NEW SPECIES OF CAMПONOTUS (HYMENOPTERA: FORMICIDAE) FROM AUSTRALIA.

by A. J. McArthur*

Summary

Seven new species of Camponotus are described from Australia viz., C. fergusoni, C. longifacies, C. pawseyi, C. pittantjatarae, C. rudis, C. scotti and C. simpsoni. They are compared with species that are similar in appearance viz. C. chalceus Crawley, C. sponsorum Forel, C. tasmani Forel, C. inflatus Lubbock, C. lownei Forel, C. harveyi Forel and C. lownei Forel respectively.

KEY WORDS: Formicidae, Formicinae, ant, Camponotus.

Introduction

The practical identification of Australian ants to sub-families and genera has become possible only recently (Shattuck 1999). The singless sub family Formicinae contains the genus Camponotus and its species are found living in large colonies in most habitats. The taxonomy of Camponotus is incomplete; it is perplexing due to its polymorphism i.e. the wide variation in size, shape, pilosity and integument displayed by major and minor workers from the same colony. Ecologist and others using ants as indicators encounter mostly minor workers—the most numerous caste. In this paper emphasis is therefore given to descriptions of minor workers. Several attempts have been made to split Camponotus species of the world into small groups to facilitate identification, the most thorough being where about 40 sub-genera or species-groups are listed (Emery 1925). However some of Emery's characters are not readily applicable and many of the old sub-genera in Camponotus are untrustworthy (Bolton 1995). It is outside the scope of this paper to assign sub-genera of species-group names here. Three species-groups in Camponotus in Australia have recently been published along with descriptions of unique characters with which the three species-groups can be distinguished. These are (i) C. nigriceps species-group, distinguished by the anterior margin of the clypeus projecting with a wide median concavity (McArthur & Adams 1996), (ii) C. macrocephalus species-group, by its swollen fore femurs and truncated heads (McArthur & Shattuck 2001) and (iii) C. wiederkheri species-group by J shaped setae on the underside of the head capsule (Shattuck & McArthur 2002). However, none of the new species described herein nor their relatives possess characters to place them in any of these three species-groups. Positive identification of the new species should be possible from the diagnoses and descriptions given herein and supported by the characters in Table 1 and Figs 12 - 18. Distribution maps of the localities of material examined are included.

Material

Collectors of material examined
Table 1. Morphological characters of the new species, character states are given in Table 2 with relevant structures in Figs 1 & 2. Measurements were taken from type specimens.

<table>
<thead>
<tr>
<th>Character</th>
<th>Major workers</th>
<th>Minor workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>head, sides</td>
<td>st</td>
<td>st</td>
</tr>
<tr>
<td>head, vertex</td>
<td>st</td>
<td>st</td>
</tr>
<tr>
<td>frontal carinae</td>
<td>w</td>
<td>w</td>
</tr>
<tr>
<td>clypeus, anterior</td>
<td>v</td>
<td>v</td>
</tr>
<tr>
<td>clypeus, pilosity</td>
<td>sp</td>
<td>sp</td>
</tr>
<tr>
<td>clypeus, integument</td>
<td>rt</td>
<td>gl, cp</td>
</tr>
<tr>
<td>clypeus, carina</td>
<td>di</td>
<td>ab</td>
</tr>
<tr>
<td>pronotum, dorsum</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>mesonotum</td>
<td>fx</td>
<td>x</td>
</tr>
<tr>
<td>metanotum</td>
<td>di</td>
<td>w</td>
</tr>
<tr>
<td>propodeum, dorsum</td>
<td>st</td>
<td>x</td>
</tr>
<tr>
<td>angle, °</td>
<td>135</td>
<td>in</td>
</tr>
<tr>
<td>dorum/declivity</td>
<td>1.5</td>
<td>in</td>
</tr>
<tr>
<td>node, summit</td>
<td>br</td>
<td>sh</td>
</tr>
<tr>
<td>node, pubescence</td>
<td>pl</td>
<td>sp</td>
</tr>
<tr>
<td>setae, pronotum</td>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>setae, mesonotum</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>setae, propodeum</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>setae, under head</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>setae, scape</td>
<td>ad</td>
<td>ad</td>
</tr>
<tr>
<td>setae, mid-tibia</td>
<td>in</td>
<td>in</td>
</tr>
<tr>
<td>color, head</td>
<td>rb</td>
<td>rb</td>
</tr>
<tr>
<td>color, scape</td>
<td>br</td>
<td>rb</td>
</tr>
<tr>
<td>color, pronotum</td>
<td>bk-bk</td>
<td>rb</td>
</tr>
<tr>
<td>color, mesonotum</td>
<td>bk-bk</td>
<td>rb</td>
</tr>
<tr>
<td>color, propodeum</td>
<td>bk-bk</td>
<td>rb</td>
</tr>
<tr>
<td>color, node</td>
<td>rb</td>
<td>rb</td>
</tr>
<tr>
<td>color, gaster</td>
<td>br-bk</td>
<td>rb</td>
</tr>
<tr>
<td>color, legs</td>
<td>br</td>
<td>yb</td>
</tr>
<tr>
<td>head width mm</td>
<td>2.8</td>
<td>1.7</td>
</tr>
<tr>
<td>head length mm</td>
<td>2.8</td>
<td>1.6</td>
</tr>
<tr>
<td>pronotal width mm</td>
<td>2.0</td>
<td>1.4</td>
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</table>

Table 2. States of characters in Table 1.

<table>
<thead>
<tr>
<th>ab</th>
<th>absent</th>
<th>di</th>
<th>distinct</th>
<th>n</th>
<th>narrow</th>
<th>st</th>
<th>mostly straight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ad</td>
<td>adpressed</td>
<td>fx</td>
<td>flatly convex</td>
<td>pl</td>
<td>plentiful</td>
<td>tf</td>
<td>tapering to front</td>
</tr>
<tr>
<td>bt</td>
<td>blunt</td>
<td>fp</td>
<td>fine, dense punctations</td>
<td>rb</td>
<td>red brown</td>
<td>v</td>
<td>concave</td>
</tr>
<tr>
<td>bk</td>
<td>black</td>
<td>gl</td>
<td>glossy</td>
<td>re</td>
<td>red</td>
<td>w</td>
<td>wide</td>
</tr>
<tr>
<td>br</td>
<td>brown</td>
<td>h</td>
<td>hidden by pubescence</td>
<td>rt</td>
<td>reticulate</td>
<td>x</td>
<td>convex</td>
</tr>
<tr>
<td>cr</td>
<td>crenulate</td>
<td>in</td>
<td>indistinct</td>
<td>sh</td>
<td>sharp</td>
<td>yb</td>
<td>yellow brown</td>
</tr>
<tr>
<td>cp</td>
<td>coarse punctations</td>
<td>m</td>
<td>margined</td>
<td>sp</td>
<td>sparse</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NEW SPECIES OF *CAMPONOTUS*


**Abbreviations of collection locations**

ANIC, Australian National Insect Collection, Canberra, Australian Capitol Territory; SAMAM, South Australian Museum, Adelaide, South Australia.

**Other abbreviations**

CP, Conservation Park; NP, National Park.

**Genus Camponotus** Mayr 1861

Characters that enable the new species to be identified are shown in Table 1, states of characters in Table 2, explanation of terms in Figs 1 & 2. Diagnoses and brief descriptions of each species follow.

**Camponotus fergusoni** sp. nov.

**Figs** 2, 3, 12

**Holotype**


**Paratypes**

South Australia, Wolseley, 0.8 km WSW, 36° 22' S 140° 54' E, 15th Dec. 95, S. Aust. Dept. for Environment & Heritage, Box & Bulloak Survey. One minor worker pinned in SAMA, two minor workers pinned in ANIC.

**Other material examined**

Localities are shown in Fig. 3. South Australia: Adelaide, AJM; Adelaide, PMA; Alpaka 4 km W, FRS; Angaston, JAH; Anstey Hill, CP; Bin Bin, DSS; Bunyeroo Ck., JAF; Carisbrook Res., AJM; PF; Chain Of Ponds, SB; Conmarra 4.4 km N, SEF; Coolinda, JMU; Danggali CP, REC; Frances 1 km

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**Fig. 1.** Head of *C. longifacies* minor worker indicating some of its structure.

**Fig. 2.** Side view of *C. fergusoni* major worker indicating some of its structure.

**Fig. 3.** Localities of *C. fergusoni* material examined.
Fig. 4. Graph showing workers of *C. longifacies* have narrower frontal carinae than workers of *C. sponsorum*. Definition of terms is given in Fig. 1.

Fig. 5. Graph showing minor workers of *C. longifacies* have longer heads than *C. sponsorum* but the opposite prevails in major workers. Definition of terms is given in Fig. 1.

Fig. 6. Localities of *C. longifacies* material examined.

NNE, BBS; Gawler 7 km NbyW, GFG; Gluepot, SEG; Gooolwa 1 mi W, RVS; Melrose, DM; Monarto, LIA; Montacute, LIA; Mt. Compass 21 km ESE, FSS; Mandalla 5.6 km SSW, BBS; Murray Bridge, MLU; North Adelaide Parklands, DG; Paney, SEP; Pinkawillie CP, JAF; Poogingagoric 3.7 km NE, BBS; Scott Ck., THA; Sevenhill, BBL; Strathalbyn, RRO; Summerfield 2.5 km SW, EML; Teatrick, BBS; Tepko 1.8 km SW, EML; Upper Sturt, JAH; Victor Harbor, SEG; Waite Institute, AJM RSB; Warraweena 3 km SSW, SEG; Wolseley 2.8 km WSW, BBS. Victoria: Ararat, GFH; Walpeup, ALY.

Worker diagnosis

Similar to *C. chaleus* (Crawley 1915). Minor workers distinguished by a covering of very fine dense white pubescence covering the reticulate integument whereas in *C. chaleus* pubescence is sparse, integument finely punctate; both mostly black, mesosoma usually with some red; propodeal dorsum concave.

Worker description

Major worker. Head sides straight, weakly tapering to the front, vertex straight; clypeus with a few fine long setae, without pubescence; weakly projecting forward, anterior margin evenly concave; metanotum a distinct furrow; node parallel front and back, summit blunt; propodeal spiracle elongated; mesosoma and node covered with white fine short adpressed pubescence.

Minor worker. Head sides straight, tapering to the front, vertex convex; clypeus anterior margin median section wide, nearly straight, projecting forward, dense pubescence nearly hiding the integument; pronotum, mesonotum and half propodeum form an even convexity; node with a long flatly convex summit. Also see Table 1.

Biology

Minor workers observed leaving and returning to nest during the day. The heads of major workers were sometimes observed blocking a nest entrance in heavy soil (G. Weber pers. comm. 2003).

Etymology

Named after Ferguson Conservation Park, South Australia.

*Camponotus longifacies* sp. nov.

FIGS 1, 4, 6, 13

Holotype

One minor worker pinned in ANIC, New South Wales, Narrandera 30 mi. W, 34° 45' S 146° 01' E, 29th Aug. 76, B. B. Lowery.
Minor worker. Head sides straight tapering to the front; pronotum and mesonotum form an even convexity; node elongate, summit blunt; propodeum angle wide. Also see Table 1.

**Biology**

B. B. Lowery inscribed on label “Nest in sandy soil, pasture and Callitris, neat crater”.

**Etymology**

So named because of minor worker’s distinctly long face.

*C. pawseyi* sp. nov.

**Holotype**

One minor worker pinned in SAMA. South Australia, Canunda, 37° 39’ S 140° 16’ E, 18th Jan. 91, C. K. Pawsey.

**Paratypes**

Three minor workers and two major workers pinned in SAMA and ANIC. From same locality.

**Other material examined**

Localities are shown in Fig. 7. New South Wales: Berrigan Stute Forest, BBL; Condobolin, BBL; Trundle, BBL. Queensland: Mt. Isa 100 km NW, BBL, South Australia: Attunga, BBS; Belair, RH; Cambrai, JTH, Chaunces Line, GFG; Danggali CP, KSC; Illintjita 26 km SSE, Pitj; Mt. Lindsay 0.5 km W, Pitj; Nappyalla 1 km W, RDR; Radium Hill 185 km S, PAI; Salisbury, AJM; Tomahawk Dam 3 km N, JAF; Yokes Hill 81 km S, SDS; Western Australia: Byford, BBL; Lake Marmion, JAF; Mt. Whaleback, JDM.

**Worker diagnosis**

One of the smallest *Camponotus*, similar to *C. sponсорum* (Forel 1910). Distinguished by the closely placed frontal carinae shown in Fig. 4 and by the long face in minor workers although interestingly the face of major workers is more square as shown in Fig. 5; clypeus in major workers with deep wide tentorial pits, mid section of clypeus is raised up between tentorial pits into a flattened plane above cheeks bounded by two longitudinal ridges, without carina, clypeus anterior margin has a deep central concavity bounded by two small teeth, whereas in *C. sponсорum* major workers clypeus not raised up, mid section of anterior margin convex with a weak central concavity and distinct carina.

**Worker description**

Major worker. Mesosoma forms an even convexity; propodeum angle indistinct; node summit, pointed in all directions.
Bore 3.4 km W, FRS; Mambray Ck., PJMG; Moockra Tower, PJMG; Murray Bridge, PAI; Murray Bridge 15 km NE, MLU; Napperby, PJMG; Poocara, RWT RJ; Pt. Kenny, TG; Pt. Lincoln 3 km E, PJMG; Sandford Dam 2.5 km N, JAF; Tcharkuldu Hill 8 miles E, PJMG; Waddikee 6 km E, PJMG; Waikerie, BBL; Warden Hill, FRS; White Dam, AJM MA. Victoria: Bolangum Flora Res., SHI PLI; Dimboola, AJP; Hattah 15 km SSE, ALY; Hattah 19.2 km SW, ALY; Heath, BBL; Milleva South Bore 3.7 miles N, ALY; Mt. Bolangum, SHI; Patho, HAP. Western Australia: Armadale, LWA; Beverley 70 km W, AMM; Bickley, BBL; Boyup Brook, AJM WMM; Cape Arid, NP, AJM SB; Darlington, AJM WMM; Kambalda 35 km S, JAF; Lake Leschenaultia, SOS; Madura 41 miles E, TG; Norseman, BBL; Perth, LWA; Ravensthorpe, BBL; Serpentine NP, SOS; Wagin, CHW.

clypeus anterior margin projecting convex crenate; 7 or 8 teeth; whole ant covered with plentiful erect setae; pubescence hiding integument; propodeum dorsal surface flat; node summit bluntly pointed; whole ant covered with plentiful erect setae; colour variable between black and red. Also see Table 1.

Biology
Nest in ground, AJM has observed major worker’s head blocking entrance, soil excavated from nest never seen near entrance, sometimes upper portion of entrance shaft lined with silk.

Etymology
Named after C. K. Pawsey, a naturalist from Millicent, South Australia.

Camponotus pitjanjatae sp. nov.
FIGS 8, 15

Holotype
One minor worker pinned in SAMA. South Australia, Mt. Lindsay 6.4 km W, 27° 02’ S 129° 49’ E, 18th Oct. 96, S. Aust. Dept. for Environment & Heritage, Pitjantjata Lands Survey.

Paratypes
One minor worker in SAMA and two minor workers in ANIC pinned. From same locality.

Other material examined
Locality are shown in Fig. 8, Northern Territory: Alice Springs 30 km N, BBL; Kuning P, KWA; Uluru, JWA. South Australia: Maryinna Hill 11.5 km SSE, Pitj; Maryinna Hill 9 km SE, Pitj; Cheesman Peak 4.7 km NNE, Pitj; Mt. Lindsay 6.4 km W, Pitj; Mt. Woodroffe, Pitj. Western Australia: Mt. Willoughby, JAM; Goldfields Rd., WAM; Mt. Gibson, RLE KO.
Worker diagnosis

Similar to *C. inflatus* (Lubbock 1880). Minor workers distinguished by mostly straight sides and vertex of head forming a triangle in front view; absence of erect setae on underside of head whereas *C. inflatus* head sides are convex with plentiful long erect setae on underside of head and elsewhere.

Worker description

Major worker head sides mostly convex, clypeus anterior margin projecting, convex with a weak median concavity; node summit blunt; metanotum wide shallow indistinct.

Minor worker. Head triangular, sides straight; node parallel front and back, summit convex; scattered erect setae on front of head, mesosoma, node, gaster, none on scape and legs; pronotum feebly margined in front; pronotum and mesosoma form a uniform convexity; propodeum dorsum straight. Also see Table 1.

Etymology

Named after the Aboriginal inhabitants of the Musgrave Ranges in the north of South Australia where the ant is found.

*Camponotus rudis* sp. nov.

FIGS 9, 16

Holotype

One minor worker pinned in ANIC. New South Wales, Condobolin, 33° 05' S 147° 09' E, 11th Jan. 67, B. B. Lowery.

Paratypes

Two minor workers pinned in ANIC and SAMA. From same locality.

Other material examined

Localities are shown in Fig. 9. New South Wales: Bilpin, BBL; Northern Territory: Bullita, OPR; South Australia: Bucks Camp Well, EGM JAF; Clare, JMJ; Ravine Des Casoars, PJMG; Safari, TSW; Streaky Bay, JMJ; Western Rl, GFG; Yorke Pen., JH; Western Australia: Esperance, BBL; Esperance 40 km W, BBL; Mt. Whaleback, JDM; Mundaring Weir, GHL; Ravensthorpe, BBL.

Worker diagnosis

Similar to *C. lownei* (Forel 1895). Distinguished by finely and densely punctate integument whereas in *C. lownei* it is mostly finely reticulate; with 5-10 erect setae on underside of the head and propodeum whereas *C. lownei* has > 10. Declining surface of propodeum is longer than the dorsal surface, in both.

Worker description

Major worker. Head sides and vertex mostly straight; clypeus anterior margin median section forming two projecting lobes with a concavity between; metanotum very wide.

Minor worker. Head sides straight and mostly parallel, vertex rounded, eyes placed at posterior third of the head; clypeus with a few long erect setae, sparse pubescence, anterior margin projecting convex; mesosoma dorsum evenly convex, propodeum angle in rear view very narrow. Also see Table 1.

Etymology

So named because of the fine dense punctations from Latin rudis; rough, unpolished.

*Camponotus scotti* sp. nov.

FIGS 10, 17

Holotype

One minor worker pinned in SAMA. South Australia, Scott Ck. CP. 35° 04' S 138° 42' E, 12th Dec. 99, T. Hands.

Paratypes

Three minor workers pinned in SAMA and ANIC. South Australia, Jupiter Ck. 35° 09' S 138° 46' E, 10th May 93, A. J. McArthur & S. O. Shutttuck.

Other material examined

Localities are shown in Fig. 10. South Australia: Woakwine Ra., AJM; Yumali 5 km S, AJM; Adelaide, NBT; Aldgate, BBL; Aldgate, APS; Ashbourne, RRO; Baros Reservoir, MTL; Beachport Jackies Walk, AJM; Belair, AJM; Belair, EGM JAF; Belair, GFG; Blackwood, MTY GFG; Bradbury, JMU; Bridgewater, JEB; Bridgewater, PJMG; Brown Hill Ck., DM; Coorong NP, PJMG; Cortina, AWF;
Biology

Often found foraging on tree trunks during the day, nest in ground.

Etymology

Named after Scott Ck. CP where the ant was first recognised.

Camponotus simpsoni sp. nov.
FIGS 11, 18

Holotype

One minor worker pinned in SAMA. Western Australia, Cape Wellington, 15° 09' S 124° 50' E, 27th Aug. 99, Riot South Australian Museum Expedition.

Paratypes

Three minor workers pinned in SAMA and ANIC. From same locality.

Other material examined

Localities are shown in Fig. 11. Australian Capital Territory: Black Mountain, BBL; New South Wales: West Wyalong 23 miles W, BBL; Northern Territory: Darwin, SOS. Queensland: Mingela, BBL; Warwick 30 km S, PJMG; Waverley, ANA JL. South Australia: Lake Gilles CP 32.56S 136.46E, JAF DH; Breakneck Ri., PJMG; Calpatanna W.H., JAF; Cambrai 25 km E, JDG; Cambrai 32.2 km E, TST; Ceduna, JAF; Ceduna 20 km E, JAF; Doulass Scrub, JAF EGM; Freeing Heights 2.8 km NNE, FRS; Gluepot, GLU; Kurrangas, THU; Lake Gilles CP, RIE; Mt. Remarkable NP, FRS; Munyarrup CP, JBE; Musgrave Ra., Pitj; Pinkawillinie CP, JAF; Poolchera, RFO BPL; Poolchera 11 km E, RJB; Rocky Ri., PJMG; Tandanya, FR; Telowie CP, FRS. Victoria: Inglewood, JHI. Western Australia: Armadale, LWA; Cape Arid NP, AJM SB; Coronation Is., RI; Faure Is., JAF; Mundaring Weir, JC.

Worker diagnosis

Slightly similar to C. hartogi (Forel 1902) and C. innexus (Forel 1902). Distinguished by short white semicircular setae on propodeum dorsum in side view, underside of the head scapes and tibiae lacking erect setae, sparse erect setae on head, mesosoma, node and gaster. Front of head finely and shallowly punctate otherwise finely reticulate, frontal carinae wide, propodeum dorsum straight, limbs and scape red brown otherwise colour variable from red to black often in patches, node parallel fore and aft, summit blunt; polymorphic. Also see Table 1.

Worker description

Major worker. Metanotum a shallow transverse notch in largest major workers but fading in smaller workers, head wider at the back, vertex straight, anterior clypeal margin weakly projecting with two lobes on either side of a shallow concavity, frontal carinae wide, clypeus coarsely punctate.

Minor worker. Head sides near parallel, vertex convex, anterior clypeal margin projecting evenly convex.
forward: node high, short longitudinally, summit blunt; mesosoma dorsal surface forming an even convexity. Also see Table 1.

Biology
Nest in ground.

Etymology
Named after Antony Simpson a benefactor of the South Australian Museum.

Acknowledgements
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References


