  
... .. **scabrinodis** Nyl.

### Aphaenogaster

- 1. Funiculus segments 2-6 short; scarcely longer than broad ... 2.
- All antennal segments elongate ... .. 5.
- 2. Head and thorax matt ... .. **crocea** André.
- Head and thorax shining ... .. 3.
- 3. Head feebly striate; colour pale to dark reddish brown ... 4.
- Head punctulate, smooth and polished; colour pale yellow ...  
... .. **dulcinea** Santschi.
- 4. Tibiae and scapes with suberect hairs ... ..  
... .. **subterraneoides** Emery.
- Tibiae and scapes with scattered adherent hairs ... ..  
... .. **subterranea** (Latr.).
- 5. Body colour yellowish brown to brownish red ... .. 6.
- Colour greyish black ... .. 8.
- 6. Head and alitrunk matt; scapes with suberect hairs ... ..  
... .. **sardoa** Mayr.
- Head and alitrunk shining; scapes with short decumbent hairs  
... .. 7.
- 7. Head elongate oval, narrowing behind eyes ... ..  
... .. **splendida** Roger.
- Head broadening to occiput, shape as *gibbosa* ... **strioloides**.
- 8. Gaster entirely smooth and shining ... .. **gibbosa** (Latr.).
- Gaster in part striate or matt ... .. 9.

9. First gaster segment longitudinally striate, head rugulose, rest of body shining ... .. **striativentris** Forel.  
 — Whole body matt, gaster sometimes in part with subdued shine ... .. 10.
10. Spines long, continuing body line; antennal club of 4 enlarged reddish coloured segments ... .. 11.  
 — Spines very short and upright; club of 5 enlarged dark segments ... .. 12.
11. Alitrunk with subdued shine; spines straight, not extending as far as petiole ... .. **angusta** Santschi.  
 — Alitrunk very closely sculptured and matt; spines long with pronounced curvature ... .. **iberica** Emery.
12. Sides of mesopleurae and propodeum with coarse striae ... ..  
 ... .. **testaceopilosa, senilis** Mayr.  
 — Striae if present reduced to one or two at sides of propodeum only ... .. **gemella** Roger.

### Stenamma

1. Dorsum of petiole flat ... .. **sardoa** Emery.  
 — Petiole peaked in profile ... .. **westwoodii** (Westw.).

### Goniomma

1. Eyes positioned near clypeal margin ... .. **blanci** (André).  
 — Eyes distant from front border of head by at least half their maximum length ... .. 2.
2. Sculpture coarse; head and thorax rugose throughout; propodeum with transverse striae; length 4-4.5 mm ... ..  
 ... .. **hispanicum** (André).  
 — Sculpture dilute; body shining; propodeum not striated; size smaller, length 3-3.5 mm ... .. **tunetica** Forel.

### Messor

1. Propodeum with distinct short spines; funiculus segments 2-7 quadrate ... .. 1 a.

- 1 a. Base of scape distinctly broadened or lobate ... .. **lobicornis** Forel.
- 1 b. Scape not thickened at base ... .. sp.
- Propodeum without spines or distinct teeth; funiculus segments elongate ... .. 2.
2. Underside of head with arrangement of long hairs curving sharply forward (psammophore) ... .. 3.
- Underside of head with scattered moderately curved or straight hairs ... .. 6.
3. Alitrunk reddish, paler than head or gaster, propodeum angled ... .. 4.
- Body unicolourous, black except occasionally front margins of head with rufous tinge; propodeum rounded and low ... 5.
4. Dorsum of gaster with occasional upright hairs, head finely striate ... .. **meridionalis** (André).
- Dorsum of gaster bare, head brilliant ... .. **marocanna** Emery.
5. Dorsum of gaster polished with first segment hairless ... .. **bouvieri** Bond.
- Dorsum of gaster with profuse hairs ... .. **hispanica** Santschi.
6. Unicolourous black; propodeum distinctly angled in profile ... .. **capitatus** (Latr.).
- Pale to dark brown or bicoloured; propodeum obliquely rounded ... .. 7.
7. Head and alitrunk coarsely striated, body hairs profuse ... .. **structor** Latr.
- Head smooth or finely striated in part; hairs more scattered ... .. 8.
8. Head and alitrunk unicolourous pale to reddish brown, gaster brown, length not exceeding 8.5 mm; propodeum slightly angled in profile ... .. **iberica** Emery.
- Head reddish black to red, rest of body black, length up to 11 mm. Smaller workers may be entirely black; propodeum obliquely rounded ... .. **barbarus** (L.).

### **Cremastogaster**

1. Petiole node widening posteriorly; length less than 3 mm ... .. **sordidula** Nyl.
- Petiole node narrowing posteriorly; length 3.2-5 mm ... .. 2.

2. Head and alitrunk in part shining red ... .. 3.
- Body unicolourous brownish or greyish black; spines thin or reduced ... .. 4.
3. Spines robust ... .. **scutellaris** Ol.
- Spines long slender and distinctly curved ... .. **algerica** Lucas.
4. Spines slender, subcylindrical; mesonotum indistinctly or not keeled ... .. **auberti** Em.
- Spines very short, triangular ... .. 5.
5. Mesonotum with strong longitudinal keel ... .. **laestrygon** Emery.
- Mesonotum without a keel ... .. **fuentei** Menozzi.

### M o n o m o r i u m

1. Ultimate funiculus segment as long as the 2 preceding together; first segment of club much shorter than second; length 1.5-2 mm ... .. 2.
- Ultimate funiculus segment shorter than the 2 preceding together which are subequal; length 2.5-3.2 mm ... .. 4.
2. Head granulose; colour pale yellow ... .. **pharaonis** (L.).
- Head shining ... .. 3.
3. Dark brown to black ... .. **minutum** Mayr.
- Testaceous ... .. **andrei** Saunders.
4. Whole body dull matt ... .. **subopacum** (Smith).
- Head and gaster with subdued shine ... .. **salomonis** (L.).

### D i p l o r h o p t r u m

1. Body hairs long and abundant; size of large workers 2.2-3 mm; sides of head distinctly curved ... .. 2.
- Body hairs sparse; size smaller, not exceeding 2 mm; sides of head straight ... .. 4.
2. Mesopropodeal furrow very distinct ... .. 3.
- Mesopropodeal furrow indistinct except in largest specimens; clypeal teeth distinct ... .. **fugax** (Latr.).
3. Clypeal teeth projecting and distinct ... .. 3 a.
- Clypeal teeth absent or centre pair only, visible ... .. **monticola** Bern.

- 3 a. Centre clypeal teeth short; body hairs short ... ..  
 ... .. **nicaeensis** Bern.
- 3 b. Centre clypeal teeth long incurved; hairs very long ... ..  
 ... .. **robusta** Emery.
4. Head rectangular to elongate ... .. 5.
- Head very short, nearly square ... .. **lusitanica** Emery.
5. Head elongate; mesopropodeal furrow indistinct ... ..  
 ... .. **orbula** Emery.
- Head short rectangular; mesopropodeal furrow deep and distinct  
 ... .. 6.
6. Centre clypeal teeth long and inward curving ... ..  
 ... .. **fairchildi** Wheeler.
- Centre clypeal teeth short and blunt ... .. **latro** Forel.

### Leptothorax

1. Antennae 11 segmented ... .. 2.
- Antennae 12 segmented ... .. 3.
2. Tibiae and scapes with numerous suberect hairs; antennal club  
 darker than rest of funiculus ... .. **acervorum** (Fab.).
- Tibiae and scapes with occasional adpressed hairs; antennae  
 unicolourous pale brown ... .. **muscorum** (Nyl.).
3. Prothorax nearly twice as wide as propodeum ... ..  
 ... .. **schaufussi** Mayr.
- Prothorax scarcely or not wider than propodeum ... .. 4.
4. Petiole node massive, dome-like or truncate above, as wide as  
 or more than 4/5 as wide as postpetiole ... .. 5.
- Petiole node angled, peaked or steeply rounded, distinctly  
 narrower than postpetiole ... .. 7.
5. Petiole with truncate dorsal area; sculpture smooth to finely  
 rugulose; colour dark brownish black ... .. **baeticus** Emery.
- Petiole massively domed; head and alitrunk coarsely rugulose  
 ... .. 6.
6. Alitrunk dull red; petiole node in form of flattened dome;  
 head and alitrunk very coarsely sculptured and dull ... ..  
 ... .. **fuentei** Santschi.
- Body unicolourous black, shining between widely spaced rugae;  
 petiole hemispherical ... .. **rottenbergii** Emery.

7. Colour brown to black; antennal club darker than rest of funiculus ... .. 8.  
 — At least alitrunk distinctly paler; antennal club various ... .. 12.
8. Dorsal and front surfaces of petiole node plane, meeting at distinct angle; mesopropodeal furrow shallow but distinct ... .. **angustulus** (Nyl.).  
 — Petiole node concave in front with more or less rounded dorsal area; mesopropodeal furrow indistinct or absent ... .. 9.
9. Colour pale brown to brownish black; front and dorsal surfaces of petiole node meeting at sharp angle ... .. 10.  
 — Colour brownish black to black; petiole with rounded anterodorsal crest ... .. 11.
10. Antennae thickly clothed with semi-erect hairs ... .. **ibericus** Menozzi.  
 — Antennae with funiculus only having short adherent hairs; colour shining brownish black ... .. **specularis** Emery.
11. Spines long and curved ... .. **nigrita** Emery.  
 — Spines short and straight ... .. **niger** Forel.
12. Alitrunk with distinct mesopropodeal impression; antennal club pale ... .. 13.  
 — Alitrunk with uninterrupted dorsal outline; antennal club pale or dark ... .. 14.
13. Petiole node about  $\frac{3}{5}$  width of postpetiole; mesopropodeal furrow very clearly demarcated ... .. **lichtensteini** Bond.  
 — Petiole node more massive about  $\frac{4}{5}$  width of postpetiole; mesopropodeal impression less clearly defined ... .. **nylanderi** (Foerster).
14. Club darker than rest of antenna ... .. 15.  
 — Antenna unicolourous yellow or pale brown ... .. 20.
15. Spines long and curved downward near the tip ... .. 16.  
 — Spines short and straight directed upwards from the body line ... .. 18.
16. Petiole node short and peaked ... .. **interruptus** (Schenk).  
 — Petiole node massive and long ... .. 17.
17. Petiole node rounded above; alitrunk yellowish, head and gaster darker ... .. **flavispinus** André.  
 — Petiole with long flat dorsal area, body colour pale to dark brownish red ... .. **affinis** Mayr.

18. Alitrunk reddish yellow contrasting with dark head and gaster; petiole angled ... .. 18 a.
- 18 a. Head long, distinctly sculptured ... .. **cervantesi** Sants.
- 18 b. Head short, brilliant ... .. **leviceps** Em.
- Alitrunk yellow; petiole not sharply angled ... .. 19.
19. Gaster normally with distinct transverse band; antennal clubs lighter or darker reddish brown ... .. **unifasciatus** (Latr.).
- Gaster with dark area indistinctly defined; antennal clubs dark brown to black; head often dark brown ... .. **tuberum** (Fab.) (*nigriceps*).
20. Propodeal spines reduced to short triangular teeth ... .. **corticalis** (Schenck).
- Spines strongly developed projecting well clear of propodeum ... .. 21.
21. Body glabrous, without hairs (size small, queen 2.2 mm) ... .. **glaber** Santschi.
- Body with normal blunt hairs ... .. 22.
22. Length 2 mm; shining yellow, gaster darker ... .. **massiliensis** Bond.
- Length 2.5 mm or more; colour various ... .. 23.
23. Petiole slender, peaked in profile; spines slender; body colour pale yellow, smooth and shining ... .. **luteus** Forel.
- Petiole more massive, rounded or angled in profile; spines robust, head and alitrunk more or less rugose ... .. 24.
24. Alitrunk pale brown, head and gaster darker; spines long and straight ... .. **tristis** Bond.
- Body unicolourous yellowish; spines either short or distinctly curved ... .. 25.
25. Spines long and curved towards the horizontal; petiole with rounded dorsal surface ... .. **racovitzae** Bond.
- Spines shorter, directed upwards from the body line ... .. 26.
26. Dorsal and front faces of petiole node plane, meeting at a distinct right angle ... .. **rabaudi** Bond.
- Anterior face of petiole node slightly concave, dorsal surface with short truncate area stepped down sharply towards junction with postpetiole ... .. **berlandi** Bond.

### Strongylognathus

1. Back of head deeply excised with pronounced occipital angles ...  
... .. **testaceus** (Schenck).
- Back of head simple with slightly convex outline ... ..  
... .. **caeciliae** Forel.

### Tetramorium

1. Petiole and postpetiole strongly longitudinally rugulose ... ..  
... .. **hispanica** Emery.
- Petiole and postpetiole weakly sculptured or smooth ... .. 2.
2. Head and thorax evenly striate throughout ... .. 5.
- Either head or thorax in part smooth and shining ... .. 3.
3. Head finely striate; occiput laterally striate ... ..  
... .. **meridionale** (Emery).
- Head sculpture weak or absent posterolaterally ... .. 4.
4. Thoracic sculpture denser than that of head ... ..  
... .. **semilaeve** André.
- Thoracic sculpture very dilute or absent ... .. **punicum** (Smith).
5. Petiole and postpetiole rugose distinctly but not coarsely sculptured  
red ... .. **fortis** Forel.
- Petiole and postpetiole punctulate only ... .. **caespitum** (L.).

### Cardiocondyla

1. Petiole node wider than long; alitrunk brownish red ... ..  
... .. **elegans** (Nyl.).
- Petiole node longer than wide; alitrunk clear yellowish red ...  
... .. **batesii** Forel.

### DOLICHODERINAE

1. Integument hard and sculptured; alitrunk deeply impressed in  
front of propodeum which is carried backwards to a sharply  
angled projection ... .. **Hypoclinea quadripunctata** (L.).



2. Ocelli present and distinct; dorsal outline of alitrunk not interrupted by mesopropodeal impression ... .. **Liometopum microcephalum** (Panz.).
- No ocelli; mesopropodeal impression distinct ... .. 3.
3. Petiole surmounted by a distinct scale standing clear from the gaster ... .. 4.
- Petiole nodal, concealed by overhanging gaster ... **Tapinoma**.
4. Alitrunk long and slender with deep break between mesonotum and propodeum ... .. **Iridomyrmex humilis** Mayr.
- Alitrunk short, mesopropodeal furrow shallow, scarcely or not interrupting dorsal outline ... .. **Bothriomyrmex**.

### **B o t h r i o m y r m e x**

1. Head nearly square (alitrunk distinctly impressed) ... .. **corsicus** Sants.
- Head longer than wide ... .. 4.
2. Dorsal outline with distinct mesopropodeal impression ... .. **gibbus** Soudek.
- Dorsal outline not impressed ... .. 3.
3. Alitrunk long; gaster distinctly darker than alitrunk ... .. **hispanicus** Sants.
- Alitrunk not distinctly elongate; body unicolorous yellowish-grey ... .. **saundersi** Sants.

### **T a p i n o m a**

1. Propodeum separated from mesonotum by furrow making an approximate right angle in profile; size of largest workers over 5 mm ... .. **nigerrimum** Nyl.
- Mesopropodeal furrow oblique and shallow; length always less than 4 mm ... .. 2.
2. Clypeal notch deeper than wide ... .. **simrothi** Krausse.
- Clypeal notch shallow, semicircular ... .. **erraticum** (Latr.).

## FORMICINAE

1. Propodeum armed with two teeth; mesothorax strongly constricted ... .. **Acantholepis frauenfeldi** Mayr.
- Propodeum simple, thorax robust without strong constriction ...
2. Antennae 11 segmented; size minute, less than 2.5 mm long ... .. **Plagiolepis**.
- Antennae 12 segmented; size larger, up to 13 mm ... .. 3.
3. Mandibles sickle-shaped, toothless ... .. **Polyergus rufescens** (Latr.).
- Mandibles broad with distinct teeth ... .. 4.
4. Antennal scapes inserted at each side of frontal ridges at slight distance from clypeal border ... .. 5.
- Antennal scapes inserted at or near angle formed by frontal ridges with clypeus ... .. 6.
5. Front of head obtusely angled with rest or truncated; sides of clypeus subparallel ... .. **Colobopsis truncatus** (Spin.).
- Front of head continuing same plane as rest, not truncate; clypeus trapezoidal ... .. **Camponotus**.
6. Colour uniformly shining brown to jet black; alitrunk without pubescence ... .. 7.
- Colour various, body either dull or shining only in part ... 9.
7. Head cordate, emarginate posteriorly; ocelli absent ... .. **Lasius fuliginosus** (Latr.).
- Head simple posteriorly, ocelli distinct ... .. 8.
8. Funiculus segments 2 and 3 shorter than 5 and 6, frontal ridges subparallel ... .. **Proformica**.
- Funiculus segments 2 and 3 as long or longer than 5 and 6, frontal ridges diverge posteriorly ... .. **Formica** (in part).
9. Funiculus segments 2 to 5 slightly shorter than 6 to 8; ocelli absent or indistinct; frontal ridges feebly developed; length 2.5-4.8 mm ... .. **Lasius**.
- Funiculus segments 2 to 5 as long or longer than 6 to 8; ocelli always distinct, frontal ridges prominent; length 4.5-12 mm ... .. 10.
10. Fourth maxillary palp elongate, much longer than fifth; petiole with large node or thickened disc, frontal ridges subparallel ... .. **Cataglyphis**.

- Fourth maxillary palp short, only slightly longer than fifth; petiole scale-like; frontal ridges diverging posteriorly ... .. **Formica**.

### Plagiolepis

1. Third and fourth funiculus segment elongate and subequal, each twice as long as second ... .. **schmitzii** Forel.  
 — Third funiculus segment shorter than fourth, only slightly longer than second ... .. **pygmaea** (Latr.).

### Lasius

1. Colour reddish brown to black ... .. 2.  
 — Colour yellow ... .. 6.  
 2. Scapes and tibiae with abundant standing hairs ... .. 3.  
 — Scapes and front tibiae hairless ... .. 4.  
 3. Bicoloured, red alitrunk contrasted with dark head and gaster, scape hairs widely spaced ... .. **emarginatus** (Ol.).  
 — Alitrunk dark reddish brown to black, nearly unicolourous with head and gaster, appendage hairs crowded ... .. **niger** (L.).  
 4. Shining black; 5 mm long or over; head heart-shaped ... .. **fuliginosus** (Latr.).  
 — Reddish brown to greyish black; length 4 mm or less, head simple ... .. 5.  
 5. Frontal furrow, frontal triangle and ocelli very distinct; head and alitrunk paler than gaster ... .. **brunneus** (Latr.).  
 — Frontal furrow and triangle normally indistinct; ocelli absent or indiscernible; body unicolourous brownish or greyish black ... .. **alienus** (Foerster).  
 6. Scapes and tibiae with erect hairs ... .. 7.  
 — Scapes and front tibiae at least, bare or with pubescence only ... .. 8.  
 7. Scape very thin and flat, funiculus segments clearly elongate; scale typically straight sided ... .. **rabaudi** Bond.  
 — Scape oval in cross section, funiculus segments 2-5 scarcely

- longer than broad; scale sides sloping inwards to dorsal crest from maximum width at midpoint ... .. **umbratus** (Nyl.).
8. Petiole scale thin with flat, concave or indented dorsal crest; genal margins not distinctly incurved ... .. 9.
- Petiole scale nodal with weakly or strongly convex dorsal crest; genal margins curving into close-set mandible insertions ... .. 8 a.
- 8 a. Petiole scale narrow and distinctly convex in frontal view ... .. **carniolicus** Mayr.
- Petiole scale weakly convex above with medial flattened area ... .. sp. nov.
9. Dorsal gaster hairs very short, less than  $2/5$  maximum hind tibial width ... .. **mixtus** (Nyl.).
- Gaster hairs at least  $2/3$  maximum hind tibial width ... 10.
10. No genal hairs; dorsal border of scale either deeply cleft or feebly concave ... .. 11.
- Genal hairs abundant; dorsal border of scale widely emarginate ... .. **distinguendus** Emery.
11. Scale low, widest near upper margin ... .. **flavus** (Fab.).
- Scale high, narrow, tapering and deeply indented at angle of about  $100^\circ$  ... .. **affinis** (Schenck).

### C a m p o n o t u s

1. Upper surface of propodeum meeting lateral borders at a distinct angle ... .. **Myrmentoma** ... .. 14.
- Dorsum of propodeum smoothly rounded without break with side borders ... .. 2.
2. Clypeus with wide notch in middle of front border ... .. **fallax** (Nyl.).
- Clypeal border without median notch ... .. 3.
3. Clypeal border not projecting forward beyond side margins; clypeus without distinct keel ... .. 4.
- Clypeus distinctly keeled, with front border projecting forward as a rectangular plate well beyond side margins ... .. 6.
4. Dull black; gaster thickly covered with yellow bristles ... .. **vagus** (Scopoli).
- Alitrunk in part at least reddish ... .. 5.

5. Gaster strongly pubescent, entirely black or with small reddish patch at base; alitrunk dull red ... .. **herculeanus** (L.).  
 — Gaster shining with front half of first segment yellowish red; alitrunk pale to medium bright red ... .. **ligniperda** (Latreille).
6. Gaster thickly pubescent, body entirely matt ... ..  
 ... .. **Myrmosericus** ... .. 7.  
 — Gaster shining, surface not obscured by pubescence ... ..  
 ... .. **Tanaemyrmex** ... .. 8.
7. Propodeum and front half of gaster orange yellow, hind tibiae distinctly channelled ... .. **cruentatus** (Latr.).  
 — Entirely dull black, tibiae simple ... .. **micans** (Nyl.).
8. Dorsal outline of thorax simple, unbroken ... .. 9.  
 — Propodeum separated from promesonotum by deep rounded furrow ... .. **foreli** Emery.
9. Genal margins with numerous projecting hairs ... .. 10.  
 — Genal margins without hairs or very occasional ... .. 13.
10. Hind tibia with distinct, deeply etched, longitudinal furrow ... ..  
 ... .. **barbaricus** Emery.  
 — Hind tibia simple or with shallow indistinct furrow ... .. 11.
11. Colour uniformly dark brown or black ... .. **aethiops** (Latr.).  
 — At least alitrunk yellow red ... .. 12.
12. First gaster segment yellowish brown or red in part, head mainly red ... .. **massiliensis** Forel.  
 — Gaster completely dark, head mainly dark ... .. **pilicornis** Roger.
13. Alitrunk red to dark reddish brown sometimes nearly black, whole body shining ... .. **sylvaticus** Ol.  
 — Alitrunk red to dark brown with dense microsculpture, matt ... ..  
 ... .. **catalana** Emery.
14. Propodeum separated from promesonotum by shallow break ... ..  
 ... .. **gestroi** Emery.  
 — Propodeum separated from promesonotum by deep cleft ... .. 15.
15. Propodeum rounded posteriorly ... .. **sicheli** Mayr.  
 — Propodeum forming sharp angle between dorsal and basal faces ... .. 16.
16. Head and alitrunk reddish to clear red ... .. **lateralis** (Ol.).  
 — Head black ... .. 17.
17. Body entirely black ... .. **piceus** (Leach).  
 — Pronotum at least testaceous or reddish ... .. **figaro** Emery.

**Cataglyphis**

1. Maxillary palp segment 4 as long as, or longer than, 3 or 5 and 6 together ... .. **Cataglyphis** ... .. 2.
- Palp segment 4 distinctly shorter than 3 or 5 and 6 together ... .. **Monocambus** ... .. 6.
2. Head dark brown to black ... .. 3.
- Head red or reddish ... .. 4.
3. Head and prothorax shining black ... .. **albicans** Roger.
- Head brownish black, alitrunk dull brown to black ... .. **iberica** Emery.
4. Alitrunk clothed in thick long pubescence, gaster dull ... .. **cana** Emery.
- Alitrunk with patches of short pubescence, gaster shining ... .. 5.
5. Head and alitrunk brilliant red ... .. **viaticoides** (André).
- Head dull red, alitrunk brownish ... .. **rosenhauri** Emery.
6. Petiole surmounted by rounded node ... .. 7.
- Petiole surmounted by thick scale with front face only, strongly convex ... .. 8.
7. Bicoloured with alitrunk and head red, no hairs, or very few, on node or propodeum ... .. **viatica** (Fab.).
- Uniform dark reddish brown to black, node and propodeum with profuse hairs ... .. **hispanica** Forel.
8. Head and alitrunk rugose matt, dark reddish brown; length 5-12 mm ... .. **altisquamis** André.
- Head and alitrunk shining brownish black to black; length 3-8 mm ... .. **cursor** (Fonsc.).
- = Whole body testaceous; length 3-5 mm ... .. **pallidus** Mayr.

**Proformica**

1. Whole body polished with no erect hairs on alitrunk ... .. **depilis** Sants.
- Body sculptured or rugose in part, alitrunk always with erect hairs ... .. 2.
2. Antennal scapes and tibiae with numerous long fine standing hairs ... .. **longiseta** Collingwood.
- Tibiae without suberect hairs on extensor surfaces ... .. 3.

3. Clypeus with distinct keel, alitrunk and head in part polished and smooth, antennal scapes with scattered short erect hairs ...  
 ... .. **nasuta** Nyl.
- Clypeus without distinct keel, front of head finely sculptured and whole body less shining, antennal scape without hairs ... ..  
 ... .. **ferreri** Bond.

### Formica

1. Back of head and scale deeply excised; alitrunk red ... .. 2.  
 — Head and scale not deeply excised ... .. 3.
2. Eyes with short microscopic hairs, maxillary palps extending beyond mid length of head ... .. **exsecta** Nyl.  
 — Eyes hairless, palps very short ... .. **pressilabris** Nyl.
3. Head and alitrunk bright yellowish red; dark patches if present small or indeterminate and not reaching back of head ... .. 4.  
 — Head black or with dark colour predominant and reaching to back of head ... .. 5.
4. Front border of clypeus notched ... .. **sanguinea** Latr.  
 — Clypeus entire; second funiculus segment elongate ... ..  
 ... .. **dusmeti** Emery.
5. Back of head fringed with hairs ... .. 6.  
 — Back of head bare ... .. 10.
6. Unicolourous dull red to black; frontal triangle dull ... .. 7.  
 — Strongly bicoloured with dark areas contrasting with red on head and alitrunk frontal triangle shining ... .. 8.
7. Petiole narrow and thick with rounded crest in side view ... ..  
 ... .. **subrufa** Roger.  
 — Petiole wide and scale-like, tapering in side view ... ..  
 ... .. **cinerea** Mayr.
8. Gaster and all dark areas dense matt ... .. 9.  
 — Gaster and dark areas moderately shining ... .. **lugubris** Zett.
9. Queens with long hairs on propodeum, scale and basal face of gaster; males with hairs on hind tibiae longer than half tibial width ... .. **nigricans** Emery.  
 — Queens with propodeum and scale bare, basal face of gaster with very short hairs; males with hairs absent on hind tibiae or shorter than half tibial width ... .. **pratensis** Retz.

10. Unicolourous brownish black or black ... .. 11.  
 — Bicoloured with at least front margins of head and thoracic sutures red or brown ... .. 16.
11. Gaster opaque, pubescence thick ... .. 12.  
 — Gaster moderately or distinctly shining, pubescence dilute ... .. 13.
12. Pronotum with short strong bristles, uniformly black ... ..  
 ... .. **decipiens** Bond.  
 — Dorsum of alitrunk bare, sometimes sutures brown ... ..  
 ... .. **pyrenea** Bond.
13. Pronotum with bristles ... .. 14.  
 — Pronotum bare ... .. **fusca** L.
14. Gula with occasional hairs, body including frontal triangle uniformly shining ... .. 15.  
 — Gula bare; frontal triangle, head and alitrunk sculptured, opaque ... .. **lemanii** Bond.
15. Scale wide and hexagonal; epinotum smoothly rounded ... ..  
 ... .. **gagates** Latr.  
 — Scale subrectangular; epinotum obliquely angled ... ..  
 ... .. **transcaucasica** Nas.
16. Gula hairs numerous ... .. **rufa** L.  
 — Underside of head bare ... .. 17.
17. Frontal triangle shining ... .. **polyctena** Foerst.  
 — Frontal triangle dull ... .. 18.
18. Back of promesonotum without bristles or one or two at most; colour variable ... .. **cunicularia** Latr.  
 — Promesonotum and scale with numerous bristles ... .. 19.
19. Alitrunk mainly red; promesonotum thickly bristled; propodeum high ... .. **rufibarbis** Fab.  
 — Alitrunk pale reddish to dark reddish brown or almost black; hairs on promesonotum weak and lightly scattered; propodeum low ... .. **gerardi** Bond.

### Resumen.

El Prof. Dr. A. de Haro, de la Universidad Autónoma de Barcelona —Bellaterra—, organiza campañas de recolección de formícidos en la Península Ibérica e Islas Baleares, con el propósito de hacer un mapa de distribución lo más completo posible de estos himenópteros. Con el fin de alentar a los reco-



lectores y facilitarles las determinaciones del material, he confeccionado la lista de las 200 especies citadas hasta ahora, así como claves de determinación de las obreras, ya que los ♂♂ de muchas especies son desconocidos.

Incluyo las especies mencionadas de los Pirineos franceses, alguna de las cuales todavía no ha sido citada de la Península o Baleares, pues existe la probabilidad de que pueda ser hallada en dichos territorios.

En las claves se han omitido ciertas especies mencionadas en la lista, cuando no se ha dispuesto de ejemplares para su examen y las descripciones originales eran imprecisas. Asimismo se advierte, que posiblemente estudios posteriores puedan poner de manifiesto que algunos de los nombres específicos utilizados son sinónimos o que determinadas citas no son correctas.

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