

New species, new status and new synonymy for *Camponotus* from Australia (Hymenoptera: Formicidae)

Archie J. MCARTHUR



Abstract

Four subspecies of *Camponotus* ants are raised to species rank viz. *Camponotus claripes* r. *elegans* FOREL, 1902 to *Camponotus elegans* FOREL, 1902; *Camponotus claripes* ssp. *marcens* FOREL, 1907 to *Camponotus marcens* FOREL, 1907; *Camponotus claripes* r. *minima* CRAWLEY, 1922 to *Camponotus minimus* CRAWLEY, 1922 and *Camponotus nigroaeneus* ssp. *xuthus* EMERY, 1925 to *Camponotus xuthus* EMERY, 1925. *Camponotus claripes* ssp. *piperatus* WHEELER, 1933 is synonymised with *Camponotus claripes* MAYR, 1876; and *Camponotus nigroaeneus* ssp. *divus* FOREL, 1907 is synonymised with *Camponotus nigroaeneus* (SMITH, 1858). The status of other subspecies of *Camponotus claripes* viz. *Camponotus claripes* var. *inverallensis* FOREL, 1910, *Camponotus claripes* var. *nudimalis* FOREL, 1913 and *Camponotus claripes* ssp. *orbiculatopunctatus* VIEHMEYER, 1925 have not been considered here because of the scarcity of material available. *Camponotus triodiae* sp.n. is described for the first time. Its habitat is the arid northern South Australia.

Key words: Ant, Formicinae, *Camponotus claripes*, *Camponotus nigroaeneus*, *Camponotus triodiae*, new species, new status, new synonymy.

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Introduction

The genus *Camponotus* was described by Gustav MAYR in 1862 and included six species from Australia. Today over 1400 species of *Camponotus* have been described from the world (BOLTON & al. 2007) and a key for identifying 101 of these from Australia has been published (MCARTHUR 2007). *Camponotus* workers are frequently encountered foraging on the ground and on trees. The minor workers travel long distances from the nest in search of food whereas the larger major workers stay closer to the nest to protect it. Dimensions of *Camponotus* major workers may be up to three times larger than those of minor workers. Some taxa are polymorphic, i.e., there is a gradual increase in size from the smallest minor to the largest major worker in a colony. Other taxa are dimorphic, i.e., there are no medium sized workers in a colony, the workers consist of two size groups – major workers and minor workers. Thus there is a wide variation in size, form and colour in Australian *Camponotus* ants from one nest. There is also variation between populations of the same species. The variation in eye length, tibia length and colour in specimens of *Camponotus terebrans* LOWNE, 1865 collected along a north-south traverse was shown to be significant but a molecular study supports only a single species being present (MCARTHUR & al. 1998). Just how much variation is acceptable morphologically in a "species" is of concern to taxonomists. WARD (2007) criticised some earlier authors for the proliferation of "subspecies" and "varieties" in many ant genera. For example, *Camponotus claripes piperatus* WHEELER, 1933 was the seventh subspecies since the original description of *Camponotus claripes* by MAYR in 1876. There is no justification for this given our current understanding of the evolutionary process.

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Material and methods

The South Australian Museum has a large collection of pinned *Camponotus* from South Australia. Many of these were collected in fauna surveys conducted by the South Australian Department for Environment and Heritage and others were donated by a host of local naturalists.

Acronyms of depositories. ANIC = Australian National Insect Collection, Canberra, Australia; BMNH = The Natural History Museum, London U.K.; MCZ = Museum of Comparative Zoology, Harvard University, Cambridge, MA, U.S.A.; MHNG: Museum d'Histoire Naturelle, Geneva, Switzerland; NHMW = Naturhistorisches Museum, Vienna, Austria; SAMA = South Australian Museum, Adelaide, Australia; OUM: Oxford University, Oxford, U.K.

Acronyms in material sections. CP = Conservation Park, NP = National Park, RGS = Royal Geographical Society, SADEH = South Australian Department for Environment and Heritage.

Morphological analysis. Characters found to be most useful in defining species boundaries in *Camponotus* are: pilosity on the dorsum of mesosoma, scapes, tibiae, and the underside of head and genae; form of the mesosoma in lateral view, form of the head in frontal view, particularly the anterior margin of the clypeus, curvature of sides of head and the width of the frontal carinae.

Measurements in millimetres. Most measurements of type material were carried out using a calibrated eyepiece graticule. Other measurements were carried out using a Mitutoyo 209116 micrometer attached to an Olympus XZ microscope fitted with cross hairs at 20 to 80× magnification. Specimens were measured thus: EL = eye length = maximum eye length; FCW = frontal carinae width = maximum distance between carinae with underside of head horizontal ignoring any abrupt curvature at posterior ends; HL = head length = maximum distance between anterior margin of clypeus and vertex with both in one horizontal plane; HT = head thickness = maximum distance between anterior and posterior surfaces in side view with posterior in strict vertical aspect; HW = head width = maximum distance between head sides with underside of head horizontal, eyes excluded; PW = pronotal width = maximum width of pronotum in dorsal view; TL = tibia length = length of mid-tibia in horizontal position. The ratio PD / D is derived from the two measurements: length of propodeal dorsum measured from the centre of the angle to the mesosoma suture and from the centre of the angle to the extremity of the declivity. The above measurements were transmitted to MS Excel 2000 via Gauge Link Wedge (SPLat Controls Pty. Ltd). Photographs were taken with a Nikon D70S camera, 55 mm Micro-NIKKOR lens and extension tubes. Images were combined with CombineZ5.2 (GNU Public Licence) by Alan Hadley.

Regression analysis was undertaken where adequate material was available; the significance of a and b in $y = a + b * x$ (where x = head width) was shown (GOULD 1966).

Systematics

Camponotus claripes claripes MAYR, 1876 (Figs. 1 - 3)

Camponotus claripes MAYR, 1876.

Camponotus claripes ssp. *piperatus* WHEELER, 1933, syn.n.

Type material examined: 4 syntypes of *C. claripes* (NHMW): 1 major worker "Peak Downs Godefr. Collect. G. Mayr *C. claripes* det. G. Mayr", 1 minor worker "Godefr. Australia 1876 *claripes* m. Peak Downs. *Camp. claripes* M. det. G. Mayr.", 1 major and 1 minor worker "Godefr. Australia 1876 *Camp. claripes* M. det. G. Mayr."; 2 syntypes of *C. claripes piperatus* (1 major and 1 minor worker; MCZ) "Cotype Mt. Lofty SA Aug 3 1931 Harvard Exp".

Other material examined (in SAMA): **New South Wales:** Armidale (30° 31' S, 151° 04' E), 29.VIII.1959, leg. B.B. Lowery; Bolivia Hill (29° 02' S, 151° 54' E), 29.XI.1997, leg. R. Eastwood & A.J. McArthur; Broken Hill 16 miles ENE (31° 53' S, 141° 42' E), 22.VII.1962, leg. R.H. Mew; Daydream Mine (31° 49' S, 141° 21' E), 13.XI.1960, leg. R.H. Mew; Glen Emu (34° 09' S, 143° 42' E), 14.VI.1969, leg. B.B. Lowery; Lake Cowal (33° 42' S, 147° 21' E), 29.IX.1971, leg. W. Vestjens; Lake Keepit Recreation Reserve (30° 54' S, 150° 03' E), 21.VII.2001, leg. T. Hands; Mairjimmy State Forest (35° 03' S, 145° 43' E), 5.V.1979, leg. B.B. Lowery; Menindie (32° 13' S, 142° 15' E), 2.III.1963, leg. R.H. Mew; Mt. Victoria (33° 35' S, 150° 15' E), 23.XI.1993, leg. A.J. McArthur & M. Adams; Mudgee (32° 36' S, 149° 35' E), 27.VIII.1963, leg. B.B. Lowery; One Tree Hill Albury (36° 01' S, 146° 58' E), 16.II.1999, leg. A.J. Pontin; Panhatya (34° 11' S, 142° 13' E), 24.II.2002, leg. J. Cox; Southerlands (34° 06' S, 139° 08' E), 22.IX.1914, leg. W.M. Wheeler; Tabbita (34° 06' S, 145° 51'

E), 18.VII.1979, leg. B.B. Lowery; Umberumberka Creek (31° 48' S, 141° 11' E), 26.IV.1965, leg. R.H. Mew; Waukeroo (33° 31' S, 142° 01' E), 29.VII.1962, leg. R.H. Mew; Wilcannia (31° 34' S, 143° 22' E), 30.VII.1999, leg. L. Hunt; Winbar Creek Bridge (30° 41' S, 144° 54' E), 14.X.1997, leg. D. Hirst; Wyalong 85 km W (33° 55' S, 148° 07' E), 23.XI.1993, leg. A.J. McArthur & M. Adams; Wycott Stn. (31° 30' S, 148° 19' E), 14.IV.1963, leg. R.H. Mew. **Queensland:** Chinchilla (26° 44' S, 151° 06' E), 4.VI.1959, leg. E.M. Exley; Ellis Beach (16° 44' S, 145° 39' E), 8.II.1999, leg. A.J. Pontin; Emerald (23° 31' S, 148° 01' E), leg. K. Schneider; Nambour (26° 38' S, 152° 58' E), 30.IV.1999, leg. W.M. McArthur; St. George (28° 03' S, 148° 35' E), 6.I.1965, leg. B.B. Lowery; Warwick 8.5 km SE (28° 16' S, 152° 06' E), 30.XI.1997, leg. R. Eastwood & A.J. McArthur. **South Australia:** Adelaide (34° 56' S, 138° 36' E), leg. N.B. Tindale; Alligator Gorge (32° 47' S, 138° 04' E), 5.VI.1974, leg. P.J.M. Greenslade; Anstey Hill (34° 51' S, 138° 44' E), 24.IX.2006, leg. D. Hirst; Arltunga 1.4 km SSW (36° 08' S, 140° 48' E), 15.XII.1995, leg. SADEH Box & Bulloak Survey; Beetaloo (33° 07' S, 138° 07' E), 20.VII.1973, leg. P.J.M. Greenslade; Blackwood (35° 00' S, 138° 22' E), leg. Mrs J. Fairley; Blanchetown (34° 22' S, 139° 38' E), 30.IX.1997, leg. J. Mugford; Blinman (31° 07' S, 138° 41' E), 18.V.1992, leg. A.J. McArthur & M. Adams; Bordertown (36° 03' S, 141° 17' E), 19.IV.2003, leg. J. Samuel White; Bow Hill (34° 31' S, 139° 22' E), 30.XII.1974, leg. P.J.M. Greenslade; Bradbury (35° 03' S, 138° 43' E), 28.IV.1994, leg. J. Mugford; Breakneck River (35° 33' S, 136° 22' E), 9.IX.1972, leg. P.J.M. Greenslade; Calperum (34° 02' S, 140° 43' E), 26.II.1997, leg. G.L. Howie; Cambrai (34° 39' S, 139° 17' E), 16.X.1999, leg. G.L. Howie; Cape Borda Road (35° 45' S, 136° 35' E), 1.XII.1995, leg. L. Hunt; Casuarina Dam (33° 54' S, 140° 19' E), 12.X.2000, leg. L. Monahan; Ceduna 10 km NW (32° 04' S, 133° 36' E), 29.X.1995, leg. R. Foster B. Pike; Clements Gap CP (33° 03' S, 138° 05' E), 1.X.2000, leg. T. Steggles; Coongie Lake (27° 11' S, 140° 01' E), 16.IX.1997, leg. L. Hunt; Cull-yamurra Water Hole (27° 42' S, 140° 52' E), 19.VI.1998, leg. H. Tolcher; Custon 1.2 km S (36° 27' S, 140° 56' E), 8.XII.1995, leg. SADEH Box & Bulloak Survey; Dang-gali (33° 14' S, 140° 42' E), 1.I.1993, leg. A.J. McArthur; First Dam 3.4 km SE (33° 57' S, 140° 14' E), 12.X.2000, leg. RGS Bookmark Survey; Freeling Heights 4.6 km NE (30° 07' S, 139° 25' E), 22.X.1999, leg. SADEH Flinders Ra. Survey; Gawler (34° 36' S, 138° 45' E), 16.V.1998, leg. M. Adams; Heywood Park (34° 56' S, 138° 36' E), 4.I.1999, leg. A.J. McArthur; Horn Camp Ruin 2.2 km ESE (31° 07' S, 138° 39' E), 25.III.1999, leg. SADEH Flinders Ra. Survey; Hunchee 3.4 km WSW (34° 03' S, 140° 46' E), 13.XI.2000, leg. SADEH Murray Valley Survey; Innes NP (35° 16' S, 136° 54' E), 27.IV.2003, leg. R. Hutchinson; Jimmy's Well (35° 51' S, 140° 18' E), 19.III.1992, leg. J.A. Forrest & E.G. Matthews; Jumania Eng (33° 54' S, 135° 54' E), 6.XII.2003, leg. SADEH Eyre Pen. Survey; Kapunda (34° 12' S, 138° 33' E), 8.X.1972, leg. C.A. Versteeg; Karcultaby Area School (32° 46' S, 134° 58' E), 15.X.1995, leg. A.J. McArthur & C. Watts; Katarapko (34° 24' S, 140° 33' E), 1.IX.1993, leg. J. Mugford; Kimba (33° 08' S, 136° 25' E), 20.X.1995, leg. R. Foster; Koongawa 16 km NNW (33° 03' S, 135° 05' E), 24.XI.1995, leg. J.A. Forrest; Koppio 1.9 km NNE (34° 26' S, 135° 53' E), 17.XII.2004, leg. SADEH Eyre Pen. Survey; Lake Appadare - Lake Hope



Fig. 1: *Camponotus claripes*, major worker above, minor worker below; left: frontal view of head; right: habitus, lateral.

channel 4 km S (28° 16' S, 139° 13' E), 11.IV.1997, leg. Waterhouse Club Warburton Ra. Expedition; Lake Gilles (33° 06' S, 136° 36' E), 24.IX.1999, leg. R. Leys; Lake Gilles CP (32° 56' S, 136° 46' E), 21.XI.1995, leg. B. Pike; Lake Toontoowaranie (27° 06' S, 140° 01' E), 5.V.1998, leg. J.A. Forrest; Lance Bore 3.4 km W (30° 58' S, 138° 46' E), 25.III.1999, leg. SADEH Flinders Ra. Survey; Loxton Caravan Park (34° 27' S, 140° 34' E), 1.VII.1973, leg. M. King; Mambray Creek (32° 05' S, 137° 59' E), 5.X.1988, leg. D. Hirst; Mary Seymour (37° 01' S, 140° 37' E), 29.IX.2001, leg. R. Hutchinson; Middle Dam 1.5 km SW (33° 55' S, 140° 12' E), 11.X.2001, leg. RGS Bookmark Survey; Mintaro (33° 55' S, 138° 43' E), 1.IV.2001, leg. T. Hands; Monarto (35° 07' S, 139° 05' E), 28.III.1985, leg. S. Australian Woods & Forests Dept.; Moockra Tower (32° 24' S, 138° 24' E), 18.X.1996, leg. R. Grund; Moolooloo (30° 35' S, 138° 21' E), leg. S.A. White; Moonta Cemetery (34° 03' S, 137° 35' E), 27.XII.2002, leg. J. Berentson; Moorundie (34° 24' S, 139° 36' E), 17.IV.2000, leg. G. & R. Churchett; Mt. Barr 5.8 km NNW (26° 17' S, 134° 56' E), 8.V.2005, leg. SADEH Arid Rivers Survey; Mudlapena Spring 5.8 km SE (30° 39' S, 138° 51' E), 17.XI.1998, leg. SADEH Flinders Ra. Survey; Ngarutjara (26° 14' S, 131° 47' E), 16.X.1994, leg. SADEH Pitjantjatara Lands Survey; Oraparinna NP (31° 13' S, 138° 25' E), 15.VI.1978, leg. J.A. Forrest; Pandappa CP (33° 01' S, 139° 08' E), 25.IV.2003, leg. D. Hirst; Pinkawillinie CP (33° 07' S, 136° 06' E), 17.IV.1996, leg. J. Mugford; Poochera (32° 43' S, 134° 05' E), 15.X.1995, leg. R. Foster; Pooginagoric 3.7 km NE (36° 25' S, 140° 52' E), 5.XII.1995, leg. SADEH Box & Bulloak Survey; Port Germein 4 km N (32° 59' S, 138°

00' E), 19.VIII.2000, leg. T. Steggles; Portee (34° 26' S, 139° 36' E), 3.X.1999, leg. A.J. McArthur; Pt. Augusta 5 km N (32° 18' S, 137° 27' E), 15.VII.1993, leg. A.J. McArthur & J.D. Erskine; Quorn (32° 12' S, 138° 01' E), 1.VII.1932, leg. R. Weeks; Red Tank Dam (33° 08' S, 140° 51' E), 6.V.1991, leg. A.J. McArthur; Renmark (34° 06' S, 140° 27' E), 21.X.1991, leg. A.J. McArthur; Riverton 5 km S (34° 06' S, 138° 27' E), 23.I.1975, leg. P.J.M. Greenslade; Roseworthy College (34° 19' S, 138° 24' E), 1.X.1990, leg. J.T. Jennings; Salisbury (34° 46' S, 138° 39' E), 26.IV.1999, leg. A.J. McArthur; Scotts Creek Morgan (34° 06' S, 139° 41' E), 21.IX.2000, leg. T. Steggles; Scrubby Peak 4 km SW (32° 22' S, 135° 06' E), 13.XII.1989, leg. J.A. Forrest; Sevenhill (33° 53' S, 138° 38' E), 14.III.1957, leg. B. B. Lowery; Streaky Bay (32° 28' S, 134° 07' E), 20.IX.1957, leg. B.B. Lowery; Sutherlands 7 km W (34° 01' S, 139° 14' E), 1.I.1990, leg. P. Thomas; Tammar Sanctuary (35° 49' S, 137° 52' E), 1.IX.2000, leg. G.&R. Churchett; Tanunda (34° 32' S, 138° 58' E), 6.X.1998, leg. A.J. McArthur; Tea Tree Gully (34° 29' S, 138° 27' E), 18.II.2007, leg. C.H.S. Watts; Thomas Hill (34° 53' S, 138° 49' E), 9.XI.2001, leg. P. Matejcic; Tomahawk Dam 3 km N (33° 02' S, 140° 43' E), 26.XI.1996, leg. J.A. Forrest; Torrens Track (34° 52' S, 138° 46' E), 24.X.1992, leg. J. Mugford; Vivonne Bay (35° 59' S, 137° 01' E), 24.III.2005, leg. D.A. Young; Waite Arboretum (34° 56' S, 138° 38' E), 6.IX.2001, leg. A.J. McArthur & R.S. Bungey; Warraweena 9.4 km E (30° 47' S, 138° 44' E), 14.VII.1999, leg. Warraweena Survey; Weetootla Tank 5 km NW (30° 17' S, 139° 09' E), 7.V.1989, leg. G.F. Gross; Western River 2.4 km W (35° 42' S, 136° 37' E), 15.III.1995, leg. T. Herbert; White Bull Yard 1 km

N (27° 53' S, 137° 55' E), 8.X.1999, leg. Waterhouse Club Warburton Expedition; Wilpena Pound (31° 34' S, 138° 35' E), 29.III.1971; Wingoone Hill 2.3 km SW (33° 07' S, 139° 17' E), 24.X.1992, leg. SADEH South Oleary Plains Survey; Wistow (35° 07' S, 138° 53' E), 30.IV.1996, leg. R. Grund; Woakwine Forest (37° 16' S, 139° 56' E), 8.I.1997, leg. A.J. McArthur & P.J. Fargher; Wolseley 5.2 km ENE (36° 22' S, 140° 57' E), 15.XII.1995, leg. SADEH Box & Bulloak Survey Yelpawaralinn WH (27° 07' S, 138° 42' E), 25.XI.1993, leg. J.A. Forrest & D. Hirst; Yookamurra (34° 20' S, 139° 10' E), 31.V.1999, leg. J. Muford; Zebra Finch Crossing (28° 19' S, 135° 58' E), 4.VIII.1990, leg. P. & I. Gee. **Victoria:** Castlemaine (37° 04' S, 144° 13' E), 10.II.1999, leg. National Museum of Victoria; Creswick (37° 07' S, 143° 04' E), 9.II.1999, leg. National Museum of Victoria; Hamilton (37° 45' S, 142° 02' E), 5.I.1995, leg. R.G. Simms; Lindsay (34° 08' S, 141° 08' E), 1.I.1986, leg. A.L. Yen; Millewa South Bore 3.6 km N (34° 45' S, 141° 04' E), 1.I.1986, leg. A.L. Yen; Mt. Brenanah (36° 32' S, 143° 41' E), 1.I.1995, leg. S. Hinckley; Sea Lake (35° 03' S, 142° 51' E), leg. J.C. Goudie; Selwyn Creek (37° 02' S, 146° 57' E), 1.I.1998, leg. National Museum of Victoria; State Forest St. Arnaud (36° 37' S, 143° 16' E), 1.I.1995, leg. S. Hinckley; The Paps (37° 03' S, 145° 59' E), 4.II.1992, leg. J. Wainer; Ultima (35° 28' S, 143° 16' E), leg. J.C. Goudie; Werribee Gorge (37° 24' S, 144° 12' E), 7.IV.1958, leg. B.B. Lowery. **Western Australia:** Beverley 75 km W Talbot Road (32° 04' S, 116° 04' E), 27.IV.1975, leg. A.M. & M.J. Douglas; Bokal Railway Station (33° 03' S, 116° 54' E), 1.V.1994, leg. M. Adams; Norseman 30 km S (32° 07' S, 121° 28' E), 1.I.1992, leg. M. Adams; North Bannister 10 km S (32° 04' S, 116° 27' E), 16.VII.1988, leg. B. Heterick; Pemberton (34° 26' S, 116° 09' E), 20.X.1999, leg. A.J. & W.M. McArthur; Porongurup 30 km NE (34° 04' S, 117° 54' E), 1.V.1994, leg. M. Adams.

Worker description: Major worker. Head sides posterior three quarters straight tapering slightly, anterior quarter feebly convex tapering anteriorly. Vertex straight. Clypeus median third projecting forward, bounded by two teeth, concave between. Mandibles with 6 teeth. $FCW < HW / 3$. Integument mainly glossy. Mesosoma in profile mostly uniformly convex. Metanotum distinct. Propodeal angle well rounded. Petiolar node summit tending sharp. Erect setae on mesosoma dorsum sparse and scattered. Genae and underside of head with erect setae. Scape and tibiae with short setae raised to 10°. Colour: head and gaster mostly black or brown, mesosoma yellowish brown, legs lighter.

Minor worker. Head sides straight parallel. Vertex convex. Clypeus anterior median third projecting, straight or feebly concave. Mandibles with 6 teeth. $FCW < HW / 3$. Integument mainly glossy. Mesosoma in profile mostly uniformly convex. Propodeal angle well rounded. Petiolar node summit tending sharp. Erect setae on mesosoma dorsum sparse and scattered. Genae and underside of head with erect setae. Scape and tibiae with short setae raised to 10°. Colour: head and gaster mostly black or brown, mesosoma yellowish brown, legs lighter.

Morphometrics: See Fig. 2.

Notes: There is no specific difference between *C. claripes piperatus* and the typical *C. claripes*. One syntype of *C. claripes piperatus* is a specimen with a swollen gaster due to the presence of a parasite (WHEELER 1933).

Distribution: See Fig. 3.

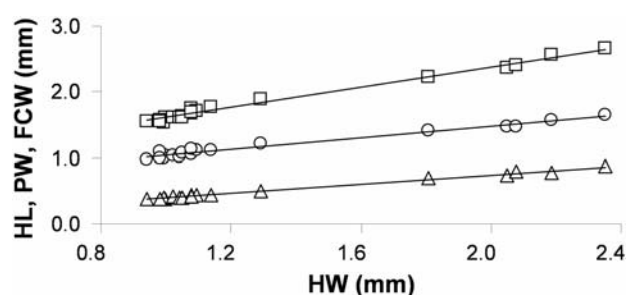


Fig. 2: *Camponotus claripes*. Graph with HW at x axis and $\square$ = HL, $\circ$ = PW, $\triangle$ = FCW at y axis. $HL = 0.77 * HW + 0.83$ ($R^2 = 0.98$, $n = 20$); $PW = 0.44 * HW + 0.60$ ($R^2 = 0.97$, $n = 20$); $FCW = 0.35 * HW + 0.04$ ($R^2 = 0.99$, $n = 20$).

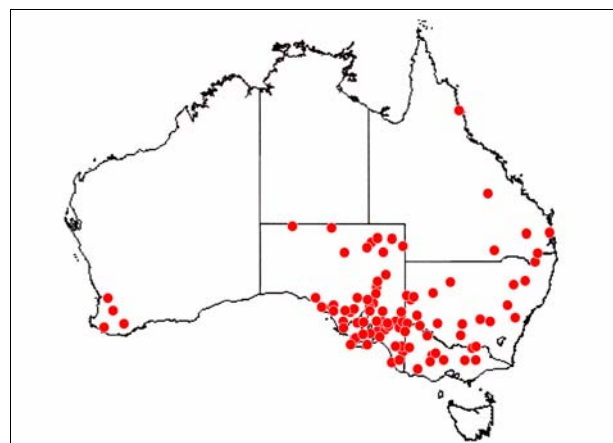


Fig. 3: Collection localities of *C. claripes*, specimens in SAMA.

Camponotus elegans FOREL, 1902 stat.n. (Figs. 4 - 6)

Camponotus claripes r. *elegans* FOREL, 1902

Type material examined: 3 syntypes (GMNH): 1 major and 2 minor workers "C claripes elegans Froggatt Aust Wallsend Forel".

Other material examined (in SAMA): **Australian Capital Territory:** Canberra (35° 18' S, 149° 08' E), 30.IX.2001, leg. T. Hands. **New South Wales:** Eatonsville (29° 38' S, 152° 50' E), 29.XI.1997, leg. A.J. McArthur & R. Eastwood; Eungella (28° 21' S, 153° 19' E), 9.I.1966, leg. B.B. Lowery; Hornsby (33° 42' S, 151° 06' E), 14.XII.1914, leg. W.M. Wheeler; Manly (33° 48' S, 151° 17' E), 24.IX.1914, leg. W.M. Wheeler; Royal NP (34° 04' S, 151° 04' E), 26.IX.1914, leg. W.M. Wheeler; Silverton (31° 53' S, 141° 14' E), 20.IX.1969, leg. R.H. Mew; Sutherland (34° 02' S, 151° 06' E), 22.IX.1914, leg. W.M. Wheeler; Trundle (32° 55' S, 147° 42' E), 5.I.1964, leg. B.B. Lowery. **Queensland:** Cunninghams Gap (28° 03' S, 152° 24' E), 3.XI.1958, leg. E.M. Exley; Dalby (27° 11' S, 151° 15' E), 5.VI.1959, leg. E.M. Exley; Warwick (28° 13' S, 152° 02' E), 30.XI.1997, leg. A.J. McArthur & R. Eastwood. **South Australia:** Adelaide (34° 56' S, 138° 36' E), 3.X.1998, leg. A.J. McArthur; Beltana (30° 50' S, 138° 23' E), 14.IX.1972, leg. J.E. Feehan; Bookmark (34° 10' S, 140° 45' E), 1.I.1998, leg. E. Banna; Bordertown (36° 18' S, 140° 46' E), 9.XII.2007, leg. J. Samuel White; Bridgewater (35° 00' S, 138° 46' E), 5.XII.1994, leg. E.G. Matthews & J.A. Forrest;



Fig. 4: *Camponotus elegans*, major worker above, minor worker below; left: frontal view of head; right: habitus, lateral.

Burr Well (30° 23' S, 138° 41' E), 28.VIII.1963, leg. B.B. Lowery; Callory Bore 4 km ESE (31° 49' S, 138° 48' E), 20.XI.1999, leg. SADEH NW Flinders Ra. Survey; Cape Borda 5 km E (35° 45' S, 136° 38' E), 15.IV.1973, leg. P.J. M Greenslade; Ceduna 20 km NW (32° 00' S, 133° 32' E), 29.X.1995, leg. R. Foster; Danggali CP (33° 31' S, 140° 28' E), 7.VIII.2000, leg. A.J. McArthur; Ferries MacDonald NP (35° 13' S, 139° 09' E), 5.X.1978, leg. E.G. Matthews; First Dam (33° 56' S, 140° 12' E), 12.X.2000, leg. RGS Book-ark Survey; Gluepot (33° 46' S, 140° 07' E), 6.XII.2000, leg. Gluepot Survey; Hambidge CP (33° 24' S, 135° 55' E), 22.VIII.2000, leg. T. Hands; Hideaway Hut (33° 45' S, 140° 32' E), 3.X.1996, leg. G.L. Howie; Karte CP (35° 07' S, 140° 42' E), 29.III.2000, leg. J.A. Forrest; Kolay Dam (32° 33' S, 135° 36' E), 11.XII.1989, leg. J.A. Forrest; Koonamore (32° 04' S, 139° 23' E), 6.IX.1996, leg. SADEH Koonamore Survey; Lake Gilles CP (32° 56' S, 136° 46' E), 21.XI.1995, leg. B. Pike; Lashmars Lagoon (35° 48' S, 138° 04' E), 4.I.2002, leg. G. & R. Churchett; Minnowarra (35° 26' S, 138° 32' E), 20.IV.2002, leg. Scientific Exploration Group Survey; Mount Rescue CP (35° 54' S, 140° 22' E), 19.III.1992, leg. E.G. Matthews & J.A. Forrest; Mundulla (36° 22' S, 140° 42' E), 15.XII.1996, leg. SADEH Box & Bulloak Survey; Munyaroo CP (33° 22' S, 137° 20' E), 27.IX.2002, leg. SADEH Munyaroo Survey; Murray Bridge (35° 07' S, 139° 16' E), 9.III.1999, leg. M. Ludewigs; Oraparinna (31° 22' S, 138° 43' E), 15.VI.1973, leg. J.A. Forrest; Orroroo (32° 44' S, 138° 37' E), 7.X.1976, leg. P.J.M. Greenslade; Padthaway (36° 36' S, 140° 29' E), leg. Chee

Song Chong; Panaramatee (32° 39' S, 139° 38' E), 1.V.2008, leg. G. & R. Churchett; Pinkawillinie CP (33° 07' S, 136° 06' E), 25.XI.1995, leg. J.A. Forrest; Renmark (34° 10' S, 140° 45' E), 18.X.1996, leg. R. Grund; Sandford Dam (33° 20' S, 140° 54' E), 23.III.2001, leg. J.A. Forrest & D. Hirst; Scott Creek (35° 04' S, 138° 42' E), 12.XII.2001, leg. T. Hands; Sinclair Gap (33° 08' S, 137° 08' E), 10.XI.1999, leg. S. Barker; Strathalbyn (35° 16' S, 138° 54' E), 10.II.1981, leg. R.D. Robinson; Tiverton (32° 44' S, 139° 43' E), 30.IX.2001, leg. G. & R. Churchett; Warren Gorge (32° 12' S, 138° 00' E), 23.III.1965, leg. R.V. Southcott; Waterfall Creek (35° 43' S, 136° 54' E), leg. D. Hirst; Woakwine (37° 26' S, 140° 06' E), 1.I.2003, leg. A.J. McArthur & A.A. Simpson; Wolseley (36° 22' S, 140° 54' E), 1.IV.2007, leg. J. Samuel White. **Tasmania:** Apsley Gorge (41° 51' S, 148° 10' E), 27.II.1994, leg. B.B. Lowery; Conara (41° 50' S, 147° 26' E), 3.XI.1994, leg. B.B. Lowery; Devonport (41° 11' S, 146° 21' E), 28.IV.2003, leg. R. Lavigne; Evandale (41° 34' S, 147° 15' E), leg. A.M. Lea; Flinders Island (40° 07' S, 148° 07' E), 5.XI.1991, leg. B.B. Lowery; Frankford (41° 20' S, 146° 46' E), 11.XI.1992, leg. B.B. Lowery; Lefroy (41° 06' S, 146° 59' E), 24.XII.1990, leg. B.B. Lowery; Maria Island (42° 38' S, 148° 05' E), 26.II.1992, leg. B.B. Lowery; Mt. Rumney (42° 52' S, 147° 27' E), 12.XII.1971, leg. R.H. Mew; Mt. Wellington (42° 54' S, 147° 14' E), 1.I.1991, leg. B.B. Lowery; North Bruny Island (43° 09' S, 147° 21' E), 1.III.1992, leg. B.B. Lowery; Railton (41° 21' S, 146° 25' E), 1.III.1991, leg. B.B. Lowery; Rossarden (41° 40' S, 147° 45' E), 3.XI.1994, leg. B.B. Lowery; St. Helens

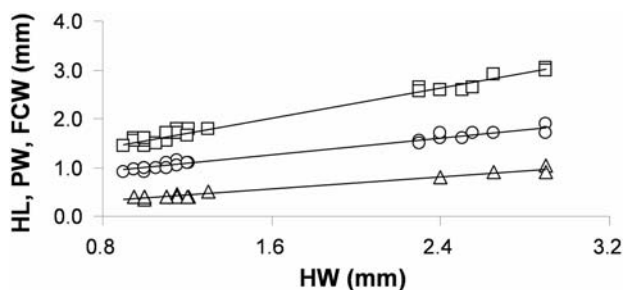


Fig. 5: *Camponotus elegans*. Graph with HW at x axis and $\square$ = HL, $\circ$ = PW, $\triangle$ = FCW at y axis. $HL = 0.77 * HW + 0.787$ ($R^2 = 0.98$, $n = 30$); $PW = 0.43 HW + 0.55$ ($R^2 = 0.97$, $n = 30$); $FCW = 0.31 * HW + 0.08$ ($R^2 = 0.97$, $n = 30$).

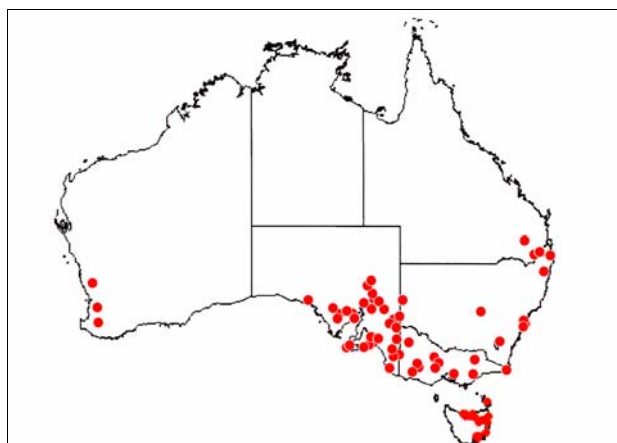


Fig. 6: Collection localities of *C. elegans*, specimens in SAMA.

(41° 20' S, 148° 15' E), 3.X.1994, leg. B.B. Lowery; Taaroona (42° 57' S, 147° 20' E), 22.XI.1994, leg. B.B. Lowery; Ulverstone (41° 10' S, 146° 11' E), 11.I.1995, leg. B.B. Lowery. **Victoria:** Big Desert (35° 25' S, 141° 40' E), 11.X.1981, leg. R.D. Robinson; Bogong (36° 48' S, 147° 13' E), 1.I.1998, leg. National Museum of Victoria; Creswick (37° 26' S, 143° 54' E), 9.II.1999, leg. National Museum of Victoria; Halls Gap 10 km S (37° 13' S, 142° 31' E), 10.XI.1989, leg. A.J. McArthur; Hamilton (37° 45' S, 142° 02' E), 5.I.1995, leg. R.G. Simms; Inglewood (36° 35' S, 143° 52' E), leg. S. Hinckley; Mackenzie Falls (37° 07' S, 142° 25' E), 10.XI.1989, leg. A.J. McArthur; Maffra (37° 58' S, 146° 59' E), 6.V.1998, leg. National Museum of Victoria; Maldon State Forest (37° 04' S, 144° 05' E), leg. S. Hinckley; Malacoota (37° 34' S, 149° 45' E), 1.I.1990, leg. S. Morrison; Mt. Brenanah (36° 32' S, 143° 41' E), leg. S. Hinckley; Ta-wonga Gap (36° 43' S, 147° 07' E), 14.I.1999, leg. A.J. Pontin; The Patch (37° 53' S, 145° 23' E), 4.II.1992, leg. J. Wainer. **Western Australia:** Condinup (33° 46' S, 116° 30' E), 1.V.1994, leg. M.A. Adams; Moora (30° 38' S, 116° 00' E), 31.VII.1983, leg. B.B. Lowery; North Bannister (32° 35' S, 116° 27' E), 16.VII.1988, leg. B. Heterick.

Worker description: Major worker. Head sides posterior three quarters parallel weakly convex, anterior quarter tapering anteriorly. Vertex straight corners widely rounded. Clypeus anterior margin lateral thirds forming shallow concavities, median third projecting forward, bounded by

two teeth, concave between. Mandibles with 6 teeth. $FCW < HW / 3$. Integument mainly glossy. Pronotum uniformly convex. Mesonotum feebly inclined anteriorly, otherwise weakly convex. Metanotum a feeble transverse trough. Propodeal dorsum weakly convex. Propodeal angle 135° rounded. Petiolar node summit tending sharp. Erect setae on mesosoma dorsum mostly near angle and on pronotum. Genae and underside of head with plentiful erect setae. Scape and tibiae with short setae raised to 10°. Colour: mostly black or brown, legs lighter.

Minor worker. Head sides straight, parallel. $HL > HL$. Vertex convex. Clypeus anterior margin median third projecting with a concavity between two blunt teeth. Mandibles with 5 or 6 teeth. $FCW < HW / 3$. Integument mainly glossy. Pronotum nearly flat. Mesonotum mostly flat. Propodeal dorsum mostly flat. Propodeal angle 135° rounded. Petiolar node length about half height, anterior and posterior straight summit blunt. Erect setae on mesosoma dorsum sparse. Genae and underside of head with plentiful erect setae. Scape and tibiae with short setae raised to 10°. Colour: mostly black or brown, legs lighter.

Morphometrics: See Fig. 5.

Comparative notes: *Camponotus elegans* stat.n. has an elongate mesosoma as shown in Fig. 4 whereas in *C. claripes* it is higher, as shown in Fig. 1.

Distribution: See Fig. 6.

***Camponotus marcens* FOREL, 1907 stat.n.** (Figs. 7, 8)

Camponotus claripes marcens FOREL, 1907a.

Type material examined: 2 syntypes (GMNH): 1 major and 1 minor worker "Forel Typus Hamburg SW Aust Exp 1905 Stat 101 Mundaring Weir 9. VII".

Other material examined (in SAMA): **Western Australia:** Geike Gorge (18° 04' S, 125° 44' E), 4.VII.1967, leg. R.H. Mew & G. Campbell; Jurien Bay (30° 18' S, 115° 00' E), 14.VIII.1996, leg. B.B. Lowery; Mundaring (31° 54' S, 116° 10' E), 1.VI.1987, leg. B. Heterick; Wagerup (32° 55' S, 115° 54' E), leg. J.D. Majer.

Worker description: Major worker. Head sides posterior three quarters straight slightly tapering anteriorly, anterior quarter convex more strongly tapering anteriorly. Vertex nearly straight, in side view swollen. Clypeus anterior median third projecting forward, bounded by two blunt teeth, concave between. Mandibles with 6 teeth. Integument mainly glossy. Mesosoma in profile uniformly convex. Metanotum with two close transverse lines followed posteriorly by a short steep decline. Propodeum angle 135°, rounded. $PD / D \sim 1.5$. Petiolar node summit tending sharp. Erect setae on mesosoma dorsum sparse and scattered. Genae and underside of head with plentiful erect setae. Scape with plentiful short setae raised to 10° with a few erect. Tibiae with short setae raised to 10°. Colour: head and gaster reddish brown, mesosoma yellow brown.

Minor worker. Head sides straight tapering posteriorly. Vertex strongly convex. Clypeus anterior margin projecting anteriorly, feebly convex. Mandibles with 6 teeth. Integument mainly glossy. Mesosoma in profile uniformly weakly convex. Propodeal angle rounded. Petiolar node thick, length about half height, summit blunt. Erect setae on mesosoma dorsum sparse and scattered. Genae and underside of head with plentiful erect setae. Scape with plentiful short setae raised to 10° with a few erect. Tibiae with short setae raised to 10°. Colour: reddish yellow.



Fig. 7: *Camponotus maricens*, major worker above, minor worker below; left: frontal view of head; right: habitus, lateral.

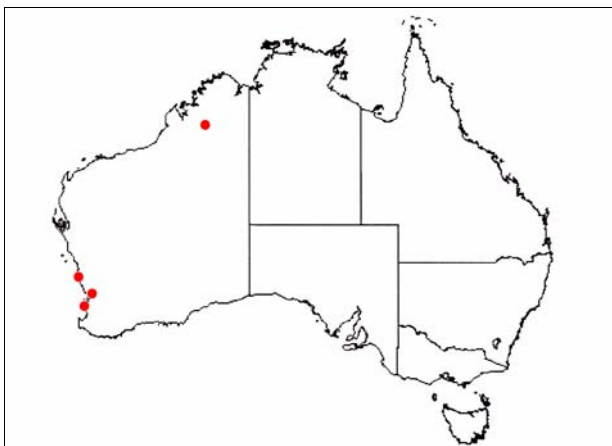


Fig. 8: Collection localities of *C. maricens*, specimens in SAMA.

Morphometrics (Type material, GMNH): Major worker HW 2.85, HL 3.00, PW 1.90, FCW 1.0, HT 2.00, EL 0.55, TL 1.90. Minor worker HW 1.10, HL 1.60, PW 1.00, FCW 0.4, HT 0.90, EL 0.35, TL 1.70.

Comparative notes: *Camponotus maricens* stat.n. has the sides of its head converging posteriorly in the minor worker as shown in Fig. 7 whereas in *C. claripes* the sides are parallel as shown in Fig. 1.

Distribution: See Fig. 8.

***Camponotus minimus* CRAWLEY, 1922 stat.n.** (Figs. 9 - 11)

Camponotus claripes r. *minima* CRAWLEY, 1922.

Camponotus claripes minimus: TAYLOR 1985.

Type material examined: 2 syntypes (OUM): 1 major and 1 minor worker "Cotype 122 Mundaring WA".

Other material examined (in SAMA): **Australian Capital Territory:** Black Mountain (35° 16' S, 149° 06' E), 19.V.1968, leg. B.B. Lowery; Capitol Hill (35° 18' S, 149° 08' E), 15.V.1959, leg. B.B. Lowery; Kowen (35° 18' S, 149° 17' E), 15.VII.1932, leg. T. Greaves; Mt. Black (35° 38' S, 148° 41' E), 18.VIII.1931, leg. T. Greaves; Red Hill (35° 19' S, 149° 07' E), 16.V.1959, leg. B.B. Lowery. **New South Wales:** Berrigan State Forest (35° 41' S, 145° 55' E), 7.V.1979, leg. B.B. Lowery; Cowra 17 miles W (33° 50' S, 148° 41' E), 8.XII.1965, leg. B.B. Lowery; Gosford (33° 26' S, 151° 21' E), 1.IV.1956, leg. B.B. Lowery; Goulburn (34° 45' S, 149° 43' E), 20.V.1959, leg. B.B. Lowery; Hillston 32 km S (33° 29' S, 145° 32' E), 17.IV.1978, leg. B.B. Lowery; Iluka (29° 24' S, 153° 21' E), 15.IX.1964, leg. B.B. Lowery; Lake Cowal (33° 42' S, 147° 21' E), 29.IX.1971, leg. W. Virtjns; Mootwingee (31° 17' S, 142° 18' E), 18.V.1971, leg. B.B. Lowery; Mudgee (32° 36' S, 149° 35' E), 1.IX.1960, leg. B.B. Lowery; Queanbeyan (35° 21' S, 149° 14' E), 17.V.1968, leg. B.B. Lowery; Trundle (32° 55' S, 147° 42' E), 3.I.1964, leg. B.B. Lowery; West Wyalong (33° 55' S, 147° 12' E), 8.XII.1965, leg. B. B. Lowery. **Northern Territory:** Ayers Rock (25° 21' S, 131° 04' E), 19.II.1996, leg. A. Boyle; New Bore 6 km SW (25° 16' S, 130° 55' E),



Fig. 9: *Camponotus minimus*, major worker above, minor worker below; left: frontal view of head; right: habitus, lateral.

4.IV.1995, leg. J. Wainer. **Queensland:** Wacol (27° 35' S, 152° 55' E), 30.XI.1956, leg. B.B. Lowery; Windsor Tableland (16° 18' S, 145° 05' E), 5.XI.1976, leg. R.W. Taylor & T.A. Weir. **South Australia:** Alawoona 28 km S (34° 57' S, 140° 27' E), 21.XI.1996, leg. J.A. Forrest; Balah 7 km SE (33° 47' S, 139° 49' E), 13.X.1992, leg. SADEH South Oleary Plains Survey; Billiatt CP (34° 58' S, 140° 27' E), 23.III.1996, leg. A.J. McArthur & J.D. Erskine; Blanchetown (34° 22' S, 139° 38' E), 30.IX.1997, leg. J. Mugford; Blyth (33° 51' S, 138° 29' E), 4.VII.1957, leg. B.B. Lowery; Bridgewater (35° 00' S, 138° 46' E), 1.I.1974, leg. P.J.M. Greenslade; Bunker Hill (36° 00' S, 136° 45' E), 14.I.1973, leg. P.J.M. Greenslade; Cambrai 34.2 km E (34° 38' S, 139° 31' E), 29.X.2000, leg. T. Steggles; Casuarina Dam (33° 53' S, 140° 18' E), 10.X.2000, leg. RGS Bookmark Survey; Ceduna (32° 07' S, 135° 48' E), 1.X.1957, leg. B.B. Lowery; Christmas Rocks (35° 21' S, 140° 21' E), 8.XI.1992, leg. A.J. McArthur; Cleland NP (34° 59' S, 138° 43' E), 11.IV.1999; Clements Gap CP (33° 29' S, 138° 04' E), 1.X.2000, leg. T. Steggles; Danggali CP (33° 15' S, 140° 44' E), 1.IV.1998, leg. K. Schneider; Echunga 4 km W (35° 06' S, 138° 45' E), 1.V.1993, leg. S.O. Shattuck; Ferries-McDonald NP (35° 13' S, 139° 09' E), 1.XI.1978, leg. E.G. Matthews; Franklin Islands (32° 27' S, 133° 40' E), 1.II.1991, leg. T. Herbert; Freeling Heights 6.5 km ENE (30° 07' S, 139° 26' E), 23.X.1999, leg. SADEH Flinders Ra. Survey; Gawler (34° 36' S, 138° 45' E), 15.V.1998, leg. M. Adams; Gluepot (33° 42' S, 140° 10' E), 1.X.2000, leg. U. Carnegie; Great Victoria Desert (28° 30' S, 129° 01' E), 1.VII.1999, leg. Friends of Great Victoria Desert; Greenly Is. (34° 39' S, 134° 47' E), 29.XI.1976, leg. W. Zeidler; Gum

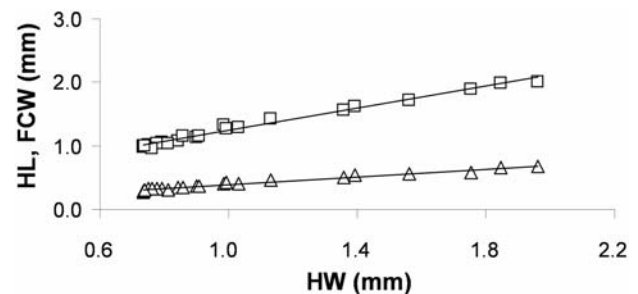


Fig. 10: *Camponotus minimus*. Graph with HW at x axis and $\square$ = HL, $\triangle$ = FCW at y axis. $HL = 0.87 * HW + 0.37$ ($R^2 = 0.98$, $n = 20$); $FCW = 0.31 * HW + 0.09$ ($R^2 = 0.97$, $n = 20$).

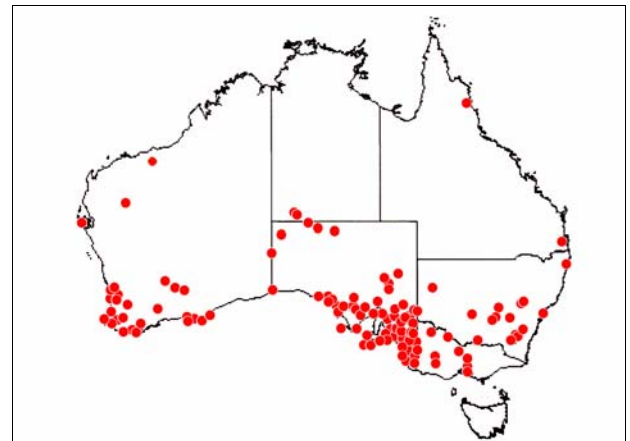


Fig. 11: Collection localities of *C. minimus*, specimens in SAMA.

Lagoon (36° 17' S, 140° 02' E), 26.III.1992, leg. E.G. Matthews & J.A. Forrest; Horn Camp Ruin 0.4 km W (31° 06' S, 138° 36' E), 25.III.1999, leg. SADEH Flinders Ra. Survey; Innes NP (35° 14' S, 136° 50' E), 1.XI.1990, leg. S. Morrison; Jupiter Creek (35° 09' S, 138° 46' E), 3.IV.1993, leg. A.J. McArthur; Karcultaby Area School (32° 46' S, 134° 58' E), 15.X.1995, leg. A.J. McArthur & C.H. Watts; Keith 40 miles NW (36° 06' S, 139° 54' E), 21.X.1958, leg. E.F. Riek; Kilroo 12 km NNW (33° 29' S, 136° 17' E), 6.XII.2003, leg. SADEH Eyre Pen. Surv; Kingston 24 km W-HWY 1 (36° 50' S, 139° 51' E), leg. A.J. McArthur; Koongawa 16 km NNW (33° 02' S, 135° 49' E), 23.XI.1995, leg. D. Hirst; Lake Gilles CP (32° 56' S, 136° 46' E), 30.XI.1995, leg. B. Pike; Lake Short Reserve (34° 21' S, 139° 37' E), 4.XI.2001, leg. G. & R. Churchett; Lambina 26.8 km NE (26° 44' S, 134° 15' E), 18.IX.1999, leg. SADEH Sandy Desert Survey; Lance Bore 3.4 km W (30° 57' S, 138° 45' E), 25.III.1999, leg. SADEH Flinders Ra. Survey; Lincoln NP (34° 47' S, 136° 00' E), 12.V.1972, leg. B.B. Lowery; Little Bunyip Dam (33° 21' S, 140° 35' E), 4.V.2000, leg. R. Noye; Malinong (35° 31' S, 139° 31' E), 30.IX.1982, leg. R.D. Robinson; Manning Reserve (35° 11' S, 138° 34' E), 15.XII.2001, leg. P. Matejcic; McLaren Flat (35° 13' S, 138° 35' E), 1.VIII.1991, leg. A.J. McArthur; Messent CP (36° 03' S, 139° 46' E), 17.XII.1994, leg. H. Owens; Millbrook Reservoir (34° 49' S, 138° 48' E), 24.VI.1905, leg. D. Hirst; Monarto NP (35° 10' S, 139° 07' E), 1.XI.1998, leg. A.J. McArthur; Montacute 2.6 km WSW (34° 53' S, 138° 42' E), 1.XII.2000, leg. SADEH South Mt. Lofty Ra. Survey; Moonabbie 13.2 km SSE (33° 21' S, 137° 19' E), 30.IX.2002, leg. Munyaroo Survey; Moorundie (34° 24' S, 139° 36' E), 30.III.2002, leg. G. & R. Churchett; Morgan 8 miles SW (34° 02' S, 139° 40' E), 8.IX.1969, leg. B.B. Lowery; Mt. Compass 11 km E (35° 21' S, 138° 44' E), 7.XII.1998, leg. Fleureau Pen. Survey; Mt. Crawford Forest (34° 42' S, 138° 58' E), 1.IX.1988, leg. R. Tuckwell; Mt. Lindsay (27° 01' S, 129° 52' E), 16.X.1996, leg. SADEH Pitjantjatjara Lands Survey; Mt. Lofty (34° 59' S, 138° 43' E), 10.VIII.1998, leg. P.J. Fargher & A.J. McArthur; Mt. Rescue CP (35° 51' S, 104° 18' E), 19.III.1992, leg. E.G. Matthews & J.A. Forrest; Mundy Dam 16.1 km WSW (26° 32' S, 132° 55' E), 16.VIII.1998, leg. SADEH Pitjantjatjara Lands Survey; Musgrave Ra (26° 08' S, 132° 03' E), 21.X.1994, leg. SADEH Pitjantjatjara Lands Survey; Myrtle Springs 8 km NNW (30° 31' S, 138° 20' E), 5.XII.1997, leg. SADEH North West Flinders Ra. Survey; Naracoorte Cave Reserve (37° 04' S, 140° 48' E), 25.X.1958, leg. G.F. Gross; Ngarkat CP (35° 57' S, 140° 45' E), 11.IV.2003, leg. J.S. White; Norwood 3 km E (34° 56' S, 138° 41' E), 9.II.1969, leg. B.B. Lowery; North Adelaide Park Lands (34° 56' S, 138° 36' E), 10.VIII.2002, leg. J. Berentson; Oraparinna (31° 22' S, 138° 43' E), 16.IX.1971, leg. P.J.M. Greenslade; Pandappa CP (33° 10' S, 139° 08' E), 25.IV.2003, leg. D. Hirst; Paney Shearers 9 km SE (32° 43' S, 135° 41' E), 20.X.2001, leg. SADEH South Eyre Pen. Survey; Penneshaw (35° 43' S, 137° 56' E), 5.IX.1972, leg. P.J. M. Greenslade; Penola Forest 2.7 km SE (37° 30' S, 140° 50' E), 8.II.1997, leg. SADEH S.E. Fauna Survey; Penong 15 km S (31° 59' S, 132° 56' E), 4.XI.1995, leg. R. Foster B. Pike; Perponda (34° 59' S, 139° 49' E), 13.V.1968, leg. P.J.M. Greenslade; Pine Hill 1.5 km N (36° 15' S, 140° 56' E), 15.XII.1995, leg. SADEH Box & Bulloak Survey; Pine Hill Soak 0.4 km N (36° 32' S, 140° 53' E),

1.III.1997, leg. SADEH S.E. Fauna Survey; Pinkawillinie CP (33° 06' S, 135° 59' E), 20.III.1996, leg. J.A. Forrest; Pinnaroo 23 km NW (35° 07' S, 140° 43' E), 29.III.2000, leg. J.A. Forrest; Poochera (32° 43' S, 134° 47' E), 15.X.1995, leg. R. Foster & B. Pike; Pt. Augusta 5 km N (32° 27' S, 137° 46' E), 15.VII.1993, leg. A.J. McArthur J.D. Erskine; Renmark 79 km NNW (33° 31' S, 140° 23' E), 3.V.1995, leg. S.O. Shattuck; Rocky River (35° 57' S, 136° 45' E), 9.XI.1987, leg. G.F. Gross & D. Hirst; Russell Camp 7 km NE (36° 25' S, 140° 22' E), 6.III.1997, leg. SADEH S. E. Fauna Survey; Serpentine Lakes (28° 29' S, 129° 01' E), 18.IV.1994, leg. J.A. Forrest; Sevenhill (33° 53' S, 138° 38' E), 1.IV.1957, leg. B.B. Lowery; Standford Dam (33° 20' S, 140° 54' E), 23.III.2001, leg. J.A. Forrest & D. Hirst; Streaky Bay (32° 48' S, 134° 13' E), 26.IX.1957, leg. B.B. Lowery; Tailem Bend (35° 15' S, 139° 28' E), 26.I.1969, leg. B.B. Lowery; Telowie 4.9 km ENE (33° 30' S, 139° 10' E), 25.XI.1999, leg. SADEH Flinders Ra. Survey; Tintinara (35° 31' S, 140° 02' E), 16.V.1993, leg. G.L. Howie; Tiverton (32° 41' S, 139° 52' E), 3.X.2001, leg. G.R. & S. Churchett; Turkey Nest Dam 3.9 km SE (33° 56' S, 140° 09' E), 12.X.2001, leg. RGS Bookmark Survey; Victor Harbour (35° 33' S, 138° 37' E), 16.IV.1969, leg. B.B. Lowery; Vivonne Bay 1 km E (35° 59' S, 137° 10' E), 7.III.1995, leg. T. Herbert; Waitpinga Hill 1 km SSW (35° 37' S, 138° 28' E), 3.III.2000, leg. SADEH South Mt. Lofty Ranges Survey; Warbla Cave 6.1 km NE (31° 29' S, 129° 09' E), 29.X.2004, leg. Waterhouse Club Merdayerrah Survey; Western Flat 8 km S (36° 32' S, 140° 45' E), 4.III.1994, leg. T. Croft; Wilpena Chalet 4 km SSW (31° 33' S, 138° 35' E), 20.XI.1999, leg. SADEH Flinders Ra. Survey; Witera 4.3 km SSW (33° 10' S, 134° 33' E), 25.X.2001, leg. SADEH South Eyre Pen. Survey; Woakwine (37° 23' S, 140° 03' E), 11.I.1999, leg. A.J. McArthur; Yumali 5.4 km S (35° 34' S, 139° 45' E), 10.XI.1990, leg. A.J. McArthur. **Victoria:** Frankston (38° 09' S, 145° 08' E), 28.VII.1929, leg. T. Greeves; Grampians (37° 00' S, 142° 27' E), 17.X.1979, leg. J.J.H. Szent-Ivany; Hattah 19.6 km SW (34° 54' S, 142° 08' E), 1.X.1985, leg. A.L. Yen; Kamarooka Forest (36° 32' S, 144° 24' E), 17.VI.1905, leg. S. Hinckley; Swan Hill 20 miles NW (35° 20' S, 143° 33' E), 9.X.1947, leg. T. Greaves; Tallarook (37° 06' S, 145° 06' E), 17.X.1934, leg. F.G. Holdaway; Watsonia (37° 43' S, 145° 05' E), leg. B.B. Lowery. **Western Australia:** Beverley 75 km W (32° 07' S, 115° 39' E), 27.IV.1975, leg. A.M. & M.J. Douglas; Bridgetown 5 km NE (33° 56' S, 116° 10' E), 21.X.1999, leg. A.J. & W.M. McArthur; Bunbury (33° 20' S, 115° 38' E), 19.XII.1969, leg. B.B. Lowery; Canning Dam turnoff (32° 11' S, 116° 06' E), 1.V.1994, leg. M.A. Adams; Cape Arid NP (34° 00' S, 123° 12' E), 8.IV.1998, leg. A.J. McArthur & S. Barker; Cape Le Grande (33° 54' S, 122° 32' E), 2.VII.1993, leg. A.J. & W.M. McArthur; Denmark 11 miles N (34° 52' S, 117° 23' E), 24.X.1969, leg. R.W. Taylor; Dryandra State Forest (32° 15' S, 116° 14' E), 14.VI.1905, leg. A.J. & W.M. McArthur; Esperance (33° 51' S, 121° 53' E), 31.XII.1969, leg. B.B. Lowery; Frenchman Peak (33° 58' S, 122° 10' E), 1.V.1977, leg. R.P. McMillan; Hope Valley (32° 11' S, 115° 46' E), 22.I.1995, leg. B. Heterick; Israelite Bay (33° 37' S, 123° 51' E), 16.III.1996, leg. J.A. Forrest; Jandakot (32° 07' S, 115° 50' E), leg. J.D. Majer; Jarrahdale (32° 20' S, 116° 04' E), 28.II.1997, leg. A.J. & W.M. McArthur; Jaurdi 3.5 km NW (30° 49' S, 120° 10' E), 12.IV.1998, leg. West-

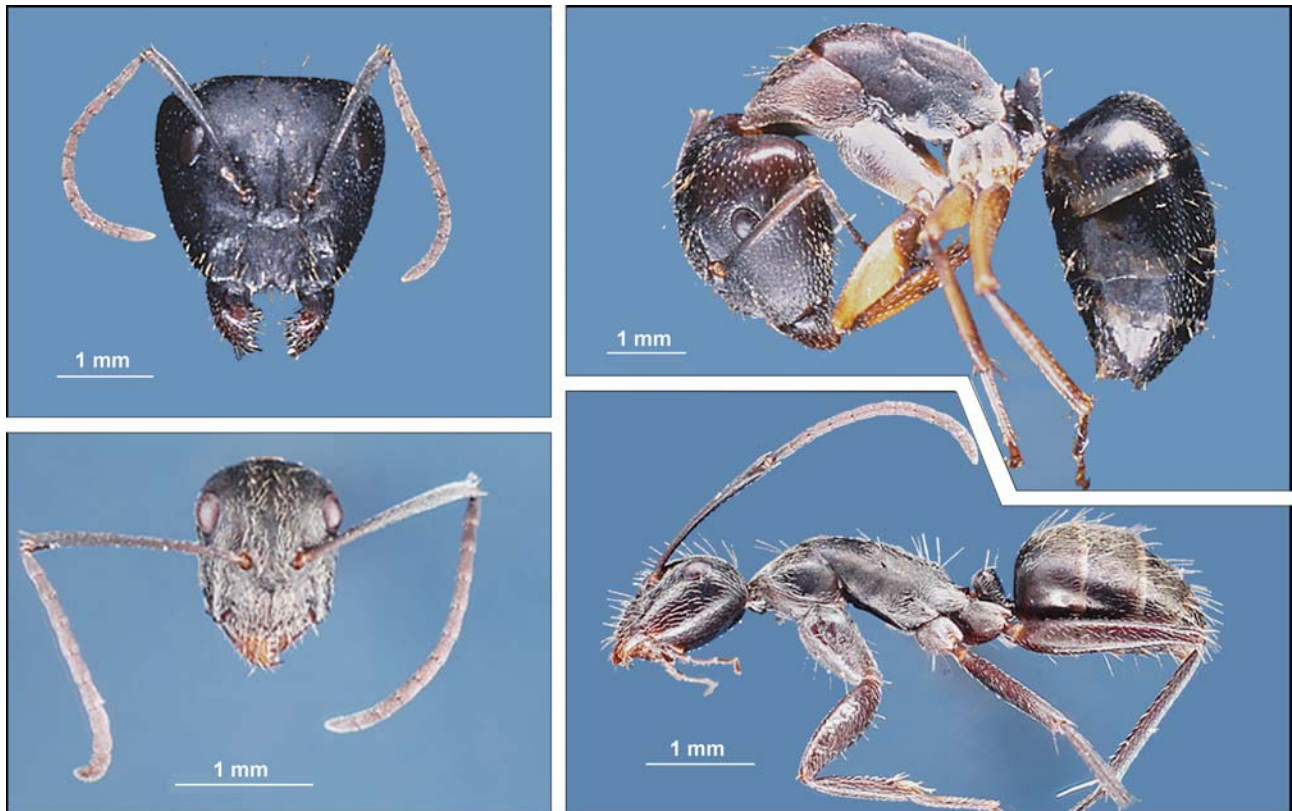


Fig. 12: *Camponotus nigroaeneus*, medium worker above, minor worker below; left: frontal view of head; right: habitus, lateral.

ern Australia Naturalists; Kambalda 35 km S (31° 32' S, 121° 40' E), 9.III.1996, leg. J.A. Forrest; Kings Park (31° 58' S, 115° 50' E), 26.VII.1992, leg. A.J. McArthur; Kulkup (33° 50' S, 116° 40' E), 21.X.1999, leg. A.J. & W.M. McArthur; Lake King (33° 04' S, 119° 34' E), 30.VI.1993, leg. A.J. & W.M. McArthur; Mooliabeenee (31° 20' S, 116° 01' E), leg. J.D. Majer; Mt. Clare (34° 59' S, 116° 44' E), 25.X.1969, leg. R.W. Taylor; Mt. Trio (34° 21' S, 118° 07' E), 28.X.1969, leg. R.W. Taylor; Mundaring Weir NP (31° 57' S, 116° 10' E), 18.X.1999, leg. A.J. & W.M. McArthur; Perth (31° 57' S, 115° 51' E), leg. A.J. & W.M. McArthur; Porongurup NP (34° 42' S, 117° 53' E), 24.X.1969, leg. R.W. Taylor; Russell Highway (33° 54' S, 115° 05' E), 19.X.1999, leg. A.J. & W.M. McArthur; Spring Creek (21° 03' S, 119° 07' E), 21.X.1993, leg. B.B. Lowery; Thomas River (24° 32' S, 116° 55' E), leg. N.R. Mitchell; Torndirrup (34° 57' S, 117° 48' E), leg. J.D. Majer; Useless Loop (26° 08' S, 113° 24' E), 19.IV.1999, leg. R.P. McMillan; Vasse Highway (34° 18' S, 115° 46' E), 20.X.1999, leg. A.J. & W.M. McArthur; Walpole 7 km NE (34° 57' S, 116° 48' E), 8.XII.1985, leg. P.S. Ward; Yanchep (31° 33' S, 115° 41' E), leg. J.D. Majer.

Worker description: Major worker. Head sides convex tapering anteriorly. Vertex straight. Clypeus anterior median quarter projecting forward, bounded by two blunt teeth, concave between. Mandibles with 6 teeth. $FCW > HW / 3$. Integument mainly glossy. Mesosoma in profile dorsum uniformly convex; Propodeal angle 90°, rounded. Metanotum raised. $PD / D \sim 0.8$. Petiolar node summit sharp. Erect setae on mesosoma dorsum sparse and scattered. Genae and underside of head without erect setae. Scape and

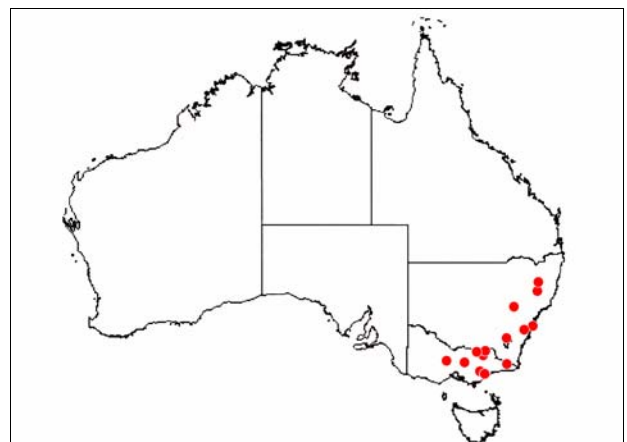


Fig. 13: Collection localities of *C. nigroaeneus*, specimens in SAMA.

tibiae without distinct setae. Colour: reddish brown, legs lighter.

Minor worker. Head sides straight, feebly tapering anteriorly. Vertex straight. Eyes large. Clypeus anterior margin projecting forward, convex. Mandibles with 6 teeth. $FCW \sim HW / 3$. Integument mainly glossy. Pronotum and mesonotum in profile weakly convex, propodeum uniformly strongly convex, propodeal angle indistinct. Petiolar node summit blunt. Erect setae on mesosomal dorsum sparse and scattered. Genae and underside of head without erect setae. Scape and tibiae without distinct setae. Colour: reddish brown, legs lighter.



Fig. 14: *Camponotus triodiae* sp.n., major worker above, minor worker below; left: frontal view of head; right: habitus, lateral.

Morphometrics: See Fig. 10.

Comparative notes: *Camponotus minimus* stat.n. lacks erect setae on the underside of the head, has wide frontal carinae with $FCW > HW / 3$ and is polymorphic as shown in Fig. 11, whereas *C. claripes* has plentiful erect setae on the underside of the head, has narrower frontal carinae with $FCW < HW / 3$ and is dimorphic as shown in Fig. 3.

Distribution: See Fig. 11.

***Camponotus nigroaeneus* (SMITH, 1858)** (Figs. 12, 13)

Formica nigroaenea SMITH, 1858.

Formica nigroaenea: LOWNE 1865: worker described.

Camponotus nigroaeneus: MAYR 1862: combination in *Camponotus*.

Camponotus nigroaeneus ssp. *divus* FOREL, 1907b, **syn.n.**

Type material examined: Holotype of *C. nigroaeneus* (BMNH): major worker "Holotype BM 11 625 Melbourne Vic". 1 syntype of *C. nigroaeneus divus* (MHNG): 1 medium worker "Typus Mt. Victoria NSW".

Other material examined (in SAMA): **New South Wales:** Ginninderra Falls (35° 12' S, 148° 57' E), 7.IX.1995, leg. B.B. Lowery; Heathcote (34° 05' S, 151° 01' E), 7.XII.2014, leg. W.M. Wheeler; Mittagong (34° 27' S, 150° 27' E), leg. A.M. Lea; Royal NP (34° 04' S, 151° 04' E), 23.IX.2014, leg. W.M. Wheeler; Rylstone (32° 48' S, 149° 58' E), 28.I.2005, leg. G.K. Hangay; Uralla (30° 38' S, 151° 30' E), 26.XI.1914, leg. W.M. Wheeler. **Victoria:**

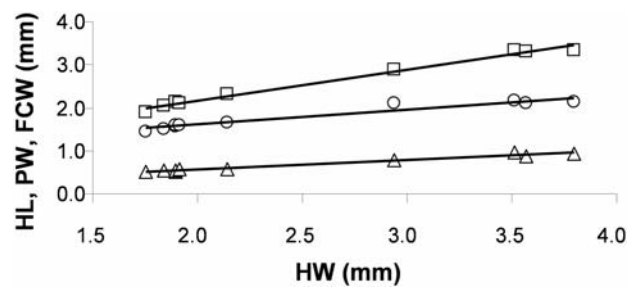


Fig. 15: *Camponotus triodiae* sp.n. Graph with HW at x axis and $\square$ = HL, $\circ$ = PW, $\triangle$ = FCW at y axis. $HL = 0.72 * HW + 0.74$ ($R^2 = 0.98$, $n = 10$), $PW = 0.34 * HW + 0.92$ ($R^2 = 0.93$, $n = 10$), $FCW = 0.22 * HW + 0.14$ ($R^2 = 0.98$, $n = 10$).

Avon River (38° 01' S, 147° 12' E), 15.III.2001, leg. C. Heddle; Beechworth (36° 22' S, 146° 42' E), 31.I.1999, leg. A.J. Pontin; Cann River (37° 18' S, 149° 05' E), 1.XI.1928, leg. J. Clark; Lake Glenmaggie (37° 55' S, 146° 47' E), 28.XI.2002, leg. R. Eastwood; Maffra (37° 58' S, 146° 59' E), 4.V.1998, leg. S. Hinckley; Maldon (37° 00' S, 144° 04' E), 1.I.1995, leg. S. Hinckley; Mount Granya (36° 08' S, 147° 16' E), 1.I.1998, leg. S. Hinckley; Tawonga Gap (36° 43' S, 147° 07' E), 14.I.1999, leg. A.J. Pontin; The Paps (37° 03' S, 145° 59' E), 4.II.1992, leg. R.J. Warner.

Worker description: Major worker. Head sides convex tapering anteriorly. Vertex mostly flat. Clypeus anterior margin median half concave, bounded by two blunt teeth. Mandibles with 6 teeth. Pronotum feebly margined anteriorly. Mesosoma in profile convex. Propodeal angle gently convex. $PD / D \sim 1.5$. Petiolar node summit blunt in side view. Mesosoma in profile dorsum with about 20 fairly evenly spaced long erect setae. Underside of head with one to a few erect long setae, scape and tibiae with indistinct short setae raised a few degrees, dorsum of gaster with sparse whitish short decumbent setae. Colour: mostly black.

Minor worker. Head sides straight slightly tapering anteriorly. Vertex convex. Clypeus anterior margin median half with a notch. Mandibles with 6 teeth. Pronotum margined anteriorly. Mesonotum and propodeum weakly convex. Propodeal angle about 135° . $PD / D \sim 2.5$. Petiolar node summit blunt in side view. Mesosoma in profile dorsum with about 20 fairly evenly spaced long erect setae. Underside of head with one to a few erect long setae, scape and tibiae with indistinct short setae raised a few degrees, dorsum of gaster with sparse whitish short decumbent setae. Colour: mostly black.

Morphometrics: Holotype of *C. nigroaeneus*, (major worker), HW 2.2, HL 2.10, PW 1.90, FCW 0.80, HT 1.5, TL 1.55, Syntype of *C. nigroaeneus divus* (medium worker), HW 1.1, HL 1.5, PW 1.0, FCW 0.60, HT 0.8, TL 1.4.

Distribution: See Fig. 13.

***Camponotus triodiae* sp.n.** (Figs. 14 - 18)

Type material examined: Holotype (SAMA): pinned minor worker "S. Aust. Uno Stn. 4.4Km NW Harris Bluff $32^\circ 40'16''S$ $136^\circ 43'08''E$ 11 Nov 2008 From burrow P Hudson & P Fennell". One major worker (paratype) from same nest mounted on same pin. Paratypes with same labels pinned in SAMA, ANIC and NHMW. SAMA has 10 specimens in alcohol.

Other material examined (in SAMA): **South Australia:** Gluepot 12.6 km W ($33^\circ 46' S$, $139^\circ 59' E$), 6.XII.2002, leg. Gluepot Survey; Gluepot 4.8 km NW ($33^\circ 44' S$, $140^\circ 05' E$), 6.XII.2002, leg. Gluepot Survey; Lake Gilles ($33^\circ 01' S$, $136^\circ 36' E$), 14.X.2007, leg. J.A. Forrest & D. Hirst; Munyaroo CP ($33^\circ 22' S$, $137^\circ 20' E$), 1.XI.2007, leg. J.A. Forrest & D. Hirst. **Victoria:** Millewa ($34^\circ 01' S$, $140^\circ 58' E$), 1.II.1981, leg. A.L. Yen.

Worker description: Major worker. Mesosoma in profile: dorsum of pronotum mostly flat with feeble anterolateral margins, mesonotum flat anteriorly and posteriorly with a convexity between, metanotum about 0.2 mm long, bounded anteriorly and posteriorly by fine troughs, propodeal dorsum straight short, propodeal angle well rounded about 135° , declivity long mostly straight with slight central angle, $PD / D \sim 5$; dorsum of mesosoma with < 5 long erect reddish setae, short decumbent setae very sparse; integument on side of mesonotum and propodeum, reticulate, side of head smooth glossy. Petiolar node: anterior face feebly convex, posterior face straight, summit sharp. Tibiae without distinct short setae, with > 10 erect spines on posterior surface; scapes with distinct short setae raised to 30° . Head: underside in lateral view with 0 to 3 long erect setae; erect setae sparse in frontal view; sides feebly convex, strongly tapering anteriorly; vertex straight; $FCW < HW / 3$; maximum head width at about eye centres; clypeus an-

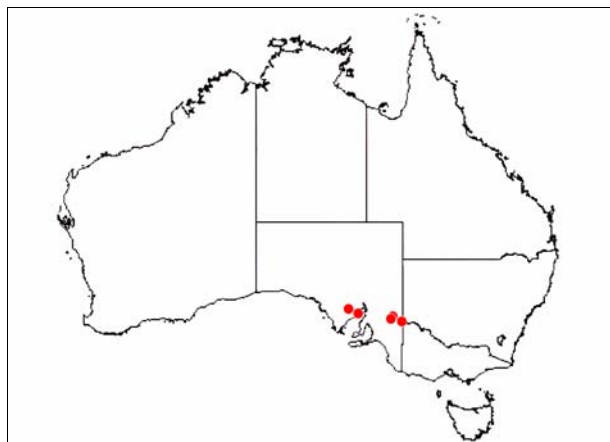


Fig. 16: Collection localities of *C. triodiae* sp.n., specimens in SAMA.



Figs. 17 - 18: (17) Tubular construction at nest site by *C. triodiae* sp.n. in a plant of *Triodia* sp. (commonly known as spinifex grass) at Gluepot. (18) Section of the same construction. Photos: P. Fennell.

terior margin projecting, crenate with 135° corners, feebly concave between. Colour: mostly black, legs lighter.

Minor worker. Mesosoma in profile: dorsum of pronotum mostly flat with strong anterolateral margins, mesonotum convex, metanotum indistinct, propodeal dorsum straight and short, propodeal angle well rounded about 135° , declivity long mostly straight with a central 170° an-



Fig. 19: *Camponotus xuthus*, minor worker; left: frontal view of head; right: habitus, lateral.

gle, $PD / D \sim 4$; dorsum of mesosoma with < 5 long erect reddish setae, short decumbent setae very sparse; integument on side of mesonotum and propodeum, reticulate, side of head smooth glossy with indistinct striations. Petiolar node: anterior face convex, posterior face straight, summit sharp. Tibiae with indistinct short setae, with > 10 erect spines on posterior surface; scapes with distinct short setae raised to 30° . Head: underside in lateral view with 0 to 3 long erect setae; erect setae sparse in frontal view; sides straight, strongly tapering anteriorly; vertex straight; $FCW < HW / 3$; maximum head width posterior to eye centres; clypeus anterior margin projecting feebly crenate with 135° corners, mostly straight between. Colour: mostly black, legs lighter.

Morphometrics: See Fig. 15.

Comparative notes: Closely related to *C. michaelsoni* FOREL, 1907 from Western Australia, *C. triodiae* sp.n. is distinguished by its scapes having plentiful short setae raised up to about 30° whereas in *C. michaelsoni* the scapes have indistinct short decumbent setae.

Distribution: See Fig. 16.

Biology: These ants have been found associated with bushes of *Triodia* species commonly known as spinifex in northern South Australia. The ant constructs a tube made from vegetation and red soil as shown in Figs. 17, 18.

***Camponotus xuthus* EMERY, 1925 stat.n.** (Figs. 19, 20)

Camponotus nigroaeneus r. *divus* var. *xuthus* FOREL, 1915 – unavailable name.

Camponotus nigroaeneus ssp. *xuthus* EMERY, 1925.

Type material examined: 2 syntypes (MHNG): 1 major and 1 minor worker "Typus Kimberley Dist".

Other material examined (in SAMA): **Western Australia:** Turtle Island ($19^\circ 54' S$, $118^\circ 55' E$), 10.VII.2001, leg. A. Postle. **South Australia:** Mount Aroona ($30^\circ 37' S$, $138^\circ 23' E$), 5. XII. 1997, leg. SADEH NW Flinders Ranges Survey; Vokes Hill, 28 km E ($28^\circ 29' S$, $130^\circ 51' E$), 14.IV.2002, leg. SADEH Sandy Desert Survey.

Worker description: Major worker. Head sides anterior two thirds straight and parallel, posterior third convex tapering anteriorly. Vertex mostly flat in front view and swollen in lateral view. Clypeus anterior margin median section strongly concave and bounded by two teeth. Pro-

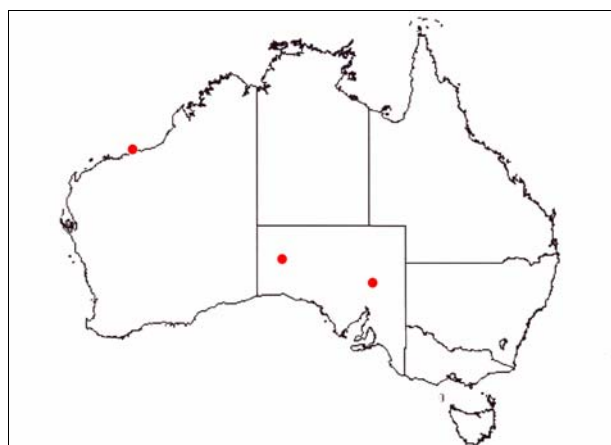


Fig. 20: Collection localities of *C. xuthus*, specimens in SAMA.

podeal dorsum straight, propodeal angle gently convex, about 135° . $PD / D \sim 12.5$. Petiolar node summit blunt in side view. Mesosoma in profile dorsum with about 30 fairly evenly spaced long erect setae. Underside of head and genae with plentiful erect long setae; scape and tibiae with plentiful short decumbent setae raised to $< 20^\circ$. Colour: mostly reddish brown.

Minor worker. Finely punctate. Head sides straight and near parallel. Vertex mostly convex. Clypeus anterior margin projecting strongly and bounded by 90° corners. Propodeal dorsum feebly convex. Propodeal angle gently convex about 150° . $PD / D \sim 3$. Petiolar node summit blunt in side view. Mesosoma in profile dorsum with about 20 fairly evenly spaced long erect setae. Underside of head and genae with plentiful erect short setae; scape and tibiae with plentiful short setae raised to $> 20^\circ$. Colour: mostly reddish brown.

Morphometrics: Syntype major worker, HW 2.5, HL 2.7, PW 1.0, FCW 1.0, HT 0.8, TL 2.0; syntype minor worker, HW 1.5, HL 1.8, PW 1.90, FCW 0.70, HT 1.1, TL 1.8.

Comparative notes: The integument of the gaster in *C. xuthus* stat.n. is not hidden by pubescence and the ant is brown whereas *C. nigroaeneus* has distinct short whitish

decumbent setae (pubescence) which hide the gaster and is mostly black.

Distribution: See Fig. 20.

Acknowledgements

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Zusammenfassung

Vier Unterarten der Ameisengattung *Camponotus* werden in den Artrang erhoben: *Camponotus claripes* r. *elegans* FOREL, 1902 zu *Camponotus elegans* FOREL, 1902, *Camponotus claripes* ssp. *marcens* FOREL, 1907 zu *Camponotus marcens* FOREL, 1907, *Camponotus claripes* r. *minima* CRAWLEY, 1922 zu *Camponotus minimus* CRAWLEY, 1922 und *Camponotus nigroaeneus* ssp. *xuthus* EMERY, 1925 zu *Camponotus xuthus* EMERY, 1925. *Camponotus claripes* ssp. *piperatus* WHEELER, 1933 wird mit *Camponotus claripes* MAYR, 1876 synonymisiert und *Camponotus nigroaeneus* ssp. *divus* FOREL, 1907 mit *Camponotus nigroaeneus* (SMITH, 1858). Der Status der anderen, als Unterarten von *Camponotus claripes* aufgefassten Taxa, und zwar von *Camponotus claripes* var. *inverallensis* FOREL, 1910, *Camponotus claripes* var. *nudimalis* FOREL, 1913 und *Camponotus claripes* ssp. *orbiculatopunctatus* VIEHMEYER, 1925, wird infolge des geringen Umfangs vorliegenden Materials nicht bearbeitet. *Camponotus triodiae* sp.n. wird als neue Art beschrieben; die Art lebt im ariden nördlichen Südastralien.

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