

Review of the ant genus *Nesomyrmex* (Hymenoptera: Formicidae: Myrmicinae) in southern Africa

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(with 4 figures)

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Members of the genus *Nesomyrmex* in southern Africa are small, non-dominant, myrmicine ants that nest either in trees (*angulatus*-group) or in soil (*simoni*-group). Of the twenty species recorded from this region, the following 15 are newly described: *antoinetteae*, *cederbergensis*, *entabeni*, *ezantsi*, *inye*, *karooensis*, *koebergensis*, *larsenae*, *mcgregori*, *nanniae*, *njengelanga*, *ruani*, *saasveldensis*, *tshiguvhoae* and *vannoorti*. All *Nesomyrmex* species recorded from southern Africa are described and illustrated, with accompanying information on biology and distribution.

Key words: *Nesomyrmex*, *Leptothorax*, ants, southern Africa, Nama-Karoo, Succulent Karoo, Fynbos.

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INTRODUCTION

Nesomyrmex (Wheeler, 1910) is a genus of myrmicine ants in the tribe Formicoxenini, members of which until recently were included in *Leptothorax*. Bolton (2003) divided *Leptothorax* (*sensu lato*) into three genera: *Leptothorax* (*sensu stricto*), *Nesomyrmex* and *Temnothorax*. Of the three genera, only *Nesomyrmex* occurs in southern Africa (south of the Kunene and Zambezi rivers). Within the Afrotropical region, there are no records of *Leptothorax* (*sensu stricto*), while for *Temnothorax*, two species have been recorded: *T. cenatus* (Bolton) from Kenya and *T. megalops* (Hamann and Klemm) from Sudan (Bolton 1995; Bolton 2003). The nomenclatural history of *Nesomyrmex* is fairly complex and has been covered by Bolton (2003).

Nesomyrmex is separated from *Leptothorax* and *Temnothorax* mainly by the median portion of the clypeus, which anteriorly forms a prominent lobe that overlaps and is closely applied to the mandibular dorsum. In profile view the anterior clypeus overlaps and is closely adherent to the dorsal surface of mandible. In *Temnothorax* and *Leptothorax*, the median portion of the clypeus does not form an anteriorly projecting lobe, and in profile, the anterior margin is usually elevated slightly away from the dorsal surface of mandible (Bolton 2003).

Nesomyrmex is more-or-less confined to warmer areas of the Afrotropical and Neotropical Regions (Kempf 1959): 10 species have been recorded from the Afrotropical region (Bolton 1982, 2003; Snelling 1992), four from Madagascar (Bolton 2003), and 22 from the Neotropical Region (Kempf 1959; Diniz 1975; Bolton 2003; Longino 2006).

The following species of *Nesomyrmex* have been previously recorded from southern Africa: *angulatus*, *braunsi*, *denticulatus*, *simoni* and *stramineus*. In the revision that follows, 15 new species are described bringing the total number of *Nesomyrmex* in southern Africa to 20 species. As far as can be ascertained, all the new species are ground-dwelling and found mainly in the semi-arid regions of southern Africa (Nama-Karoo, Succulent Karoo biomes) and the Fynbos biome.

MATERIALS AND METHODS

The new species described in this paper are derived from the Iziko South African Museum ant collection and are mainly from recent ant surveys conducted in southern Africa, particularly the survey of roadside ants in the Prince Albert region (Tshiguvho *et al.* 1999), GEF Conservation Farming Project (surveys in Nieuwoudtville and Beaufort West regions) (Robertson & van Noort 2003), Imbovane Outreach Project

(DST-NRF Centre of Excellence for Invasive Biology (CIB)), and the Ph.D. project undertaken from Lamberts Bay to Cederberg Mountains by Antoinette Botes (also from CIB) (Botes *et al.* 2006).

The following measurements were taken using an ocular micrometer on a Leica MZ 16A stereo microscope:

HL (Head Length): the length of the head proper, excluding the mandibles, measured in a full-face view, in a straight line from the anterior-most point of the median clypeal margin to the mid-point of the occipital margin.

HW (Head Width): the maximum width of the head in full-face view, excluding the eyes.

HW1 (Head Width 1): the maximum width of the head in full-face view, including the eyes.

EL (Eye Length): the maximum diameter of the eye.

SL (Scape Length): the maximum straight line measurement of the antennal scape excluding the condylar bulb.

PW (Pronotum Width): the maximum width of the pronotum in dorsal view.

ML (Mesosoma Length): the length of the mesosoma (= alitrunk) in lateral view from the anteriormost point of the pronotum to the posterior base of the propodeal lobes.

CI (Cephalic Index): HW divided by HL, $\times 100$.

SI (Scape Index): SL divided by HW, $\times 100$.

EI (Eye Index): EL divided by HW, $\times 100$.

Geographical coordinates are recorded in the original format they appeared in the label, and where the coordinates are absent, they have been calculated and shown in square brackets after the locality.

Specimens were photographed using a GT Ento Vision Mobile Imaging System. Photographs in Figs 1–4 are ordered so that similar looking species are placed together.

DIAGNOSIS OF WORKERS IN SOUTHERN AFRICA

Mandibles with five teeth. Clypeus with a projecting median portion that overlaps, and is closely applied to, the mandibular dorsum; either anterior margin of clypeus evenly convex along entire length or lateral portions of clypeus more-or-less transverse and median portion curving sharply outwards to form the projecting lobe. Anterior clypeal margin with a pair of hairs straddling the midline; no median seta present. Antennal scrobes absent. Frontal carinae absent but in some species the frontal lobe is followed by a weak longitudinal striation that runs posteriorly and normally ends before the mid-length of the eyes. Antenna with 12 segments including a three-segmented apical club. Propodeal spiracle circular, situated high up on the side and at about the midlength of the segment. Metanotal groove varying from absent to conspicuously impressed. Propodeum armed or unarmed. Petiolar node variable in shape but generally nodiform. Anterior peduncle with a tooth-like or rounded subpetiolar process.

Superficially, *Nesomyrmex* workers with a rounded propodeum that lacks spines can be confused with *Monomorium*, but can be distinguished by lacking the isolated median setae on the anterior clypeal margin. Those species of *Nesomyrmex* that have the propodeum armed or angulate, superficially resemble *Tetramorium* species, and

can be separated from them mainly by the lateral portions of clypeus, which are not raised into a narrow ridge or shield-wall in front of the antennal insertions, unlike in *Tetramorium*. *Nesomyrmex* can also be confused with *Cardiocondyla* because the median portion of the clypeus extends over the mandibles in both genera. They are most easily distinguished by the shape of the postpetiole in dorsal view, which in *Cardiocondyla* is considerably broader than the petiolar node. In addition, the eyes of *Cardiocondyla* are in front of the midlength of the sides whereas in *Nesomyrmex* they are at the midlength.

We have placed the *Nesomyrmex* occurring in southern Africa into two species groups, namely the *angulatus*-group and *simoni*-group, which are defined in the first couplet of the key below. Besides the morphological differences between them, they also differ biologically because members of the *angulatus*-group are arboreal nesters whereas the nests that have been found of *simoni*-group species have all been in the soil. Almost all the specimens examined for the *simoni*-group were obtained using ground-trapping methods, mainly pitfalls.

LIST OF SPECIES FROM SOUTHERN AFRICA

angulatus species-group

angulatus (Mayr)

denticulatus (Mayr)

stramineus (Arnold)

simoni species-group

antoinetteae sp. nov.

braunsi (Forel)

cederbergensis sp. nov.

entabeni sp. nov.

ezantsi sp. nov.

inye sp. nov.

karooensis sp. nov.

koebergensis sp. nov.

larsenae sp. nov.

mcgregori sp. nov.

nanniae sp. nov.

njengelanga sp. nov.

ruani sp. nov.

saasveldensis sp. nov.

simoni (Emery)

tshiguvhoae sp. nov.

vannoorti sp. nov.

KEY TO SPECIES (WORKERS)

1. Propodeal spines present: long and narrow, in profile distinctly longer than their basal width. Blunt hairs on dorsum of mesosoma. Yellow, tree-nesting species
(*angulatus*-group) . . 2
- Propodeal spines present or absent; if present, short and broad: in profile as long as or shorter than their basal width. Hairs on dorsum of mesosoma tapering or, rarely, blunt. Ground nesting species, variable in colour
(*simoni*-group) . . 4
2. Mesosoma forming a single, uninterrupted flat surface without any trace of metanotal groove. Petiolar node without denticles (Fig. 1a,b).

..... *angulatus*

- Mesosoma with promesonotum separated from propodeum by metanotal groove or impression. Petiolar node bearing denticles from which hairs arise (Fig. 1e,h) 3
- 3. Subpetiolar process with a tooth anteriorly followed by a long cuticular flange, which runs back to the postpetiolar junction. Large species: HW 0.629–0.757, HL 0.828–0.921, EL 0.177–0.216 (Fig. 1d,f) **denticulatus**
- Subpetiolar process an anteriorly situated simple rounded tooth or a denticle. Smaller species: HW 0.502–0.525; HL 0.612–0.618, EL 0.128–0.138 (Fig. 1g,i) **stramineus**
- 4. Dorsum of petiolar node rugo-reticulate. Rugo-reticulate sculpture is usually also evident partially or completely on head and mesosoma (Figs 1j–o; 2a–l) 5
- Rugo-reticulate sculpture absent from head, mesosoma and petiolar node. These surfaces either smooth, with longitudinal striations, with transverse rugulae or with fine reticulate sculpture 10
- 5. Propodeum unarmed. Mesosoma, petiolar node and postpetiole rufous coloured, contrasting with black head and gaster. Larger species (HW > 1.00) (Fig. 1j–l) **braunsi**
- Propodeum armed with a pair of short spines or teeth. Uniformly coloured with no obviously contrasting body parts. Smaller species (HW < 1.00) 6
- 6. Erect hairs absent on propodeum (Fig. 1m) **simoni**
- Erect hairs present on propodeum – at least four pairs 7
- 7. Black to dark brown. Strongly-developed rugo-reticulate sculpture on dorsum of head with reticulate cells sharply defined and large – no more than 16 in any one row counted between the eyes (Fig. 2a–c) **saasveldensis**
- Yellow to medium brown species. Rugo-reticulate sculpture on head present or absent. If present, weakly developed with small reticulate cells between eyes not all clearly distinguishable and total more than 20 in any one row (Fig. 2f,i,l) 8
- 8. Anterior clypeal margin only slightly concave laterally, so that the median portion is not clearly defined from the lateral portions. Smaller (HL 0.813–0.902; PW 0.443–0.492) (Fig. 2d–f) **koebertensis**
- Anterior clypeal margin strongly concave laterally so that the median portion is clearly defined from the lateral portions and appears as a shelf over the mandibles. Larger (HL 0.993–1.101; PW 0.577–0.680) 9
- 9. Dorsum of head entirely covered by longitudinal rugulae. Propodeum armed with broad triangular teeth, the angle formed by each tooth being nearly 90 degrees. Head narrower (CI 74–79) and scapes relatively longer (SI 101–107) (Fig. 2g–i) **antoinetteae**
- Median portion of head dorsum not covered by longitudinal rugulae, only smooth or with reticulate ground sculpture. Propodeum armed with acute spines, the angle formed by each tooth being much less than 90 degrees. Head broader (CI 83–84) and scapes relatively shorter (SI 87–88) (Fig. 2j–l) **mcgregori**
- 10. Propodeum unarmed and in profile rounding smoothly from dorsum into declivity, not at all angulate. Declivity without a lateral margin 11
- Propodeum armed with a pair of short spines or small triangular teeth or in profile angulate (sometimes very slightly) between dorsum and declivity. If propodeum is angulate, then declivity with a lateral margin 16
- 11. Propodeum without erect hairs 12
- Propodeum with erect hairs 15
- 12. Promesonotum without erect hairs. Propodeum hump-shaped and colour brick red, with gaster dark brown (Fig. 2m) **larsenae**
- Promesonotum with erect hairs. Propodeum forming an even convexity and colour uniformly light brown 13
- 13. Sides of petiolar node completely covered with strong, sometimes irregular, rugulae. In dorsal view the entire node with continuous rugulae around it. Large species (HW 0.644–0.690) (Fig. 3a,b) **ruani**
- Sides of petiolar node with punctulate ground sculpture or at most with a few weak rugulae. In dorsal view these feeble rugulae may persist, may fade out, or may be replaced entirely with reticulate-punctate sculpture but in no case does the entire node appear to be encircled with strong rugulae everywhere. Small species (HW 0.497–0.590) 14
- 14. In dorsal view, metanotal groove clearly defined and with short longitudinal rugulae (Fig. 3e) **entabeni**
- In dorsal view, promesonotum and propodeum confluent with no metanotal groove visible medially (Fig. 3h) **nanniae**
- 15. In profile, posterior and anterior faces of petiolar node with similar slopes. Colour: head and gaster dark brown, with mesosoma and nodes light brown (Fig. 3j) **vannoorti**
- In profile, posterior face of petiolar node nearly vertical and much steeper than anterior face. Colour uniformly yellow (Fig. 3m) **njengelanga** (part)
- 16. Metapleural gland bulla large and bulging – in dorsal view the sides below the propodeum are convex along their medial length. Colour uniformly dark brown (Fig. 4a,b) **tshiguvoae**
- Metapleural gland bulla not as prominent – in dorsal view the sides below the propodeum are more-or-less straight along their medial length. Colour uniformly yellow or light brown 17
- 17. Petiolar node in profile with angulate anterodorsal and posterodorsal angles and with a flat dorsum (Fig. 4d) **karooensis**
- Petiolar node in profile with a rounded posterodorsal angle; anterodorsal angle either angulate or rounded; dorsum convex and not clearly defined 18
- 18. Dorsum of head mainly smooth and shining, with few longitudinal striations between the eyes (Fig. 4i) **cederbergensis**

- Dorsum of head with reticulate sculpture, sometimes overlaid by longitudinal rugulae 19
- 19. Propodeum angulate but with no clearly defined pair of short triangular teeth. Smaller species (HW 0.507–0.559) (Figs 3m–o, 4j–l) 20
- Propodeum armed with a pair of short triangular teeth. Larger species (HW 0.598–0.718) (Figs 2d–f, 4m–o) 21
- 20. Long curved hairs present on the ventral surface of head. Promesonotal dorsum with reticulate ground sculpture overlaid by longitudinal rugulae. Eyes with 12 ommatidia in a longest row. Colour medium brown (Fig. 4j) *inye*
- Long curved hairs absent from ventral surface of head, only straight hairs present. Promesonotal dorsum with fine reticulate sculpture and short rugulae along the metanotal groove. Eyes with 10–11 ommatidia in a longest row. Colour uniformly yellow (Fig. 3m) *njengelanga* (part)
- 21. Dorsum of head with reticulate sculpture overlaid by longitudinal rugulae. Yellow to light brown species (Fig. 2f) *koebbergensis* (part)
- Dorsum of head predominantly smooth, with fine reticulate ground sculpture. Pale species (Fig. 4m–o) *ezantsi*

SYSTEMATICS

ANGULATUS-GROUP

Nesomyrmex angulatus (Mayr, 1862)

Fig. 1a–c

Leptothorax angulatus Mayr, 1862: 739. For type information and synonyms see Bolton (1982). There is some debate on the web (http://antbase.org/ants/africa/nesomyrmex/nesomyrmex_angulatus/nesomyrmex_angulatus.htm – accessed 9 September 2008) over the validity of some of the synonyms but there is no attempt to resolve this here.

Description of worker

HL 0.672–0.811, HW 0.565–0.692, HW1 0.610–0.736, CI 78–87, SL 0.487–0.613, SI 84–92, PW 0.423–0.541, ML 0.785–1.087, EL 0.169–0.197, EI 28–30 (5 of 81 measured).

Description matches that of Bolton (1982) except for few additional characters. Sculpture on the dorsum of head is not only reticulate-punctulate but also with longitudinal striations, which are well defined near the inner margin of the eyes.

Diagnosis

Nesomyrmex angulatus is easily distinguished from other species in the *angulatus* species-group by the mesosoma, which forms a single, uninterrupted flat surface without any trace of metanotal groove; in the other species, the promesonotum is separated from propodeum by metanotal groove or impression.

Biology

Nests in cavities of dead wood on trees in savanna habitats.

Material examined

South Africa: KwaZulu-Natal: St Lucia, 05 August

1945, J.C. Faure, SAM-HYM-C004716; Mkuzi [= Mkuze], 16 May 1946, J.C. Faure, SAM-HYM-C004717; Mkuze Game Reserve, Mantuma Rest Camp, 27°36'S 32°13'E, collected from the nest, 26 February 1988, H.G. Robertson, SAM-HYM-C001007; 4.5 km SW of Golela, 27°20'03"S 31°50'09"E, 20 November 1996, *Acacia nilotica*, F. Grobbelaar & I.M. Millar, SAM-HYM-C010657; Sordwana, 27°33'S 32°40'E, 20 May 1946, A.R.I., SAM-HYM-C011707; Pongola, [27°23'S 31°37'E], 13 July 1967, Dr Karney, SAM-HYM-C015108; **Limpopo:** Lapellala [= Lapalala], [23°53'S 20°28'E], ex foragers, M. Villet, SAM-HYM-C000541; Letaba estate, 23° 51'S 30°18'E, Collected ex nest, 09 February 1988, H.G. Robertson, SAM-HYM-C000937; Nylsvley, 24°40'S 28°43'E, ex foragers, 16 April 1987, H.G. Robertson, SAM-HYM-C000481. **Zimbabwe:** Khami River, 30 November 1913, G. Arnold, SAM-HYM-C004711; Sawmills, 31 October 1919, SAM-HYM-C004712; Victoria Falls, December 1938, Nat. Museum S. Rhodesia [= National Museum of Southern Rhodesia], SAM-HYM-C004715; Melsetter, 03 October 1950, Nat. Museum S. Rhodesia [= National Museum of Southern Rhodesia], SAM-HYM-C004718; Zambesi valley, 7 km SE of Angwa Bridge, 16°08'S 30°15'E, 18 June–09 September 1988, J. Weyrich, SAM-HYM-C005668; **Kenya:** Segera Ranch, Laikipia Plateau, 0°15'N 36°50'E, 25 February 1994, collected in *Acacia* woodland on black cotton soils, J. Pruetz, SAM-HYM-C017849; **Tanzania:** Mkomazi Game Reserve, Pangaro, 3°54'37"S 37°47'05"E, 09 December 1995, Foragers on dead wood of *Acacia* tree. Open woodland, H.G. Robertson, SAM-HYM-C008655.

Nesomyrmex denticulatus (Mayr, 1901)

Fig. 2d–f

Leptothorax denticulatus Mayr, 1901: 5. For type information and synonyms see Bolton (1982).

Description of worker

HL 0.828–0.921, HW 0.629–0.757, HW1 0.679–0.795, CI 73–84, SL 0.462–0.580, SI 73–77, PW 0.482–0.590, ML 0.895–1.087, EL 0.177–0.216, EI 26–29 (5 of 61 measured).

Description as in Bolton (1982), but with the following differences: mandibles are described as finely shagreened to virtually smooth but in the material that we observed mandibles can also have fine longitudinal striations.

Diagnosis

Nesomyrmex denticulatus looks similar to *N. stramineus* in that in both the petiolar node bears denticles from which hairs arise. It is distinguished from the latter species by its larger size (HW 0.629–0.757 *versus* 0.502–0.525), well-developed subpetiolar process, which consists of a tooth anteriorly followed by a long cuticular flange; and larger eyes (EI 26–29 *versus* 24–27).

Biology

Usually nests in cavities of branches on trees and bushes that were previously excavated by wood-boring beetles or termites. Nests have also been found in cavities at the base of old *Protea* inflorescences that were previously excavated by beetle or lepidopteran larvae. It is found in vegetation of the Western Cape and Eastern Cape that has a woody

component, including late succession Fynbos, Succulent Karoo that has large bushes, Southern Afrotemperate Forest (mainly along edges) and possibly also Albany Thicket.

Material examined

South Africa: Eastern Cape: Grahamstown, 33°18'S 26°32'E, in cavity of dead branch, 05 April 1996, L.X. Silberbauer & L. Bennet, SAM-HYM-C009736; **Western Cape:** Ouberg Se Pas, 33°42'0"S 20°15'0"E, Succulent Karoo on rocky slope, 28 February 1999, H.G. Robertson, SAM-HYM-C013042; Cape of Good Hope Nature Reserve, Olifantsbos near Skaife Centre, 34°15.76'S 18°23.13'E, 20 m alt., Strandveld Mountain Fynbos ecotone: dense bush, white pitfall, 23 Feb–23 Mar 1998, M.H. Troskie, SAM-HYM-C017281; Cape of Good Hope Nature Reserve, Olifantsbos near Skaife Centre, 34°15.76'S 18°23.13'E, 20 m alt., Strandveld Mountain Fynbos ecotone: dense bush, yellow pitfall, 23 Feb–23 Mar 1998, M.H. Troskie, SAM-HYM-C017282; Cape Peninsula National Park, Cape of Good Hope sec., near Klaasjagersberg, 1A; 34°14'06"S 18°23'36"E, Regenerated Mesic Mountain Fynbos on flat land after alien clearing using bulldozer (Treatment 1A), pitfall trap, 25 Feb–27 Mar 1999, F. Parker, SAM-HYM-C017283; Cape Peninsula National Park, Silvermine, 34°05.05'S 18°25.14'E, nest in hollowed out base of dead *Protea repens* inflorescence, Mesic Mountain Fynbos, 14 May 1998, G. Eick & H.G. Robertson, SAM-HYM-C015012; Kleinmond, 34°20'0"S 18°59'0"E, 30 September 2000, H.G. Robertson, SAM-HYM-C017822; Brandfontein Reserve, 34°46'S 19°52'E, in cavity of old *Protea suzannae* inflorescence, Mesic Mountain Fynbos on sandstone, 15 August 1992, H.G. Robertson, SAM-HYM-C007230; At foot of Duivelsbos, Marloth Nature Reserve, 33°59'50"S 20°27'50"E, forest along stream, with tiny *Monomorium* sp. in the same branch, nest in dead branch on tree, on fringe of indigenous evergreen, 09 October 1994, H.G. Robertson, SAM-HYM-C007519; Fernkloof Nature Reserve, 34°24'S 19°17'E, 14–15 Nov 1992, H.G. Robertson, SAM-HYM-C006428; Brenton-on-sea, 34°04'00"S 23°01'00"E, Fynbos site: nest in cavity of 1.5 cm thick dead branch above ground, 01–07 December 1996, H.G. Robertson, SAM-HYM-C009434; Cape Peninsula National Park, Silvermine, 34°05.05'S 18°25.14'E, Nest in hollowed out base of dead *Protea repens* inflorescence, Mesic Mountain Fynbos, 14 May 1998, H.G. Robertson & G. Eick, SAM-HYM-C015006.

Nesomyrmex stramineus (Arnold, 1948)

Fig. 1g–i

Limnomyrmex stramineus Arnold, 1948: 223. For type information and synonyms, see Bolton (1982).

Description of worker

HL 0.612–0.618, HW 0.502–0.525, HW1 0.528–0.541, CI 81–86, SL 0.354–0.364, SI 67–73, PW 0.364–0.393, ML 0.685–0.718, EL 0.128–0.138, EI 24–27.

Description of workers matches the description of this species by Bolton (1982).

Diagnosis

Similar to the larger *N. denticulatus* – see under diagnosis for this latter species.

Biology

Nests in dead wood on trees. Specimens have been collected from savanna woodland and Afromontane forest.

Material examined

South Africa: KwaZulu-Natal: St. Lucia, [28°23'S 32°24'E], 19 February 1946, J.C.F. [= J.C. Faure], SAM-ENT-0011829; False Bay Park, Dungandlovu camp, Savannah woodland, 28°2'S 32°22'E, 14 February 1999, Ref # 13903 ex dead thorn of *Acacia nilotica*, P.S. Ward, SAM-HYM-C016512; Pongola, [27°23'S 31°37'E], 11 July 1967, Dr Karney, SAM-HYM-C015106. **Swaziland:** Malolotja Nature Reserve, Majolomba Gorge, 26°7'S 31°6'E, 18 February 1999, Afromontane forest, Ref. # 13931 – ex dead twig, P.S. Ward, SAM-HYM-C016531.

SIMONI-GROUP

Nesomyrmex antoinetteae sp. nov.

Fig. 2g–i

Description of worker

Holotype. HL 1.099, HW 0.851, HW1 0.942, CI 77, SL 0.886, SI 104, PW 0.677, ML 1.380, EL 0.305, EI 36.

Mandibles with fine longitudinal striations. Clypeus with reticulate ground sculpture overlaid by a few longitudinal striations. Median portion of the clypeus convex but almost flattened anteriorly. Eyes with 16 ommatidia in the longest row. Hind margin of head in full-face view with occipital margin straight medially. Promesonotum in profile evenly convex and the metanotal groove conspicuously impressed. Propodeal dorsum slightly convex and declivity almost straight. Propodeum armed with short, triangular teeth. Metapleural lobes low and rounded. Anterior peduncle short and broad with a keel-like subpetiolar process. Petiolar node with both anterior and posterior angles rounded. Postpetiole low and rounded. Dorsum of head with punctulate to finely reticulate ground-sculpture, which is overlaid by fine, longitudinal rugulae. Promesonotal dorsum with fine predominantly longitudinal rugulae, irregular in places. Propodeal dorsum with irregular rugulae and transverse rugulae on the declivity. Petiolar node and postpetiole with irregular rugulae. Base of first gastral tergite with costulae and rest of tergite with fine, superficial reticulate pattern. Head with four longitudinal lines of erect hairs running between the eyes. The venter of head with sparse short curved hairs and five long straight hairs. Promesonotal dorsum with scattered short, erect hairs. Propodeal dorsum with a pair of hairs, petiolar node with at least three pairs of hairs and postpetiole with at least five pairs of hairs. Regularly spaced erect hairs on tergites and sternites of gaster. Colour uniformly light brown.

Paratypes. HL 0.954–1.092, HW 0.724–0.851, HW1 0.806–0.934, CI 74–79, SL 0.738–0.873, SI 101–107, PW 0.541–0.680, ML 1.219–1.369, EL 0.285–0.325, EI 35–41 (12 of 17 measured).

Same as holotype with these differences: clypeus reticulate or smooth medially, bordered by a few longitudinal striations. The venter of head with 3–5 curved hairs. Eyes with 15–17 ommatidia in a longest row. Propodeum with short propodeal teeth, reduced to angulate corners in some.

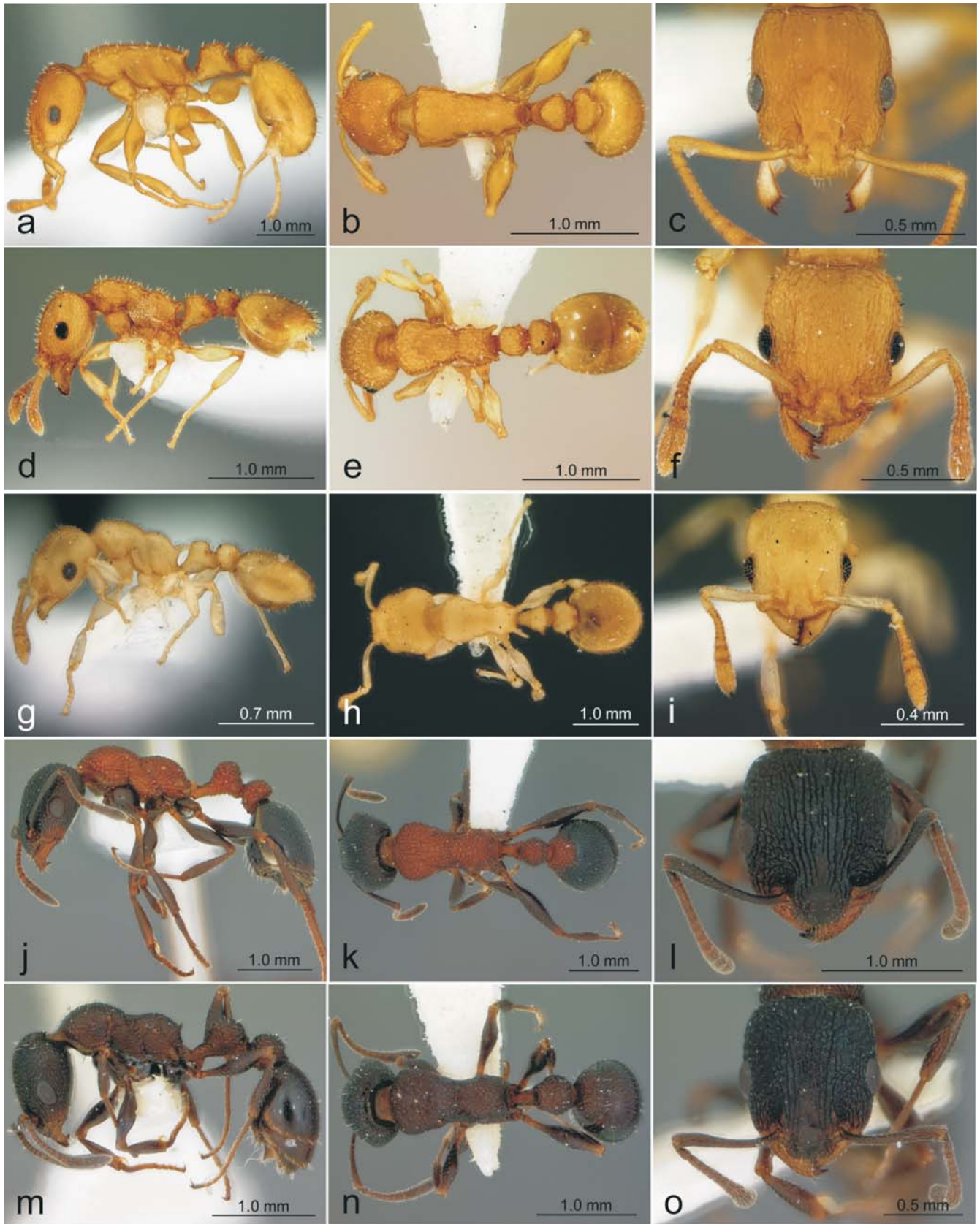


Fig. 1. *Nesomyrmex* species from southern Africa in profile (left column), in dorsal view (central column) and showing dorsum of head (right column). a–c, *N. angulatus*; d–f, *N. denticulatus*; g–i, *N. stramineus*; j–l, *N. braunsi*; m–o, *N. simoni*.

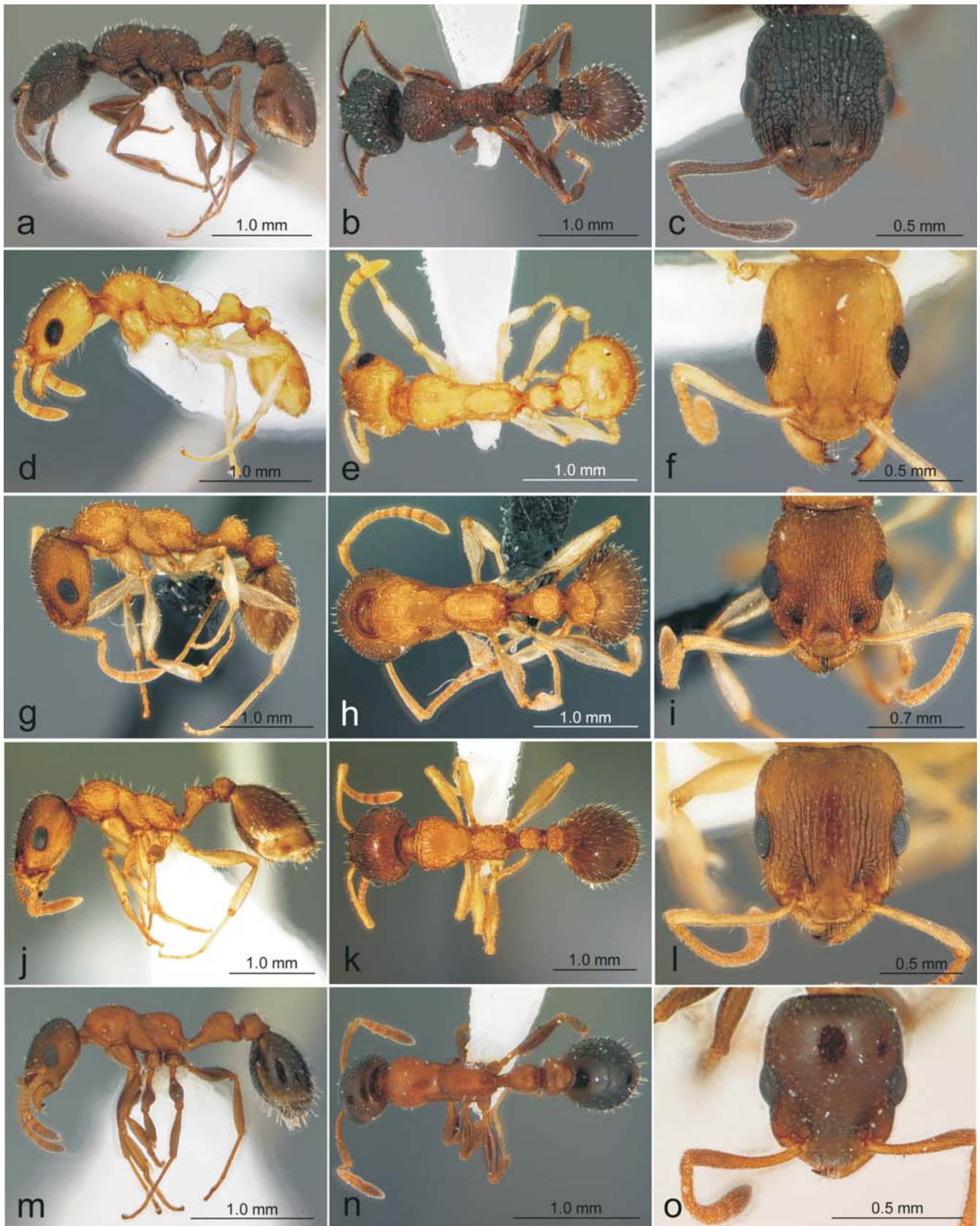


Fig. 2. *Nesomyrmex* species from southern Africa in profile (left column), in dorsal view (central column) and showing dorsum of head (right column). **a–c**, *N. saasveldensis*; **d–f**, *N. koebergensis*; **g–i**, *N. antoinetteae*; **j–l**, *N. mcgregori*; **m–o**, *N. larsenae*.

Petiolar node with anterior face angled at about 125 degrees to the horizontal; dorsum rounding evenly into the posterior face. Propodeum with at least two pairs of hairs.

Diagnosis

Nesomyrmex antoinetteae is similar to *N. mcgregori* and is distinguished from the latter species by the dorsum of head which is entirely covered by longitudinal rugulae (smooth or reticulate in *N. mcgregori*), the propodeum which is armed with broad triangular teeth (acute in *N. mcgregori*), and the head which is narrower (CI 74–79 versus 83–84 in *N. mcgregori*).

Biology

Collected from pitfall traps in Mountain Fynbos and from digging through soil in Succulent Karoo.

Etymology

Named after Antoinette Botes who collected the holotype.

Material examined

Holotype: **South Africa: Western Cape:** Mountain Fynbos, 32°20'59"S 19°10'2"E, 15 October 2002, A. Botes, CKOct02-SKop-12.1.6, SAM-HYM-C019389.

Paratypes: **South Africa: Western Cape:** Mountain Fynbos, 32°21'8"S 19°10'4"E, 15 October 2002, A. Botes, CKOct02-SKop-12.3.3, SAM-HYM-C019390; Mountain Fynbos, 32°21'14"S 19°10'4"E, 15 October 2002, A. Botes, CKOct02-SKop-12.4.9, SAM-HYM-C019391; Mountain Fynbos, 32°21'19"S 19°9'13"E, CKOct02-SKop-10.2.4, 16 October 2002, A. Botes, SAM-HYM-C019399; Mountain Fynbos, 32°20'59"S 19°10'2"E, 06 March 2003 A. Botes, CKMar03-SKop-12.1.5, SAM-HYM-C019400; Rietfontein farm adjacent to Touwsberg Private Nature Reserve, 33°35'53"S 20°59'57"E, 14 April 2008, found while digging *Ocymyrmex* nest at about 30 cm down, nesting in medium deep hard clay soil. Nest entrance in open, N. Mbanyana & H.G. Robertson, SAM-HYM-C019804; Oudtshoorn, Fezekile High School, 33°36'16"S 22°14'8"E, 10 March 2006, collected from flat heavily disturbed Succulent Karoo, FEZ100306 1.10, B. Braschler, SAM-HYM-C019798.

Nesomyrmex braunsi (Forel, 1912)

Fig. 1j–l

Dilobocondyla (*Tetramyrma*) *braunsi* Forel, 1912: 767. For type information and synonyms, see Bolton (1982).

Description of worker

HL 1.225–1.287, HW 1.033–1.109, HW1 1.111–1.152, CI 83–88, SL 0.885–0.942, SI 83–88, PW 0.825–0.865, ML 1.541–1.628, EL 0.285–0.334, EI 27–30 (5 of 29 measured).

Description matches that of Bolton (1982).

Diagnosis

Nesomyrmex braunsi looks similar to *N. simoni* and *N. saasveldensis* but is easily recognized by lacking spines on the propodeum, lacking hairs on the promesonotum (hairs abundant on promesonotum of the latter two species), and by being larger (HW 1.033–1.109 versus 0.783–0.884).

Biology

Specimens have been collected from pitfall, yellow pan,

and malaise traps, and by sweeping vegetation, in Nama-Karoo. Nest is in the soil; the entrance is in the open and can have a circle of soil round it.

Material examined

South Africa: Eastern Cape: Willowmore, [33°18'S 23°29'E], January 1913, Dr H. Brauns, SAM-HYM-C004720; **Western Cape:** Elandsfontein farm, 32°18.14'S 22°56.85'E, Nama-Karoo on dolerite soils, Malaise trap, 24 April 2001, S. van Noort & H.G. Robertson, SAM-HYM-C019119; Elandsfontein farm, Middelkamp, 32°17'47"S 23°0'6"E, Karoo on dolerite soils, circular nest entrance in open between bushes with scattering of soils round it, 22 February 2000, H.G. Robertson, SAM-HYM-C016133; Kamferskraal farm, 32°16.92'S 23°01.13'E, Nama-Karoo on dolerite soils, Pitfall, 22–29 April 2001, H.G. Robertson & R. Tourle, SAM-HYM-C019116; Kamferskraal farm, 32°13.92'S 23°01.13'E, Nama-Karoo on dolerite soils, Yellow pan trap, 22–29 April 2001, S. van Noort & D. Larsen, SAM-HYM-C019117; Kamferskraal farm, 32°13.61'S 22°58.43'E, Nama-Karoo on dolerite soils, Sweep, 20 April 2001, S. van Noort, SAM-HYM-C019118

Nesomyrmex cederbergensis sp. nov.

Fig. 4g–i

Description of worker

Holotype. HL 0.787, HW 0.588, HW1 0.656, CI 75, SL 0.580, SI 99, PW 0.443, ML 0.936, EL 0.207, EI 35.

Mandibles smooth and shining. Clypeus predominantly smooth medially, bordered by longitudinal striations. Anterior clypeal margin convex. Scapes long (SI 99). Eyes with 11 ommatidia in the longest row. Promesonotum in profile evenly convex and metanotal groove conspicuously impressed. Propodeum sloping slightly to a short declivity, which is almost straight. Propodeum armed with pair of short triangular teeth. Metapleural lobes low and rounded. Anterior peduncle with a small rounded subpetiolar process. Petiolar node with anterior, dorsal and posterior faces forming an even convexity in profile. Postpetiole low and rounded. Head dorsum smooth posteriorly and medially, but with a few fine rugulae near the inner margin of the eyes and at the base of the antennae. Pronotum predominantly smooth and shining. Mesonotal dorsum reticulate with a few striations. Propodeal dorsum reticulate-punctate and declivity with transverse rugulae; both nodes also reticulate. First gastral tergite with a ring of a short basal costulae, with the remainder of the tergite smooth and shining. Head dorsum with two longitudinal lines of fine acute hairs running between the frontal lines. The venter of head with five suberect hairs and pubescence present. Promesonotal dorsum with scattered fine hairs, acute apically. Propodeal dorsum with two pairs of fine hairs. Petiolar node with three pairs of fine suberect hairs and postpetiole with pairs of scattered suberect, fine hairs. Gastral tergite and sternite with regularly spaced suberect hairs. Colour uniformly yellow.

Diagnosis

Nesomyrmex cederbergensis is similar in appearance to *N. inye*, *N. njengelanga*, *N. koebergensis* and *N. ezantsi* – they

are all yellow in colour and their petiolar nodes in profile have a rounded posterodorsal angle and the anterodorsal angle either angulate or rounded, with the dorsum convex and not clearly defined. *N. cederbergensis* is recognized by the smooth and shining dorsum of head, with few longitudinal striations near the inner margin of the eyes whereas the other three species have reticulate sculpture on the dorsum of head, sometimes overlaid by longitudinal rugulae.

Biology

The single specimen of this species was collected from a pitfall in Mountain Fynbos.

Etymology

Named after the Cederberg Mountains, where the holotype was collected.

Material examined

Holotype: **South Africa: Western Cape:** Cederberg, Mountain Fynbos, 32°20'58"S 19°0'25"E, 08 October 2002, A. Botes, CKOct02-NWP-4.1.6, SAM-HYM-C019385.

Nesomyrmex entabeni sp. nov.

Fig. 3d–f

Description of worker

Holotype. HL 0.706, HW 0.516, HW1 0.546, CI 73, SL 0.482, SI 93, PW 0.386, ML 0.816, EL 0.185, EI 36.

Mandibles with fine longitudinal striations. Clypeus with longitudinal striations except for the posterior median portion, which is predominantly smooth. Anterior median portion of clypeus concave in longitudinal section. Eyes with 13 ommatidia in a longest row. Scapes relatively long (SI 93). With head in full-face view hind margin shallowly convex. With mesosoma in profile, dorsal margins of promesonotum and propodeum each evenly convex, with metanotal groove conspicuously impressed. Propodeum unarmed, with dorsum rounding evenly into the declivity. Metapleural lobes low and rounded. Subpetiolar process absent. Petiolar node convex in profile with posterior face steeper than anterior face. Postpetiole rounded and slightly lower than petiolar node. Dorsum of head predominantly smooth and shining, with fine superficial reticulate ground-sculpture; longitudinal striations present between the eyes and base of antennae. Promesonotal dorsum predominantly smooth and shining, with fine superficial reticulate sculpture. Metanotal groove with cross-ribs. Propodeal dorsum with reticulate sculpture and faint transverse striations posteriorly including the declivity. Peduncle with irregular transverse striations. Petiolar node and postpetiole predominantly with irregular reticulate sculpture, less well defined dorsally; petiolar node also with a few short irregular transverse striae on the sides. Gastral tergite smooth and shining and without costulae at the base. Dorsum of head with two pairs of hairs near the inner margin of the eyes and one pair on the posterior margin; sparse pubescence present. The venter of head with three straight hairs; pubescence present. Promesonotum with a pair of erect hairs on the pronotal humeri; sparse pubescence present. Propodeum without erect hairs, only sparse pubescence present. Petiolar node and postpetiole each with a pair of backwardly projecting

hairs. Gastral tergites and sternites with scattered straight to subdecumbent hairs. Colour uniformly medium to dark brown.

Paratypes. HL 0.705–0.719, HW 0.502–0.570, HW1 0.545–0.605, CI 70–79, SL 0.484–0.511, SI 89–97, PW 0.391–0.423, ML 0.839–0.910, EL 0.187–0.201, EI 35–38 (5 of 9 measured).

Same as holotype, with the following differences; the ommatidia in the longest row of the eyes range from 13 to 15. The venter of head with up to four straight hairs. Hairs on the petiolar node range from two to four and hairs on the postpetiole range from two to four.

Diagnosis

Nesomyrmex entabeni looks similar to *N. nanniae* and is distinguished from the latter species by its metanotal groove which is clearly defined in dorsal view and which has cross-ribs. In *N. nanniae* promesonotum and propodeum are confluent in dorsal view with no metanotal groove visible medially.

Biology

Collected from pitfall traps in Mountain Fynbos of the Cederberg in the Western Cape.

Etymology

In isi-Xhosa *entabeni* means 'in the mountain', which is appropriate as all specimens were collected in a mountainous area.

Material examined

Holotype: **South Africa: Western Cape:** Mountain Fynbos, 934 m; 32°18'39"S 19°10'14"E; 11 October 2002, A. Botes; CkOct02-CWA-16.1.1, SAM-HYM-C019393

Paratypes: **South Africa: Western Cape:** Mountain Fynbos, 359 m, 32°20'19"S 18°59'24"E, 03 March 2003, A. Botes CkMar03-SAW-3.1.5, SAM-HYM-C019394; Mountain Fynbos, 527 m, 32°20'58"S 19°0'25"E, 08 October 2002, A. Botes, CkOct02-NWP-4.1.2, SAM-HYM-C019395; Mountain Fynbos, 920 m, 32°18'36"S 19°10'32"E, 11 October 2002, A. Botes, CkOct02-CWA-16.4.3, SAM-HYM-C019396; Mountain Fynbos, 920 m, 32°18'36"S 19°10'32"E, 11 October 2002, A. Botes, CkOct02-CWA-16.4.4, SAM-HYM-C019401; Mountain Fynbos, 332 m, 32°20'20"S 18°59'16"E, 03 March 2003, A. Botes, CkMar03-SAW-3.4.5, SAM-HYM-C019402.

Nesomyrmex ezantsi sp. nov.

Fig. 4m–o

Description of worker

Holotype. HL 0.755, HW 0.598, HW1 0.659, CI 79, SL 0.569, SI 95, PW 0.423, ML 0.875, EL 0.226, EI 38.

Mandibles with fine longitudinal striations. Clypeus predominantly smooth, with a striation medially and bordered by longitudinal striations. Anterior clypeal margin convex. Scapes of moderate length (SI 90). Eyes with 14 ommatidia in the longest row. Promesonotum in profile evenly convex and metanotal groove conspicuously impressed. Propodeum armed with a pair short triangular teeth.

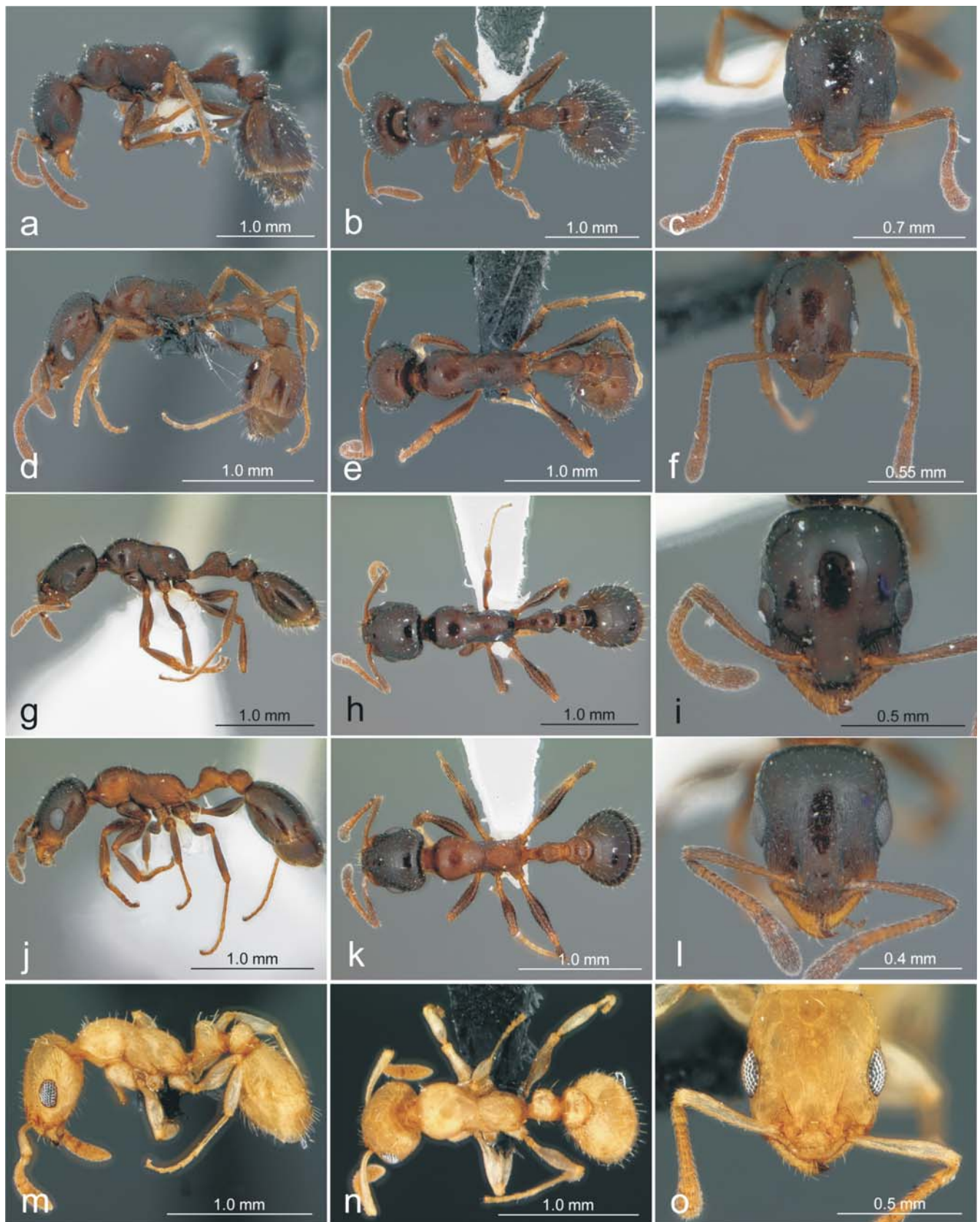


Fig. 3. *Nesomyrmex* species from southern Africa in profile (left column), in dorsal view (central column) and showing dorsum of head (right column). **a–c**, *N. ruani*; **d–f**, *N. entabeni*; **g–i**, *N. nanniae*; **j–l**, *N. vannoorti*; **m–o**, *N. njengelanga*.

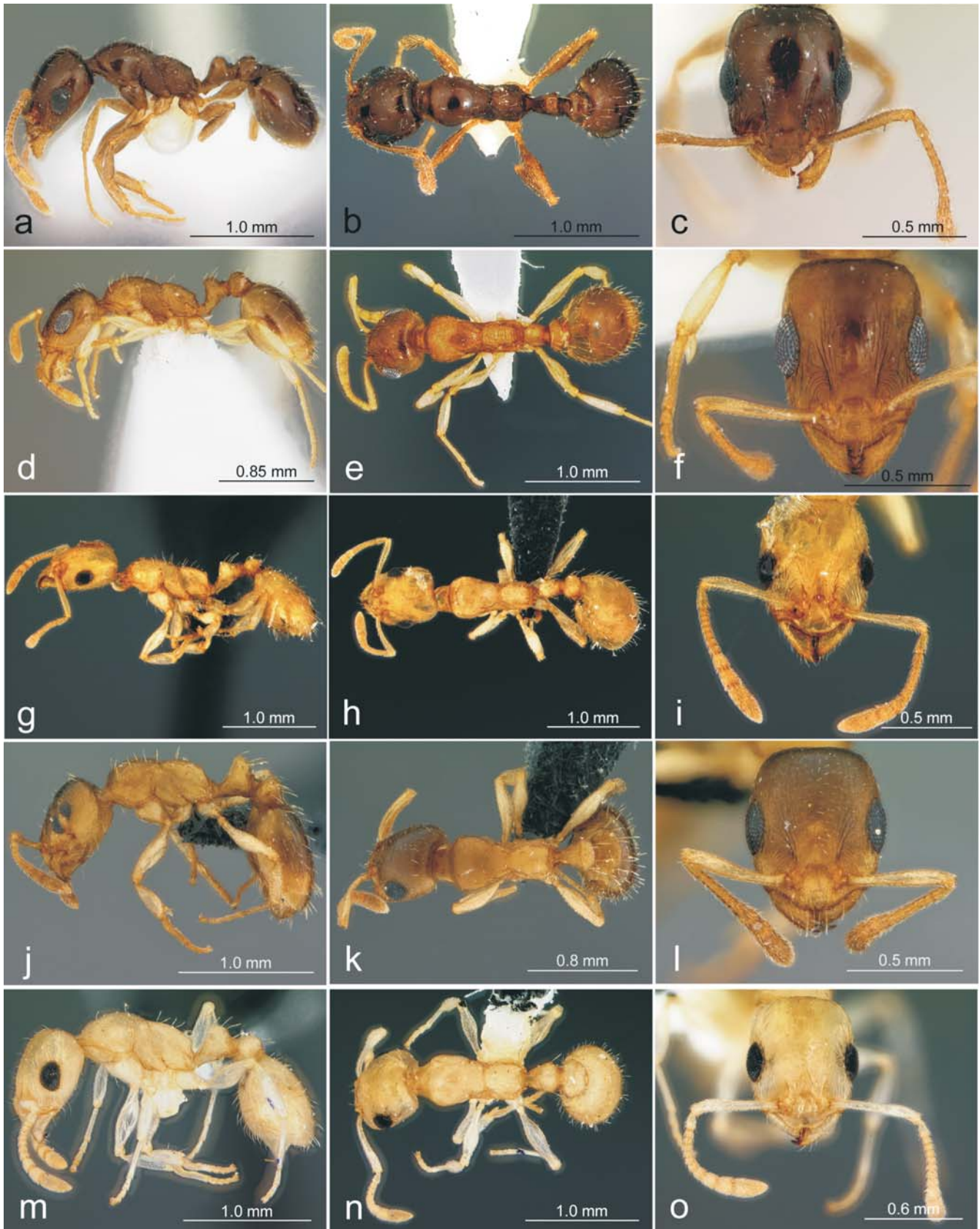


Fig. 4. *Nesomyrmex* species from southern Africa in profile (left column), in dorsal view (central column) and showing dorsum of head (right column). **a–c**, *N. tshiguvhoae*; **d–f**, *N. karoensis*; **g–i**, *N. cederbergensis* (head glued back on body); **j–l**, *N. inye*; **m–o**, *N. ezantsi*.

Metapleural lobes low and rounded. Anterior peduncle short and thick, with a tooth-like subpetiolar process. Petiolar node in profile with an angulate anterodorsal angle and a rounded posterodorsal angle; dorsum convex and not clearly defined. Postpetiole low and rounded. Head dorsum with a reticulate pattern and faint striations medially. Promesonotal dorsum with reticulate sculpture and fine longitudinal striations anteriorly. Propodeal dorsum reticulate with a few transverse striations and both nodes also reticulate. First gastral tergite smooth with a ring of short basal costulae. Dorsum of head with four longitudinal lines of fine acute hairs running between the eyes. The venter of head with two curved hairs and three straight hairs; pubescence present. Promesonotal dorsum with at least 10 erect hairs, acute apically. Propodeal dorsum with three erect hairs. Petiolar node with three pairs of hairs and postpetiole with four pairs of hairs. Gastral tergite and sternite with regularly spaced suberect hairs. Colour uniformly yellow.

Paratypes. HL 0.767–0.806, HW 0.598–0.610, HW1 0.664–0.686, CI 76–78, SL 0.561–0.570, SI 94, PW 0.425–0.462, ML 0.875–0.944, EL 0.226–0.236, EI 38–39 (2 of 2 measured).

Same as the holotype, except number of hairs on the propodeum range from three to four and on the petiolar node range from three to four.

Diagnosis

Nesomyrmex ezantsi is similar in appearance to *N. koebergensis*, *N. njengelanga* and *N. inye*. They share the following characteristics: petiolar node with rounded posterodorsal angle and anterodorsal angle either angulate or rounded; dorsum convex and not clearly defined. Dorsum of head with reticulate sculpture, sometimes overlaid by longitudinal rugulae. *N. ezantsi* is separated from *N. njengelanga* and *N. inye* by the propodeum which is armed with a pair of short triangular teeth (angulate in the latter two species with no clearly defined pair of short spines), and by being larger (HW 0.598–0.625 *versus* 0.507–0.559). *N. ezantsi* is distinguished from *N. koebergensis* by the pale colour (light brown in *N. koebergensis*) and the dorsum of head which is predominantly smooth, with fine reticulate ground sculpture (reticulate and overlaid by longitudinal rugulae in *N. koebergensis*).

Biology

The three specimens were collected from pitfall traps in 'Lambert's Bay Strandveld' (Mucina & Rutherford 2006) vegetation.

Etymology

In isi-Xhosa, *ezantsi* means 'below' and is used here to refer to the fact that this species was collected on the coastal plain, in low-lying areas.

Material examined

Holotype: **South Africa: Western Cape:** Lambert's Bay, Strandveld, 32°10'51"S 18°18'59"E, 07 October 2002, A. Botes, CKOct02-LMB-1.3.10, SAM-HYM-C019383.

Paratypes: **South Africa: Western Cape:** Lambert's Bay, Strandveld, 32°10'47"S 18°18'55"E, 07 October 2002, A. Botes, CKOct02-LMB-1.2.10, SAM-HYM-C019384;

Lambert's Bay, Strandveld, 32°10'51"S 18°18'59"E, CKMar03-LMB-1.3.7, 03 March 2003, A. Botes, SAM-HYM-C019386.

Nesomyrmex inye sp. nov.

Fig. 4j–l

Description of worker

Holotype. HL 0.713, HW 0.559, HW1 0.602, CI 78, SL 0.462, SI 83, PW 0.403, ML 0.816, EL 0.236, EI 42.

Mandibles with fine longitudinal striations. Clypeus with longitudinal striations anteriorly, smooth posteriorly with superficial fine reticulate patterning. Anterior clypeal margin convex but slightly pointed medially. Scapes of moderate length (SI 83). Eyes with 12 ommatidia in a longest row. With head in full face view, hind margin shallowly convex. Promesonotum evenly convex in profile. Metanotal groove conspicuously impressed. Dorsum of propodeum shallowly convex in profile; sides of declivity marginate and junction between dorsum and declivity angulate. Metapleural lobes low and rounded. Peduncle with a prominent keel-shaped subpetiolar process. Petiolar node rounded in profile with dorsum poorly defined; junction between anterior face and dorsum more narrowly rounded than between posterior face and dorsum. Postpetiole low and rounded. Head with fine reticulate pattern overlaid by fine longitudinal striations; striations more prominent in the vicinity near the inner margin of the eyes. Promesonotal dorsum with reticulate sculpture aligned in places to form fine longitudinal striations. Metanotal groove with cross-ribs. Posterior portion of the propodeal dorsum and declivity with transverse striations; anterior of dorsum with rugoreticulum. Both nodes with a superficial reticulate pattern. First gastral tergite with a ring of short basal costulae at the base and the remaining part smooth with a faint superficial reticular pattern. Dorsum of head with eight pairs of erect hairs, with underlying sparse pubescence. The venter of head with seven elongate curved hairs. Ventral margin of mandibles with short curved hairs and with one long curved hair at the base. Promesonotal dorsum with six pairs of fine erect hairs. Propodeum with two pairs of fine erect hairs. Petiolar node with four pairs of suberect hairs, postpetiole with five pairs of fine suberect hairs. Gastral tergite and sternite with regularly spaced suberect hairs. Colour uniformly medium brown.

Diagnosis

Nesomyrmex inye is distinguished from the similar-looking *N. njengelanga* by the long curved hairs that are present on the ventral surface of head (*versus* straight hairs in *N. njengelanga*); promesonotal dorsum with reticulate ground sculpture overlaid by longitudinal rugulae (longitudinal rugulae reduced to a few near the inner margin of eyes in *N. inye*); eyes are larger (EI 42 *versus* 35–40); and the colour which is medium brown (*versus* yellow).

Biology

One specimen collected in soil, while digging up another ant nest. Vegetation classified as Succulent Karoo: Western Little Karoo (Mucina & Rutherford 2006).

Etymology

In isi-Xhosa, *inye* means 'one' and this species is so named because there was only one specimen collected.

Material examined

Holotype: **South Africa: Western Cape:** Ladismith, Rietfontein Farm adjacent to Touwsberg Private Nature Reserve, 33°35'53"S 20°59'57"E, 14 April 2008, N. Mbanyana & H.G. Robertson, SAM-HYM-C019803.

Nesomyrmex karoensis sp. nov.

Fig. 4d–f

Description of worker

Holotype. HL 0.684, HW 0.531, HW1 0.605, CI 78, SL 0.482, SI 91, PW 0.384, ML 0.821, EL 0.246, EI 46.

Mandibles predominantly smooth with fine striations basally. Median clypeus smooth and shining and bordered by 2 pairs of longitudinal striations. Anterior clypeal margin in dorsal view more or less evenly convex except flattened medially. Scapes relatively long, (SI 91). Large eyes, with 14 ommatidia in a longest row. With the head in full-face view hind margin feebly convex. Promesonotum in profile evenly convex dorsally; and with metanotal groove conspicuously impressed. Dorsum of propodeum shallowly convex and sloping evenly into the declivity, which is about 20 degrees less than vertical. Propodeum armed with a pair of triangular teeth, with basal width broader than the length. Metapleural lobes low and rounded. Anterior peduncle short, with well-developed rounded-triangular subpetiolar process. Posterior face of petiolar node slightly more steeply angled than anterior face and rounding evenly into dorsum; anterior face also rounding into dorsum but angled at the interface between the two. Dorsum in profile short, slightly convex. Postpetiole low and rounded in lateral view. Dorsum of head smooth and shining medially, with short longitudinal rugulae and irregular rugulae near the inner margin of the eyes. Promesonotal dorsum smooth centrally, with reticulate sculpture posteriorly, and with irregular transverse striations anteriorly. Propodeal dorsum and declivity with transverse striations. Base of first gastral tergite with short costulae and the rest of tergite predominantly smooth. Dorsal surface of head, promesonotum, propodeum and nodes with scattered fine short erect hairs. The venter of head with four curved hairs and five suberect hairs; pubescence present. Regularly spaced subdecumbent hairs on tergite and sternite of the gaster. Colour uniformly yellow-brown.

Paratypes. HL 0.689–0.875, HW 0.549–0.683, HW1 0.598–0.731, CI 77–80, SL 0.492–0.634, SI 89–93, PW 0.386–0.500, ML 0.747–1.039, EL 0.209–0.261, EI 38–44 (6 of 18 measured).

Same as holotype with the following differences: mandibles smooth and shining, with hair pits. In dorsal view anterior clypeal margin convex but almost flattened anteriorly, with a projecting translucent lamella medially. Anterior peduncle short, with a small tooth-like or keel-like subpetiolar process. Promesonotal dorsum smooth medially, surrounded by irregular reticulate sculpture and a few irregular rugulae. Propodeal dorsum either with predominantly transverse striations or reticulate-punctate. Petiolar node with irregu-

lar striations dorsally, or with irregular reticulate pattern, which is more sharply defined beyond the nodal areas. Postpetiole with irregular rugulae. Base of first gastral tergite with short costulae and the rest of the tergite smooth and shining. Head with short erect hairs at the back of the head and 2 longitudinal lines of erect hairs running between the eyes. The venter of head with 1–4 curved hairs and at least two suberect hairs; sparse pubescence present. Promesonotum with 5–6 pairs of erect hairs, acute apically, propodeum with 1–2 pairs of erect hairs, petiolar node with 2–3 pairs of erect hairs and postpetiole with at least four pairs of erect hairs. Colour light brown to yellow-brown.

Diagnosis

Nesomyrmex karoensis can be distinguished from other members of the genus by the petiolar node, which in profile has angulate anterodorsal and posterodorsal angles. In other species, the petiolar node in profile has a rounded posterodorsal angle and the anterodorsal angle is either angulate or rounded.

Biology

Collected in pitfall and yellow pan traps. Recorded mainly from Nama-Karoo but also collected from Renosterveld on tillite.

Etymology

So named because most of the specimens were collected in the Karoo, the extensive semi-arid region in southern Africa.

Material examined

Holotype: **South Africa: Western Cape:** Kamferskraal farm, 32°13.61'S 22°58.43'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-K2-P05, SAM-HYM-C019114.

Paratypes: **South Africa: Western Cape:** Avondale farm, 32°15.00'S 22°56.60'E, 22–29 April 2001, S. van Noort & D. Larsen, BW01-A1-Y91, SAM-HYM-C019115; Elandsfontein farm, 32°18.50'S 22°55.04'E, 22–29 April 2001, H.G. Robertson; BW01-D1-P08, SAM-HYM-C019113; **Northern Cape:** Hopetown, 4 km E of Hopetown, Hopetown Municipal farm; 29°38'0"S 24°9'0"E; 15 February 1997, B. Chambers, SAM-HYM-C010848; Papkuilsfontein farm, Matjie Site (16.7 km 176°S Nieuwoudtville), 31°30.915'S 19°10.960'E, 12–19 October 2000, S. van Noort & H.G. Robertson, NW00-TN3-Y87, SAM-HYM-C019124; Glen Lyon farm, Sheep's Leg (4.62 km 153° SSE Nieuwoudtville), 31°24.359'S 19°08.895'E, NW00-TN2-P10, 11–18 October 2000, H.G. Robertson, D. Larsen & R. Adams, SAM-HYM-C019126; Papkuilsfontein farm, Ostrich Site (16.5 km 177°S Nieuwoudtville), 31°30.808'S 19°10.873'E, 12–19 October 2000, H.G. Robertson, D. Larsen & R. Adams, NW00-TN4-P06, SAM-HYM-C019129.

Other material

South Africa: Western Cape: Prince Albert, Tierberg Research Station, 33°10'8"S 22°16'12"E, collected from flat Nama-Karoo, 11 March 2006, B. Braschler, Iimbovane PRI110306 2.6, SAM-HYM-C019792; Beaufort West Karoo N.P., 32°19'44"S 22°31'6"E, collected from Mountain

Nama-Karoo, 13 March 2006, B. Braschler, KAR120306 M2.10, SAM-HYM-C019794.

***Nesomyrmex koebergensis* sp. nov.**

Fig. 2d–f

Description of worker

Holotype. HL 0.860, HW 0.677, HW1 0.738, CI 79, SL 0.623, SI 92, PW 0.492, ML 1.013, EL 0.258, EI 38.

Mandibles shagreenate – smooth but not shining. Clypeus predominantly smooth and shining, with few faint longitudinal striae. Anterior clypeal margin more-or-less convex except obtusely pointed medially. Eyes large, with 14 ommatidia in the longest row. Scapes of moderate length (SI 86). With head in full face view, hind margin slightly convex. Promesonotum in profile evenly convex. Metanotal groove conspicuously impressed. Dorsum of propodeum shallowly convex and sloping evenly into the declivity, which is almost straight. Propodeum armed with a pair of short triangular teeth. Metapleural lobes low and rounded. Anterior peduncle short and thick, with a small rounded subpetiolar process. Anterior and posterior faces of node convergent dorsally, rounding evenly into a convex dorsum. Postpetiole low and rounded in lateral view. Dorsum of head with reticulate ground sculpture, overlaid by longitudinal striations between the eyes. Promesonotal dorsum with punctate ground sculpture overlaid by longitudinal rugulae and transverse rugulae anteriorly. Propodeal dorsum and declivity with transverse striations, irregular anteriorly. Petiolar node and postpetiole with irregular striations. Base of first gastral tergite with short costulae and the rest of the tergite smooth and shining. Dorsum of head with erect hairs at the back of the head and four longitudinal lines of erect, acutely pointed hairs running between the eyes. The venter of head with four curved hairs and six straight hairs; sparse pubescence present. Promesonotal dorsum with at least 10 erect hairs, four on the propodeal dorsum, eight hairs on the petiolar node and eight hairs on the postpetiole. Regularly spaced suberect hairs on the gastral tergite and sternite. Colour uniformly light brown.

Paratypes. HL 0.813–0.902, HW 0.629–0.718, HW1 0.698–0.767, CI 75–80, SL 0.561–0.612, SI 83–95, PW 0.443–0.471, ML 0.936–1.084, EL 0.228–0.266, EI 37–40 (6 of 6 measured).

Mandibles either shagreenate, smooth and shining, or with fine longitudinal striations. Curved hairs on the venter of head range from two to four; straight hairs from three to four. Petiolar node with 4–8 hairs. Otherwise same as holotype.

Diagnosis

Nesomyrmex koebergensis is similar-looking to *N. antoinetteae* and *N. mcgregori* and is distinguished from the latter two species by the anterior clypeal margin, which is slightly concave laterally with the median portion not clearly defined from lateral portions. In the two latter species anterior clypeal margin is strongly concave laterally so that the median portion is clearly defined from the lateral portions and projects over the mandibles. It is also smaller (HL 0.813–0.902 versus 0.993–1.101). This species is also similar to *N. ezantsi* and distinguished from the latter species by the

dorsum of head which has reticulate sculpture and overlaid by longitudinal rugulae; whereas in *N. ezantsi* the dorsum of head is predominantly smooth, with fine reticulate sculpture.

Biology

Found while excavating *Camponotus* nest.

Etymology

So named because the type material was collected from Koeberg Hill, which is inland from Bloubergstrand and not to be confused with Koeberg Nature Reserve that lies in the property of the Koeberg Nuclear Power Station north of Bloubergstrand.

Material examined

Holotype: **South Africa: Western Cape:** Koeberg Hill; 33°43'S 18°33'E; 03 October 1997, H.G. Robertson SAM-HYM-C010992.

Paratypes: Six workers with same data as holotype.

***Nesomyrmex larsenae* sp. nov.**

Fig. 2m–o

Description of worker

Holotype. HL 0.698, HW 0.529, HW1 0.562, CI 76, SL 0.443, SI 84, PW 0.418, ML 0.861, EL 0.197, EI 37.

Mandibles with fine longitudinal striations. Clypeus predominantly smooth, with weak longitudinal striations. Entire anterior margin of clypeus evenly convex. Eyes with 16 ommatidia in a longest row. Scapes relatively short (SI < 85). With head in dorsal view hind margin convex. With mesosoma in profile, dorsal margins of promesonotum and propodeum each convex, with metanotal groove conspicuously impressed. Propodeum hump-shaped in profile, unarmed, with dorsum rounding evenly into declivity. Metapleural lobes low and rounded. Anterior peduncle long and narrow. Subpetiolar process vestigial, visible as a shallow obtuse angle. Petiolar node in profile massive and nodiform with anterior face angled at about 45° whereas posterior face is nearly vertical. Postpetiole low and rounded. Ventral margin of postpetiole in profile obtusely angled, without distinct process. Dorsum of head weakly shining with faint reticulate ground-sculpture; weakly striated between the eyes and more strongly striated between base of antenna and the eyes. Promesonotal dorsum finely reticulate. Propodeal dorsum with irregular reticulate ground sculpture overlaid by faint irregular transverse striations. Base of declivity with strongly developed transverse striations. Petiolar node and postpetiole with irregular sculpture; transverse striations on peduncle and vestigial transverse striations on petiolar node. Base of first gastral tergite with a ring of short costulae; remainder of the tergite predominantly shiny with weak reticulate pattern. Dorsum of head and mesosoma with appressed white, scattered pubescence, no erect hairs. The venter of head with three straight hairs. Propodeum without hairs. Petiolar node and postpetiole each with a pair of backwardly projecting fine long acute hairs in each. First gastral tergite with scattered, short, decumbent hairs, acute apically; with longer erect hairs along the posterior margin

and on the sternite. Colour brick red with gaster dark brown.

Paratypes. HL 0.688–0.718, HW 0.531–0.541, HW1 0.565–0.590, CI 75–77, SL 0.462–0.470, SI 87, PW 0.393–0.423, ML 0.859–0.895, EL 0.194–0.207, EI 36–38 (2 of 2 measured). Same data as holotype.

Diagnosis

Among the species without hairs on the propodeum (*N. larsenae*, *N. ruani*, *N. entabeni* and *N. nanniae*), *N. larsenae* is distinguished by lacking erect hairs on the promesonotum, and also distinguished by its hump-shaped propodeum and by the brick red colour, with gaster dark brown; the other three species have erect hairs on the promesonotum, the propodeum forms an even convexity (not hump-shaped), and their colour is uniformly medium brown.

Biology

Two specimens were collected from pitfall traps and one specimen from sweeping vegetation in Succulent Karoo near Nieuwoudtville in the Northern Cape. Probably ground-nesting but sweep sample shows that it does forage in vegetation.

Etymology

Named after Dawn Larsen, one of the collectors, who is an Assistant Collections Manager in the entomology collection of the Iziko South African Museum.

Material examined

Holotype: **South Africa: Northern Cape:** west of Driefontein farm, Succulent Karoo 2 site (10.7 km 109° ESE Nieuwoudtville), 31°22.581'S 19°13.507'E, 12–19 October 2000, H.G. Robertson, D. Larsen & R. Adams; NW00-SK2-P05, SAM-HYM-C019131.

Paratype workers with same data as holotype except NW00-SK2-P04, SAM-HYM-C019130, NW00-SK2-Sweep 228, SAM-HYM-C019132.

Nesomyrmex mcgregori sp. nov.

Fig. 2j–l

Description of worker

Holotype. HL 1.106, HW 0.934, HW1 1.005, CI 84, SL 0.816, SI 87, PW 0.666, ML 1.343 EL 0.295, EI 32.

Mandibles with fine longitudinal striations. Clypeus smooth medially, bordered by two pairs of longitudinal striations. Median portion of the clypeus convex but almost flattened anteriorly. Eyes with 15 ommatidia in the longest row. Hind margin of head in dorsal view straight. Promesonotum in profile evenly convex and the metanotal groove conspicuously impressed. Propodeal dorsum convex. Propodeal spines short and broad, approximately same length as metapleural lobes. Metapleural lobes low and rounded. Anterior peduncle short and broad with rounded subpetiolar process that is roughly the length of the metapleural lobes. Petiolar node with anterior and posterior faces each angled at about 125 degrees with respect to the dorsum; dorsum sharply angled with respect to the anterior face but rounds evenly into the posterior face. Dorsum of

postpetiole rounded in profile with anteroventral process. Dorsum of head with punctulate to finely reticulate ground-sculpture, which is overlaid by fine, longitudinal rugulae in places. Promesonotal dorsum with fine predominantly longitudinal rugulae, irregular in places. Propodeal dorsum and declivity with transverse rugulae, becoming irregular near metanotal groove. Petiolar dorsum with predominantly transverse rugulae, becoming reticulate-rugose in places. Postpetiolar dorsum reticulate-rugose. Base of first gastral tergite with costulae and rest of tergite with fine, superficial reticulate pattern. Head with four longitudinal lines of erect, acutely pointed hairs running between the eyes. The venter of head with only one curved hair and five straight hairs; sparse pubescence present. Promesonotum with four erect hairs; propodeal dorsum with six erect hairs; petiolar node with four suberect hairs and postpetiole with at least 10 suberect hairs. Sparse pubescence present. Regularly spaced suberect hairs on tergite and sternite of the gaster. Colour uniformly light brown.

Paratypes. HL 0.993–1.101, HW 0.836–0.915, HW1 0.915–0.981, CI 83–84, SL 0.733–0.806, SI 88, PW 0.577–0.629, ML 1.175–1.292, EL 0.268–0.293, EI 32 (2 of 3 measured).

Same as holotype but the eyes with 14 ommatidia in the longest row instead of 15 ommatidia as is the case with the holotype. The venter of head with 5–6 straight hairs; pubescence present.

Diagnosis

Among the heavily sculptured species, *N. mcgregori* is similar looking to *N. antoinetteae* but is differentiated by the broader head (HW 0.836–0.934); the median portion of the dorsum of the head, which is smooth or reticulate and not covered by longitudinal rugulae; and the propodeum armed with acute spines. In *N. antoinetteae* head is narrower (HW 0.724–0.851); dorsum of the head is entirely covered by longitudinal rugulae; and the propodeum is armed with broad triangular teeth.

Biology

Four specimens were collected in Renosterveld vegetation on tillite soils. These were the only specimens captured from the extensive pitfall trapping, Winkler bag sampling and sweeping done in the Nieuwoudtville area of the Northern Cape, so it appears to be a rare species.

Etymology

Named after Neil McGregor who until recently owned the farm Glen Lyon, where the holotype was collected, and who has done so much to stimulate research, conservation and tourism in the Nieuwoudtville region.

Material examined

Holotype: **South Africa: Northern Cape:** Glen Lyon farm, Sheep's Leg Site (4.62 km 153° SSE Nieuwoudtville), 31°24.359'S 19°08.895'E, collected in natural Renosterveld on tillite, Pitfall, 11–18 October 2000, H.G. Robertson, D. Larsen, R. Adams, NW00-TN2-P09, SAM-HYM-C019144.

Paratypes: **South Africa: Northern Cape:** Glen Lyon farm, Sheep's Leg Site (4.62 km 153° SSE Nieuwoudtville),

31°24.359'S 19°08.895'E, collected in natural Renosterveld on tillite, Pitfall, 11–18 October 2000, H.G. Robertson, D. Larsen, R. Adams, NW00-TN2-P05, SAM-HYM-C019143; Glen Lyon farm, Sheep's Leg Site (4.62 km 153° SSE Nieuwoudtville), 31°24.359'S 19°08.895'E, collected in natural Renosterveld on tillite, Yellow pan trap, 11–18 October 2000, H.G. Robertson, D. Larsen, R. Adams, NW00-TN2-Y20, SAM-HYM-C019141.

Other material

South Africa: Northern Cape: Charlie's Hoek farm, Charlie's Site (4.60 km 60° ENE Nieuwoudtville), 31°20.755'S 19°08.662'E, collected in natural vegetation on dolerite, Winkler, 12–19 October 2000, H.G. Robertson, D. Larsen, R. Adams, NW00-DN1-W08, SAM-HYM-C019140.

Nesomyrmex nanniae sp. nov.

Fig. 3g–i

Description of worker

Holotype. HL 0.771, HW 0.590, HW1 0.624, CI 77, SL 0.514, SI 87, PW 0.452, ML 0.910, EL 0.232, EI 39.

Mandibles with fine longitudinal striations. Median clypeus smooth and bordered by longitudinal striations. Anterior margin of projecting median portion of clypeus convex. Eyes large, with 15 ommatidia in the longest row. Head in full face view with hind margin shallowly convex. Scapes of moderate length (SI 87). In profile, dorsal margin of promesonotum evenly convex and confluent with dorsum of propodeum; metanotal groove absent dorsally but evident laterally. Dorsum of propodeum and declivity forming an even convexity in profile; propodeum unarmed. Metapleural lobes low and rounded. In profile, petiole with well-defined peduncle and large rounded node: anterior, dorsal and posterior margins together forming an even convexity. Subpetiolar process barely evident. Postpetiole in lateral view round and almost the same length as the petiolar node. Dorsum of head predominantly smooth and shiny with very faint, irregular striations; short irregular striations between the eyes.

Promesonotum smooth and shining, with very faint irregular striations. Propodeum with fine transverse striations towards the declivity, elsewhere smooth with very faint irregular striations. Metapleuron and side of propodeum partially reticulate punctate. Both nodes dorsally more-or-less smooth with irregular faint reticulation. Sides of both nodes more heavily sculptured with irregular striations. Gaster smooth and shining, with irregular striations. A few long blunt hairs along posterior margin of the head and two longitudinal lines of hairs (at least four per line) posterior to the frontal lobes. The venter of head with one subdecumbent hair and sparse pubescence present. Promesonotum with a pair of erect hairs on the pronotal humeri and another pair further back. Propodeum with no erect hairs. Petiolar node with a single pair of suberect hairs, and postpetiole with three pairs of suberect hairs. Regularly spaced semi-erect hairs on gastral tergite and sternite. Head and gaster with sparse pubescence and occasional sparse pubescence on other surfaces. Colour uniformly dark brown.

Paratypes. HL 0.656–0.747; HW 0.497–0.565; HW1 0.531–0.605, CI 72–76; SL 0.470–0.521; SI 90–96;

PW 0.370–0.420; ML 0.757–0.870; EL 0.187–0.207; EI 35–40 (5 of 6 measured).

Same as holotype except the mandibles are either smooth apically, with only longitudinal striations basally or entirely with longitudinal striations. Anterior clypeal margin either convex or more-or-less flattened medially. The venter of head with 1–3 subdecumbent hairs, sparse pubescence present. Hairs on the petiolar node range from 2–4 hairs.

Diagnosis

Nesomyrmex nanniae is similar in appearance to *N. entabeni* and *N. ruani*: they all have erect hairs on the promesonotum; propodeum forming an even convexity; and colour uniformly light brown. It is distinguished from *N. ruani* by the sides of petiolar node which have punctulate ground sculpture or at most a few weak rugulae. In dorsal view these feeble rugulae may persist, may fade out, or may be replaced entirely with reticulate-punctate sculpture but in no case does the entire node appear to be encircled with strong rugulae everywhere; in *N. ruani* sides of petiolar node are completely covered with strong, sometimes irregular, rugulae. In dorsal view the entire node with continuous rugulae around it. *N. nanniae* is also smaller (HW 0.497–0.590; PW 0.370–0.452) than *N. ruani* (HW 0.644–0.690, PW 0.475–0.524).

Nesomyrmex nanniae is separated from *N. entabeni* by the promesonotum and propodeum which are confluent in dorsal view, with no metanotal groove visible medially; in *N. entabeni* metanotal groove is clearly defined and has short longitudinal rugulae.

Biology

Four specimens were collected from pitfall traps, one specimen from sweeping and two specimens from yellow pan traps, all from Renosterveld on tillite in the Nieuwoudtville region. The fact that during the extensive sampling undertaken for the Conservation Project of the main vegetation types in the region, this species was only captured in Renosterveld on tillite, suggests that it is limited to this vegetation type.

Etymology

Named after Ingrid Nanni, who works for the South African National Biodiversity Institute (SANBI) and who capably managed the Conservation Farming Project that made the collection of these specimens possible.

Material examined

Holotype: **South Africa: Northern Cape:** Glen Lyon farm, Sheep's Leg Site (4.62 km 153° SSE Nieuwoudtville), 31°24.359'S 19°08.895'E, collected in natural Renosterveld on tillite, Pitfall, 11–18 October 2000, H.G. Robertson, D. Larsen, R. Adams, NW00-TN2-P10, SAM-HYM-C019139.

Paratypes: **South Africa: Northern Cape:** Glen Lyon farm, Sheep's Leg Site (4.62 km 153° SSE Nieuwoudtville), 31°24.359'S 19°08.895'E, collected in natural Renosterveld on tillite, Pitfall, 11–18 October 2000, H.G. Robertson, D. Larsen, R. Adams, NW00-TN2-P05, SAM-HYM-C019135; Papkuilsfontein farm, Matjie Site (16.7 km 176° S Nieuwoudtville), 31°30.915'S 19°10.960'E, collected in

natural Renosterveld on tillite, Yellow pan trap, 12–19 October 2000, S. van Noort & H.G. Robertson, NW00-TN3-Y85, SAM-HYM-C019137; Papkuilsfontein farm, Matjie Site (16.7 km 176° S Nieuwoudtville), 31°30.915' S 19°10.960' E, collected in natural Renosterveld on tillite, Pitfall, 12–19 October 2000, S. van Noort & H.G. Robertson, NW00-TN3-Y86, SAM-HYM-C019138; Trekpad Site (1.70 km 336° NNW Nieuwoudtville), 31°21.982' S 19°06.037' E, collected in natural Renosterveld on tillite, Sweep, 15 October 2000, S. van Noort, NW00-TN1-S177, SAM-HYM-C019136; Trekpad Site (1.70 km 336° NNW Nieuwoudtville) 31°21.982' S 19°06.037' E, collected in natural Renosterveld on tillite, Pitfall, 12–19 October 2000, H.G. Robertson, D. Larsen & R Adams, NW00-TN1-P03, SAM-HYM-C019133.

***Nesomyrmex njengelanga* sp. nov.**

Fig. 3m–o

Description of worker

Holotype. HL 0.712, HW 0.531, HW1 0.590, CI 75, SL 0.477, SI 90, PW 0.398, AL 0.792, EL 0.197, EI 37.

Mandibles with fine longitudinal striations. Clypeus smooth and shining medially, bordered by longitudinal striations. Anterior clypeal margin evenly convex medially. Scapes of moderate length (SI 90). Eyes with 11 ommatidia in longest row. With head in full face view, hind margin shallowly convex. Promesonotum in profile evenly convex. Metanotal groove conspicuously impressed. Dorsum of propodeum evenly convex in profile with only a hint of angulate corners at the junction between the dorsum and declivity. Anterior peduncle with a prominent keel-shaped subpetiolar process. Metapleural lobes low and rounded. Petiolar node rounded in profile with dorsum poorly defined; junction between anterior face and dorsum more narrowly rounded than between posterior face and dorsum. Postpetiole low and rounded. Dorsum of head predominantly smooth, with fine reticulate sculpture and a few fine longitudinal striations near the inner margin of the eyes. Promesonotal dorsum predominantly smooth with fine reticulate sculpture. Metanotal groove with cross-ribs. Propodeal dorsum with reticulate punctate sculpture, aligned to form fine transverse striations. Both nodes predominantly smooth, with fine reticulate sculpture. First gastral tergite with a ring of short costulae at the base, otherwise smooth. Dorsum of head with at least seven pairs of erect hairs, with underlying sparse pubescence. The venter of head with four straight hairs, pubescence present. Promesonotal dorsum with seven pairs of erect hairs present. Propodeal dorsum with two pairs of erect hairs. Petiolar node with four pairs of suberect hairs, postpetiole with six pairs of suberect hairs. Gastral tergite and sternite with regularly spaced suberect hairs. Colour uniformly yellow.

Paratypes. HL 0.654–0.713, HW 0.507–0.538, HW1 0.556–0.592, CI 75–77, SL 0.433–0.462, SI 85–87, PW 0.359–0.398, ML 0.711–0.816, EL 0.186–0.210, EI 35–40 (4 of 4 measured)

Same as holotype except eyes with 10–11 ommatidia in longest row. There are 3–4 hairs on the venter of head. Promesonotal dorsum with 6–7 pairs of erect hairs. Postpetiole with 5–6 pairs of suberect hairs. Promesonotal dorsum either with fine reticulate sculpture or with longitudinal

striations towards the metanotal groove and reticulate sculpture anteriorly. Propodeal dorsum either unarmed or with only a hint of angulate corners at the junction between the dorsum and declivity.

Diagnosis

Nesomyrmex njengelanga is similar looking to *N. inye* and distinguished from the latter species by lacking long curved hairs on the venter of head, only straight hairs present. *N. inye* has curved hairs on the venter of head. It is also distinguished by its uniformly yellow colour as opposed to medium brown of *N. inye*.

Biology

Four specimens were collected from pitfall traps in Mountain Fynbos in the Cederberg of the Western Cape and one from Succulent Karoo in the Touwsrivier Nature Reserve.

Etymology

In isi-Xhosa, *njengelanga* means 'like the sun' and is used here to refer to the yellow colouration of the species.

Material examined

Holotype: **South Africa: Western Cape:** Mountain Fynbos, 32°18'38" S 19°10'60" E, 11 October 2002, A. Botes, CKOct02-CWA-16.2.7, SAM-HYM-C019387.

Paratypes: **South Africa: Western Cape:** Mountain Fynbos, 32°18'38" S 19°10'60" E, 11 October 2002, A. Botes, CKOct02-CWA-16.2.7, SAM-HYM-C019387; Mountain Fynbos, 32°23'45" S 19°5'14" E, 8 October 2002; A. Botes, CKOct02-CWA-5.1.3, SAM-HYM-C019388; Touwsrivier Private Nature Reserve, 33°17'54" S 19°57'31" E, collected in Mosaic vegetation, 19 March 2006, B. Braschler, Iimbovane TOU190306 1.5, SAM-HYM-C019795.

***Nesomyrmex ruani* sp. nov.**

Fig. 3a–c

Description of worker

Holotype. HL 0.846, HW 0.696, HW1 0.728, CI 82, SL 0.577, SI 83, PW 0.524, ML 1.119, EL 0.221, EI 32.

Mandibles with fine longitudinal striations. Clypeus with longitudinal striations except for the posterior median portion, which is predominantly smooth. Overall shape of anterior margin convex but median portion slightly concave. Anterior median portion of clypeus straight in longitudinal section. Head in full face view, with hind margin convex. Large eyes with 15 ommatidia in the longest row.

Scapes relatively short (SI < 85). Promesonotum in profile evenly convex. Metanotal groove conspicuously impressed. Propodeum unarmed and smoothly convex in profile; anterior dorsum horizontal. Metapleural lobes low and rounded. Subpetiolar process pointed, tooth-like. Petiolar node large and rounded, with anterior face in profile sloping evenly to the dorsum and posterior face nearly vertical. Postpetiole low and rounded. Dorsum of head smooth posteriorly with fine, barely visible, superficial reticulate sculpture; fine longitudinal striations posterior to the vicinity of the frontal lobes and stronger striations between the eye and the antennal sockets. Promesonotal

dorsum predominantly smooth, with a few fine short striations on the pronotum. Metanotal groove with cross-ribs. Propodeal dorsum and declivity with transverse striations. Peduncle and petiolar node with transverse rugulae which are continuous around the entire node although they are irregular and faint on the petiolar dorsum. Postpetiole with fine, transverse, poorly defined, wavy striations. Gastral tergite smooth without costulae at the base. Dorsum of head with approximately eight pairs of suberect hairs, sparse pubescence present. The venter of head with five curved hairs and five long hairs; pubescence present. Promesonotal dorsum with a pair of erect hairs on the pronotal humeri and another pair posteriorly; sparse pubescence present. Propodeum without erect hairs, but with sparse pubescence present. Six suberect hairs on the petiolar node and 10 suberect hairs on the postpetiole; sparse pubescence present. Regularly spaced suberect hairs on the first gastral tergite and sternite, and sparse pubescence present on the tergite. Colour uniformly dark brown.

Paratypes. HL 0.824–0.836, HW 0.644–0.674, HW1 0.662–0.694, CI 78–81, SL 0.541–0.553, SI 80–86, PW 0.475–0.511, ML 1.001–1.077, EL 0.210–0.226, EI 33–34 (2 of 3 measured).

Same as holotype except eyes with 15–16 ommatidia in the longest row. Propodeal dorsum either with transverse striations or with longitudinal rugulae. The venter of head with 1–3 curved hairs; 4–5 straight hairs; sparse pubescence present. Petiolar node with three suberect hairs and postpetiole with 6–8 suberect hairs; sparse pubescence present.

Diagnosis

Nesomyrmex ruani is similar in appearance to *N. entabeni* and *N. nanniae*: they all have erect hairs on the promesonotum; propodeum forming an even convexity; and colour uniformly light brown. It is distinguished from the latter two species by the sides of petiolar node which are completely covered with strong, sometimes irregular, rugulae. In dorsal view the rugulae are continuous around the entire node. In *N. entabeni* and *N. nanniae* the sides of petiolar node have punctulate sculpture or at most with a few weak rugulae. In dorsal view these feeble rugulae may persist, may fade out, or may be replaced entirely with reticulate-punctate sculpture but in no case does the entire node appear to be encircled with strong rugulae everywhere. *N. ruani* is also larger (HW 0.644–0.690 *versus* 0.497–0.590).

Biology

Collected from pitfall traps in Mountain Fynbos (Cederberg), and Renosterveld, near Nieuwoudtville.

Etymology

Named after Dr Ruan Veldtman, who assisted Antoinette Botes extensively with her sampling of ants in the Cederberg.

Material examined

Holotype: **South Africa: Western Cape:** Mountain Fynbos, 32°20'54"S 19°0'17"E, 08 October 2002, A. Botes, CKOct02-NWP-4.4.1, SAM-HYM-C019398.

Paratypes: **South Africa: Western Cape:** Mountain Fynbos, 565 m, 32°20'54"S 19°0'17"E 08 October 2002,

A. Botes, CKOct02-NWP-4.4.3, SAM-HYM-C019404; Mountain Fynbos, 332 m, 32°20'20"S 18°59'16"E, 07 October 2002, A. Botes, CKOct02-SAW-3.4.1, SAM-HYM-C019403.

Other material

South Africa: Northern Cape: Glen Lyon farm, Sheep's Leg Site (4.62 km 153 deg. SSE Nieuwoudtville), 31°24'22"S 19°9'54"E, 11–18 October 2000, H.G. Robertson, D. Larsen & R. Adams, NW00-TN2-P05, SAM-HYM-C019142.

Nesomyrmex saasveldensis sp. nov.

Fig. 2a–c

Description of worker

Holotype. HL 0.967, HW 0.810, HW1 0.895, CI 84, SL 0.674, SI 83, PW 0.639, ML 1.156, EL 0.216, EI 27.

Mandibles with longitudinal striations. Clypeus with strongly developed longitudinal striation laterally and smooth centrally except for median striation, which fades out at about half the length of the clypeus. Anterior clypeal margin convex in dorsal view. Scapes of moderate length (SI 83). Eyes large, with 16 ommatidia in the longest row. Head broad in full face view and the hind margin straight to shallowly convex. Promesonotum in profile convex and metanotal groove conspicuously impressed. Propodeal dorsum convex; declivity 20 degrees from vertical. Propodeum armed with a pair of triangular teeth. Metapleural lobes low and rounded. Anterior peduncle with an elongate triangular subpetiolar process. Petiolar node large and convex in profile. Postpetiole rounded in profile and approximately same length as petiolar node. Dorsum of head with longitudinally rugulae, with cross-meshes in places. Surface between rugulae uneven and shiny with occasional fine irregular rugulae. Promesonotal dorsum rugo-reticulate. Propodeal dorsum with irregular rugulae and declivity with transverse rugulae. Petiolar node and postpetiole rugo-reticulate. Base of first gastral tergite with costulae and the remainder finely reticulate. All dorsal surfaces with scattered erect hairs, some of which are expanded and jagged apically. The venter of head with nine straight hairs and two curved hairs. The gastral sternite with regularly spaced suberect fine hairs. Colour uniformly medium brown.

Paratypes. HL 0.919–1.006, HW 0.775–0.836, HW1 0.836–0.911, CI 82–89, SL 0.701–0.767, SI 85–94, PW 0.639–0.688, ML 1.163–1.266, EL 0.231–0.278, EI 28–35 (6 of 14 measured).

Same as holotype except the following differences: Mesosoma and nodes either with short blunt hairs or with long fine acute hairs; pubescence present. The venter of head with 6–10 straight hairs and 2–5 curved hairs. Colour medium to dark brown.

Diagnosis

Nesomyrmex saasveldensis looks similar to *N. braunsi* and *N. simoni*; in all of them the dorsum of petiolar node is rugo-reticulate. Rugo-reticulate sculpture is usually also evident partially or completely on head and mesosoma. It is recognized from *N. braunsi* by the uniformly medium to

dark brown colour (in *N. braunsi* mesosoma and nodes are rufous coloured, with a contrasting black head and gaster), smaller size (HW 0.775–0.836 *versus* 1.033–1.109), and armed propodeum (*versus* unarmed). *N. saasveldensis* is distinguished from *N. simoni* by having hairs on the propodeum.

Biology

No information available but probably collected in fynbos.

Etymology

So named because the holotype and the paratypes were collected from Saasveld near George.

Material examined

Holotype: **South Africa: Western Cape:** Saasveld, [33°57'S 22°32'E], March 1994, E. Breytenbach, Field # = WB238F, SAM-HYM-C007260.

Paratypes: **South Africa: Western Cape:** Saasveld, [33°57'S 22°32'E], March 1994, E. Breytenbach, Field # WB238F, SAM-HYM-C007259; Saasveld, [33°57'S 22°32'E], March 1994, E. Breytenbach, Field # WB42M, SAM-HYM-C007261; Saasveld, [33°57'S 22°32'E], March 1994, E. Breytenbach, Field # WB147M, SAM-HYM-C007262; Saasveld, [33°57'S 22°32'E], March 1994, E. Breytenbach, Field # WB227F, SAM-HYM-C007263; Saasveld, [33°57'S 22°32'E], March 1994, E. Breytenbach, Field # WB238F, SAM-HYM-C007264.

Nesomyrmex simoni (Emery, 1895)

Fig. 1m–o

Tetramorium simoni Emery, 1895b: 35. For type information and synonyms, see Bolton (1982).

Description of worker

HL 0.924–1.021, HW 0.783–0.884, HW1 0.850–0.915, CI 83–87, SL 0.649–0.688, SI 78–83, PW 0.615–0.672, ML 1.168–1.268, EL 0.258–0.266, EI 29–33 (3 of 3 measured).

Description matches that of Bolton (1982) except for a few additional characters: promesonotal dorsum with scattered short erect hairs, petiolar node with a pair of subdecumbent hairs and a pair of subdecumbent hairs on the postpetiole; sparse pubescence present.

Diagnosis

Nesomyrmex simoni looks similar to *N. braunsi* and *N. saasveldensis* in that they all have rugo-reticulate petiolar node and rugo-reticulate sculpture is usually also evident partially or completely on head and mesosoma. It is recognized from *N. braunsi* by its smaller size (HW 0.783–0.884 *versus* 1.033–1.109), and armed propodeum (*versus* unarmed). It is distinguished from *N. saasveldensis* by lacking hairs on the propodeum.

Biology

Specimens have been collected from pitfall traps in savanna: Pilanesberg Mountain Bushveld (Mucina & Rutherford 2006) vegetation.

Material examined

South Africa: North West Province: Pilanesberg

Nature Reserve (Tlou Drive), 25°15'S 27°04'E, Pediment grassland, pitfall, 20–26 October 1998, C.L. Parr, SAM-HYM-C016651; Pilanesberg Nature Reserve (Mankwe Way), 25°16'S 27°08'E, Pediment grassland, pitfall, 20–26 October 1998, C.L. Parr, SAM-HYM-C016653 & SAM-HYM-C016652.

Nesomyrmex tshiguvhoae sp. nov.

Fig. 4a–c

Description of worker

Holotype. HL 0.885, HW 0.677, HW1 0.777, CI 76, SL 0.696, SI 103, PW 0.482, ML 1.052, EL 0.290, EI 43.

Mandibles predominantly smooth, with longitudinal striations in parts. Median clypeus smooth and bordered by two pairs of longitudinal striations beyond which are further shorter striations. Anterior clypeal margin convex in dorsal view with a projecting translucent lamella medially. Eyes large with 16 ommatidia in the longest row. Scapes relatively long (SI 103). Head in full with face-view hind margin evenly convex. Promesonotum in profile evenly convex. Metanotal groove deeply impressed with a few strongly developed cross ribs. Metapleural gland bulla massively developed, particularly noticeable in dorsal view. Propodeal dorsum long and shallowly convex and sloping down to a short declivity that is demarcated from the dorsum by a pair of angled projections, too short to be termed teeth. Metapleural lobes low and rounded. Anterior peduncle with a small, shallow keel-like subpetiolar process. Anterior and dorsal faces of the node form a well-defined angle, from which the short dorsal face slopes evenly into the posterior face. Postpetiole similar in height to petiolar node and more bulky and rounded. Head in full face view smooth and shiny posteriorly and medially, with a few fine striations posterior to the lobes. Promesonotal dorsum smooth and shining, with superficial reticulate sculpture towards the metanotal groove. Metanotal groove with cross-ribs. Propodeal dorsum and declivity with transverse rugulae becoming irregular anteriorly. Petiolar node and postpetiole with irregular, superficial reticulate sculpture. Base of first gastral tergite with short costulae and the rest of the tergite smooth and shining. Dorsum of head with 10 short suberect hairs and sparse pubescence present. The venter of head with five curved hairs. Six pairs of erect hairs on the promesonotum; three pairs of erect hairs on the propodeum; four suberect hairs on the petiolar node; and six suberect hairs on the postpetiole; sparse pubescence present. Gastral tergite and sternite with evenly distributed short suberect hairs, acute apically. Colour uniformly dark brown.

Paratypes. HL 0.767–0.924, HW 0.570–0.705, HW1 0.637–0.801, CI 73–78, SL 0.561–0.718, SI 94–105, PW 0.420–0.526, ML 0.865–1.114, EL 0.219–0.311, EI 38–44. (9 of 30 measured).

Same as holotype except the following differences: mandibles either with longitudinal striations or smooth and shining. The dorsum of head with up to 15 suberect hairs; the venter of head with 5–10 curved hairs. Base of first gastral tergite with or without short costulae.

Diagnosis

This is a distinctive dark brown species with metapleural

gland bulla large and bulging so that in dorsal view the sides below the propodeum are convex along their medial length; whereas in other species metapleural gland bulla is not prominent, in dorsal view the sides below the propodeum are more-or-less straight along their medial length.

Biology

Recorded from Nama-Karoo north of Prince Albert and Renosterveld on tillite in the Nieuwoudtville region. Most specimens were caught in pitfalls but they were also in yellow pan traps, Malaise traps and from sweeping of vegetation.

Etymology

Named after Thidinaleni Ennie Tshiguvho, who collected the holotype.

Material examined

Holotype: South Africa: Western Cape: 26 km from Prince Albert on Leeu Gamka road, 32°59'S 22°00'E, 10–19 October 1996, T.E. Tshiguvho, SAM-HYM-C009355.

Paratypes: South Africa: Western Cape: 26 km from Prince Albert on Leeu Gamka road, 32°59'S 22°00'E, 10–19 October 1996, T.E. Tshiguvho, SAM-HYM-C009360 & SAM-HYM-C009356; 15 km from Prince Albert on Leeu Gamka road, 32°05'S 22°02'E, 10–19 October 1996, T.E. Tshiguvho, SAM-HYM-C009362, SAM-HYM-C009361 & SAM-HYM-C009359; **Northern Cape:** Hotbergfontein farm, Boophone Site (4.64 km 125° SE Nieuwoudtville), 31°23'18"S 19°9'36"E, 12–19 October 2000, H.G. Robertson, D. Larsen & R. Adams, NW00-DN3-P07, SAM-HYM-C019120; Hotbergfontein farm, Boophone Site (4.64 km 125° SE Nieuwoudtville), 31°23.296'S 19°09.608'E, 12–19 October, S. van Noort & H.G. Robertson, NW00-DN3-Y217, SAM-HYM-C019121.

Other material

South Africa: Western Cape: 42 km from Prince Albert on Leeu Gamka road, 32°58'S 21°58'E, 10–19 October 1996, T.E. Tshiguvho, Site 30 Trap 5, SAM-HYM-C009358; Bleakhouse farm, Site B3, Nama-Karoo on dolerite soils, Pitfall, 32°15.41'S 22°54.93'E, 21–28 April 2001, H.G. Robertson & R. Tourle, BW01-B3-P10, SAM-HYM-C019108; Kamferskraal farm, Site K4, Nama-Karoo on dolerite soils, Pitfall, 32°16.92'S 23°01.13'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-K4-P07; SAM-HYM-C019109; Kamferskraal farm, Site K4, Nama-Karoo on dolerite soils, Pitfall, 32°16.92'S 23°01.13'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-K4-P10; SAM-HYM-C019110; Kamferskraal farm, Site K5, Nama-Karoo on dolerite soils, Malaise trap, 32°17.45'S 23°58.46'E, 23 April 2001, S. van Noort & H.G. Robertson, BW01-K5-M16; SAM-HYM-C019111; Avondale farm, Site A3, Nama-Karoo on dolerite soils, Sweep, 32°13.33'S 22°57.53'E, Nama-Karoo on dolerite soils, Sweep, 19 April 2001, S. van Noort, BW01-A3-S104, SAM-HYM-C019112; Elandsfontein farm, Site E4, 32°17'41"S 23°0'0"E, 18 April 2001, H.G. Robertson, HGR00191, SAM-HYM-C017657; Helderberg Nature Reserve, Somerset West, 34°2'26"S 18°52'40"E, 01 March 2006, B. Braschler, Imbovane 010306 1.9, SAM-HYM-C019791; Beaufort West Karoo N.P., 32°20'23"S 22°31'19"E, flat Nama-Karoo, 12 March 2006, B. Braschler, Imbovane Kar120306 F1.1, SAM-HYM-C019796; Beaufort

West Municipal Land, near Central High School, 32°21'20"S 22°35'43"E, flat heavily disturbed Nama-Karoo, 13 March 2006, B. Braschler, Imbovane SEN130306 2.3, SAM-HYM-C019797; **Northern Cape:** Kortkop farm near Strydenburg, 30°09'S 23°44'E, Karoo vegetation, ex pitfall trap, 17 June 1995, B. Chambers, SAM-HYM-C008784; Merriman Station between Richmond and Britstown, 31°11'S 23°34'E, collected in the Karoo, March 2007, F. Duncan, PP1#2, SAM-HYM-C019581.

Nesomyrmex vannoori sp. nov.

Fig. 3j–l

Description of worker

Holotype. HL 0.669, HW 0.521, HW1 0.561, CI 78, SL 0.441, SI 85, PW 0.382, ML 0.818, EL 0.197 EI 38.

Mandibles with longitudinal striations. Clypeus with longitudinal striations, with central and posterior region of median portion smooth to faintly reticulate. Anterior clypeal margin evenly convex and with a projecting translucent lamella medially. Large eyes with 16 ommatidia in the longest row. Scapes of moderate length (SI 85). Head in full face-view hind margin shallowly convex. Promesonotum in profile evenly convex and metanotal groove conspicuously impressed. Propodeum unarmed; forming an even convexity with declivity. Anterior peduncle with a small tooth-like subpetiolar process. Petiolar node in profile evenly convex; posterior to the node is a moderately broad cylindrical portion of the petiole. Postpetiole in profile low and rounded. Dorsum of head with faint reticulate pattern and faint longitudinal striations between the eyes and behind the antennal insertions. Promesonotum finely reticulate, propodeal dorsum reticulate-punctate. Petiolar node and postpetiole finely reticulate pattern. First gastral tergite with a very short basal costulae and the rest of the tergite smooth and shining. Dorsum of head with short erect hairs mostly concentrated along two longitudinal lines. The venter of head with five straight hairs and two curved hairs. Promesonotal dorsum with at least four pairs of short, erect hairs, acute apically. Propodeum with two pairs of erect hairs, petiolar node with two pairs of suberect acute hairs apically and postpetiole with two pairs of suberect hairs. Regularly spaced suberect hairs on the gastral tergite and sternite. Head and gaster dark brown, with mesosoma and nodes light brown in colour.

Paratypes. HL 0.620–0.698, HW 0.462–0.582, HW1 0.502–0.610, CI 75–81, SL 0.398–0.492, SI 80–93, PW 0.352–0.423, ML 0.751–0.944, EL 0.177–0.236, EI 33–42 (22 of 45 measured).

Same as holotype except the following differences: Mandibles either with longitudinal striations or smooth and shining. Dorsum of head smooth or with faint reticulate pattern between the eyes; fine longitudinal striations between the eyes and behind the antennal insertions present. Promesonotum either finely reticulate, or smooth and shining, with a fine, barely evident, inlaid reticulate pattern. The venter of head with 3–5 long hairs. Promesonotal dorsum with 3–4 pairs of short suberect hairs. Base of first gastral tergite either with or without costulae. Colour either uniformly medium brown or head and gaster dark brown, with mesosoma and nodes light brown.

Diagnosis

Nesomyrmex vannooti is similar-looking to *N. ruani*, *N. nanniae* and *N. entabeni*. In all of them the unarmed propodeum forms an even convexity and colour is medium to dark brown. It is distinguished from the three latter species by having hairs on the propodeum.

Biology

Specimens were collected from pitfall traps, yellow pan traps and from sweeping in Nama-Karoo on dolerite soils and from *Ruschia spinisa/Eriocephalis* veld.

Etymology

Named after our colleague Dr Simon van Noort who is a Curator of Entomology at Iziko South African Museum and who collected the holotype.

Material examined

Holotype: **South Africa: Western Cape:** Avondale farm, 32°15.00'S 22°56.60'E, 19 April 2001, S. van Noort, BW01-A1-S82, SAM-HYM-C019103

Paratypes: **South Africa: Western Cape:** Avondale farm, 32°15.00'S 22°56.60'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-A1-P09, SAM-HYM-C019093; Avondale farm, 32°15.00'S 22°56.60'E, 22–29 April 2001, S. van Noort & D. Larsen, BW01-A1-Y95, SAM-HYM-C019095; Avondale farm, 32°13.33'S 22°57.53'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-A3-P08, SAM-HYM-C019096; Avondale farm, 32°14.31'S 22°58.59'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-A4-P07, SAM-HYM-C019098; Avondale farm, 32°14.31'S 22°58.59'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-A4-P09, SAM-HYM-C019098; Avondale farm, 32°15.00'S 22°56.60'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-A1-P09, SAM-HYM-C019093; Avondale farm, 32°14.31'S 22°58.59'E, 22–29 April 2001, S. van Noort & D. Larsen, BW01-A4-Y107, SAM-HYM-C019106; Avondale farm 32°14.31'S 22°58.59'E, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-A4-P02, SAM-HYM-C019097; Avondale farm, 32°14.31'S 22°58.59'E, 22–29 April 2001, S. van Noort & D. Larsen, BW01-A4-Y103, SAM-HYM-C019107; Tierberg near Prince Albert, 33°10'0"S 22°16'0"E, 12 September 1995, H. Adie, Ref. no. 094, SAM-HYM-C008454; Tierberg near Prince Albert, 33°10'0"S 22°16'0"E, 11 September 1995, H. Adie, SAM-HYM-C008785.

Other material

South Africa: Western Cape: Elandsfontein farm, Site E1, 32°17.69'S 22°55.53'E, Nama-Karoo on dolerite soils, Sweep, 21 April 2001, S. van Noort, BW01-E1S155, SAM-HYM-CO19102; Kamferskraal farm, Site K3, 32°13.83'S 22°58.59'E, Nama-Karoo on dolerite soils, Pitfall, 22–29 April 2001, H.G. Robertson & R. Tourle, BW01-K3-P06, SAM-HYM-C019101; Bleakhouse farm, Site B3, 32°15.41'S 22°54.93'E, Nama-Karoo on dolerite, Yellow pan trap, 21–28 April 2001, S. van Noort & D. Larsen, BW01-B3-Y73, SAM-HYM-C019105; 33 km from Seekoegat on Prince Albert road, 33°10'S 22°14'E, 10–19 October 1996, T.E. Tshiguvho, SAM-HYM-C009365; 10 km from Prince Albert on Leeu Gamka road, 33°07'S 22°02'E, 10–19 October

1996, T.E. Tshiguvho, SAM-HYM-9354; **Northern Cape:** Kortkop farm near Strydenburg, 30°09'S 23°44'E, Karoo vegetation, ex pitfall trap, 17 June 1995, B. Chambers, SAM-HYM-C008766; Merriman Station between Richmond and Britstown, 31°11'S 23°34'E, collected in the Karoo, March 2007, F. Duncan, PP1#2, SAM-HYM-C019585.

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