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Source: African Invertebrates, 53(2) : 733-744

Published By: KwaZulu-Natal Museum

URL: https://doi.org/10.5733/afin.053.0217

African Invertebrates Vol. 53 (2): 733–744 Pietermaritzburg 27 December 2012

Description of a new species and a new subspecies of *Odontorrhina* Burmeister, 1842 (Scarabaeidae, Cetoniinae), with ecological notes on the genus

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ABSTRACT

A new species, *Odontorrhina maraisi* sp. n., is added to the genus on the basis of new material collected in the semiarid Namaqualand region of South Africa. A new subspecies of *O. pubescens* (Olivier, 1789), *O. pubescens hantam* ssp. n., is recognized from the high altitudes of the Hantamsberg near Calvinia. Recent observations have led to the conclusion that all members of the genus, with the exception of *O. krigei* Schein, 1950, complete their larval development under dense shrubs, utilizing mainly leaf litter as food source and the shade provided by the host plant as protection against heat and desiccation. *O. krigei* makes use of termite hills to achieve the same, while feeding on detrital matter produced by termites. The coastal *O. pubescens* s. str. appears to be the only member that has feeding adults, which are able to ingest sap of *Melianthus* spp. shrubs after cutting the bark of the softest branches in the upper part of the plant canopy.

KEY WORDS: Cetoniinae, *Odontorrhina*, Afrotropical, South Africa, flower chafers, new taxa.

INTRODUCTION

The genus *Odontorrhina* Burmeister, 1842, seems to be restricted to the Northern and Western Cape provinces of South Africa, although there is an old but unconfirmed record for *O. pubescens* (Olivier, 1789) in southern Namibia (near Grünau: Holm & Marais 1992). The genus is of special conservation importance in that it is endemic to the winter rainfall area of the Cape region and species are generally restricted to the Fynbos and Succulent Karoo biomes (Mucina & Rutherford 2006). They are therefore potentially under threat, should climate change in this area escalate towards worst-case scenarios (Co+Life 2011).

Recent investigations in areas previously neglected or poorly sampled have provided material and information for a taxonomic revision of the genus, involving the erection of a new species and a new subspecies, as well as provision of the first account of the habitat of larval stages of members of the genus. Knowledge of the ecology of the adult stage for all five taxa has also been enhanced through direct observations made both in their natural environment and in captivity.

MATERIAL AND METHODS

Square brackets within the data label information reported in the text contain additional information, like locality co-ordinates, when available. The examined material of previously described species is listed in the Appendix.

Institutions and collections are abbreviated as follows:

AMGS – Albany Museum, Grahamstown, South Africa;
BMNH – The Natural History Museum, London, UK;
BMSA – National Museum, Bloemfontein, South Africa;
DMSA – Durban Natural Science Museum, South Africa;
SAMC – Iziko South African Museum, Cape Town, South Africa;

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NMLN – Naturalis (formerly Rijksmuseum van Natuurlijke Historie), Leiden, The Netherlands;
PCRP – Private Collection, R. Perissinotto & L. Clennell, Durban, South Africa;
PCBM – Private Collection, J. Ball & A.P. Marais, Cape Town, South Africa;
SANC – South African National Collection of Insects, Pretoria, South Africa;
TMSA – Ditsong National Museum of Natural History (formerly Transvaal Museum), Pretoria, South Africa;
UZIU – Universitets Zoologiska Institut, Uppsala, Sweden;
ZSMC – Zoologische Staatssammlung, München, Germany;
ZMUC – Zoological Museum, University of Copenhagen, Denmark.

TAXONOMY

Genus *Odontorrhina* Burmeister, 1842

Odontorrhina: Burmeister 1842: 396; Lacordaire 1856: 522, 528; Schoch 1894: 215; Péringuey 1907: 327, 363; Schenkling 1921: 302; Marais & Holm 1989: 13; Holm & Marais 1992: 120; Rigout & Allard 1992: 59; Sakai & Nagai 1998: 303.

Type species: *Cetonia pubescens* Olivier, 1789, by subsequent designation (Marais & Holm 1989).

Diagnosis: Apart from an unconfirmed record of *O. pubescens* in southern Namibia (Marais & Holm 1989; Holm & Marais 1992), all species of the genus appear to be restricted to the Western and Northern Cape provinces of South Africa. According to Holm and Marais (1992), the genus may be most closely related to *Trichostetha* Burmeister, 1842, which also exhibits the bulk of its taxonomic diversity in the Cape provinces and, more specifically, the Cape Floral Region. The two genera also share a heavily setose body and a variably developed white band on the lateral pronotal margins. *Odontorrhina* is, however, unique in having two pointed and upturned denticles on the anterior margin of the clypeus. It differs further from *Trichostetha* by exhibiting elytra that are invariably without any cretaceous spots and a metallic sheen, both on the dorsal and ventral sides (the latter character is absent in *O. krigei* Schein, 1950).

Key to the species and subspecies of *Odontorrhina*

1 Elytral costae poorly developed or absent; body setae white 2
– Elytron with 3 prominent costae; body setae yellow, black or brick-red.....4

2 Dorsal surface dark bronze, with white marks on pronotal sides and pygidium residual or absent; ventral surface olive green to shiny bronze ..... **maraisi** sp. n.
– Dorsal surface metallic green to coppery, with white marks on pronotal sides and pygidium; ventral surface shiny metallic green to coppery 3

3 White marks prominent, elytral setae thin and long, anterior pronotal margin obtuse ..... **pubescens pubescens** (Olivier, 1789)
– White pronotal lines reduced and generally interrupted towards base, elytral setae thick and short, anterior pronotal margin rounded..... **pubescens hantam** ssp. n.

4 Body surface and setae completely black (exceptionally setae also brown to yellow), with occasional white marks on pronotal sides.....**krigei** Schein, 1950
– Body surface light bronze, with occasional white marks on pronotal sides and pygidium; setae yellow ..... **hispida** (Olivier, 1789)

Odontorrhina maraisi sp. n.

Figs 1, 2, 5

Etymology: The species is named after Andre P. Marais of Cape Town, who pioneered observations on the species in the interior region of Namaqualand.

Diagnosis: *O. maraisi* is essentially an intermediate form between *O. hispida* and *O. pubescens*. It shares several adult biological characteristics with *O. hispida* (see below), but can easily be separated from it because it has white instead of yellow setae, poorly developed elytral costae, and the anteroclypeal margin simply bidentate. Moreover, the dorsal side is much darker and the body size smaller than in the latter. *O. maraisi* can equally easily be distinguished from *O. pubescens* by its much darker colour and generally smaller size, its drastically reduced or absent white tomentum bands (pronotum), and by the presence of stripes (sternites) and spots (pygidium) (Figs 1, 5, 7). Additional characters differentiating the two species include: (a) small and sharply upturned clypeal teeth in *O. maraisi*, which are larger and smoothly curved in *O. pubescens*; (b) frons with dense tuft of long setae projecting forward in *O. maraisi* but reduced or absent in *O. pubescens*; (c) well delimited, unsculptured medial band on scutellum of *O. maraisi*, but poorly defined in *O. pubescens*; (d) elytral costae poorly developed in *O. maraisi*, but absent in *O. pubescens* (Figs 1, 5, 7); (e) metatibia with simple denticles in *O. maraisi*, but distal denticle blade-like to bifurcate in *O. pubescens*; and (f) aedeagal lobes shorter and more compact in *O. maraisi* (Fig. 2) than in *O. pubescens*.

Description:

Male.

Size. Length 17.4–22.2 mm, width 9.8–11.9 mm (n=25).
Dorsum. Dark bronze to black; with long, white setae and dense, round punctation or crescent to horseshoe sculpture throughout surface (Fig. 1a).

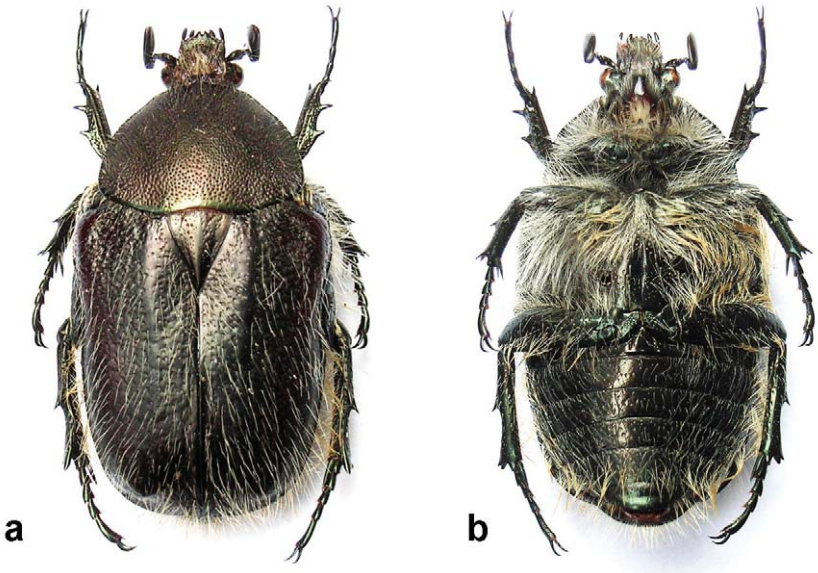


Fig. 1. *Odontorrhina maraisi* sp. n., male dorsal (a) and ventral (b) side.

Fig. 2. *Odontorrhina maraisi* sp. n., frontal (a) and side (b) view of male aedeagus.

Head. Bronze; with clypeal teeth small and sharply upturned; frons with dense tuft of long white setae projecting forward (Fig. 1a); anterior part of lateral clypeal declivity with outward expansion hardly noticeable; with dense but coarse punctation throughout; antennal clubs dark brown, flagellum and pedicel bronze-black.

Pronotum. Bronze; with narrow, white lateral lines not always present; with dense and fine hair and puncta throughout; no signs of tubercle or ridge on anterior margin; prescutellar margin smooth and lighter in colour.

Scutellum. Bronze-black; with well delimited, unsculptured medial band and apical part; with scattered setae and puncta on sides.

Elytra. Bronze-black; with unsculptured, poorly developed costae; crescent to horseshoe sculpture moderately dense, but sparse and shallow on humeral callus, apical declivity and around scutellum; white setae sparse but very long.

Pygidium. White marking extremely reduced to basal and lateral spots, or totally absent; with scattered but long setae emerging from fine puncta.

Ventral surface. Dark olive green to shiny bronze; with white marks on pro-, meso-, and metafemora and abdominal sternites reduced to absent; with fine punctation and extremely dense and long setae throughout, except at posterior end of median sulcus, base of metafemora and inner half of abdominal sternites 1–5 (Fig. 1b).

Legs. Protibia tridentate, with long and sharp apical denticle; mesotibia and metatibia with upper denticle on outer ridge smaller than the lower denticle.

Aedeagus. Parameres with small tuft of short setae at apex; paramere lobes moderately short and blunt at apex (Fig. 2).

Female. Differences from male very minor: with broader protibia and denticles; white markings generally more developed than in male, especially on pronotum, pygidium and metafemora; convexity of abdominal sternites uninterrupted at middle.

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: Namaqualand, Witwater [30°24'S 18°11'E], 7.x.1995, A.P. & M.E. Marais (TMSA).

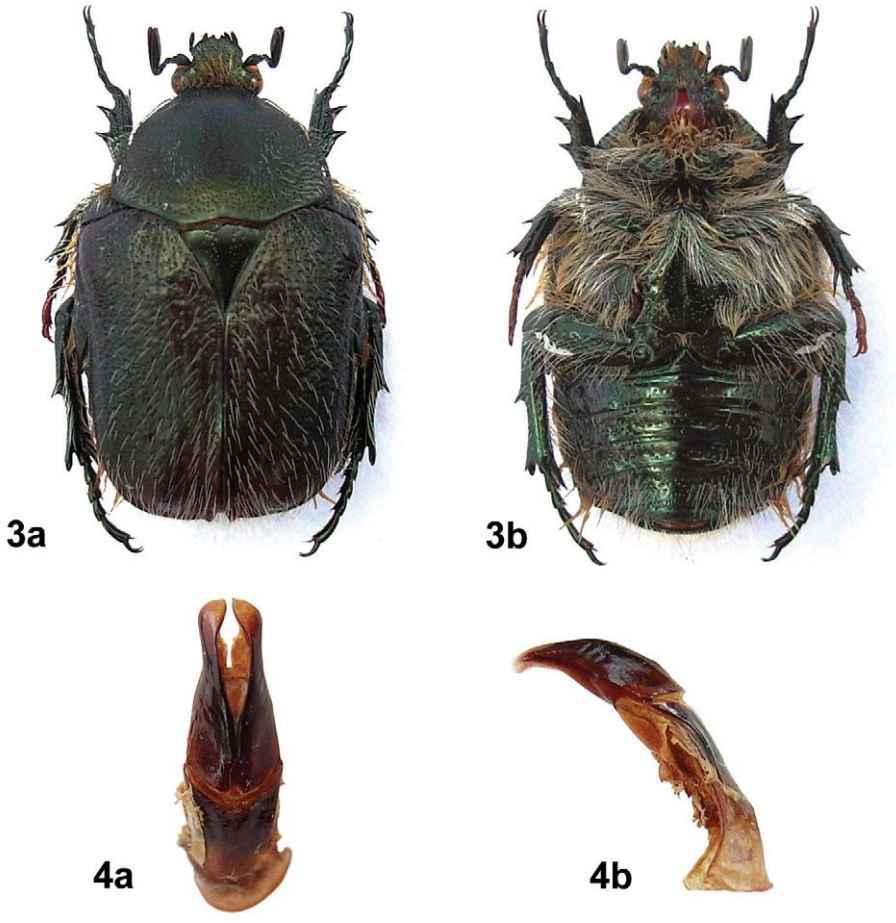
Paratypes: SOUTH AFRICA: *Northern Cape*: 1♂ same data as holotype (PCBM); 1♂ same data but 1.x.1994 (PCRP); 1♂ same data but 3.x.1994 (PCBM); 3♂ same data but 3.x.2005 (PCBM); 1♂ same data but 9.x.1995 (PCBM); 2♂ same data but 10.x.1995 (1 PCBM, 1 PCRP); 1♀ same data but 1.x.2010, on koringbos shrub (PCRP); 6♂ same data but in flight (PCRP); 16♂ same data but 2.x.2010, dead on social spider web [in varying degrees of mutilation/consumption] (2 SAMC, 1 TMSA, 13 PCRP); 1♂ Springbok [29°40'S 17°53'E], 14.x.[18]90, "*Odontorrhina pubescens* ♂ (Olivier) det. E. Marais 1987" (SAMC, SAM-COL-A068466); 1♂ same data but x.[18]90, *Odontorrhina hispida* (Ol.) det. E. Holm (SANC); 1♀ Nababeeb, 29°36'S 17°47'E, 11.ix.1983, R. Oberprieler, "*Odontorrhina pubescens* (Ol.) det. E. Holm" (SANC); 1♂ Ookiep [=O'Kiep, 29°36'S 17°53'E], 8.ix.[18]86, "*Odontorrhina pubescens* (Ol.) det. E. Holm" (SANC).

Odontorrhina pubescens hantam ssp. n.

Figs 3, 4

Etymology: This subspecies is named after the Hantam Plateau in the Hantamsberg mountains of the Northern Cape Province, where the type series was collected.

Diagnosis: The shape of the anterolateral margin of the pronotum is much rounder in *O. p. hantam* (Fig. 3a) than in the nominal subspecies, where a virtually obtuse angle is to be seen (Fig. 7). Also, the white band along the lateral margin is thinner and limited to the anterior 2/3–1/2 of the pronotal sides in *O. p. hantam* (Fig. 3a), whereas it is generally wider and complete in *O. p. pubescens* (Fig. 7). The other areas of white marking are also drastically reduced in *O. p. hantam*, with the ventral side in particular exhibiting hardly any of the cretaceous bands (Fig. 3b) that are so prominent on the femora and abdominal sternites of the nominal subspecies. The setae on the elytral surface of *O. p. hantam* are less dense, shorter and thicker than in *O. p. pubescens*. Finally, the typical



Figs 3, 4. *Odontorrhina pubescens hantam* ssp. n.: (3) male dorsal (a) and ventral (b) side; (4) frontal (a) and side (b) view of male aedeagus.

metallic green sheen of the nominal subspecies appears to be replaced by a darker, bronze to coppery sheen in *O. p. hantam* (Fig. 3a). The male genitalia are very similar in the two subspecies, but the dorsal lobes of the parameres appear to be broader at the apex in *O. p. hantam* (Fig. 4) than in *O. p. pubescens* (cf. Holm & Marais 1992, fig. 61a, b).

Description:

Size. Length 21.4–25.0 mm, width 12.2–13.1 mm (n=4).

Holotype: ♂ SOUTH AFRICA: *Northern Cape*: Calvinia, Hantamsberg [31°25'S 19°50'E], 15.xii.1995, A.P. Marais (SAMC).

Paratypes: SOUTH AFRICA: 2♂ same data as holotype (PCRP, PCMB); 1♂ same data but 9.ii.1996 (PCBM); 1♂ same data, emerged [in Cape Town], 17.iii.1996, A.P. & M.E. Marais (PCRP); 2♂ 1♀ same data but 23.iii.1996 (2♂ PCBM, 1♀PCRP).

Remarks: *O. pubescens hantam* appears to be restricted to the high altitudes (>1400 m) of the Dolerite Renosterveld bioregion in the interior part of the Northern Cape Province (Hantam Plateau). On the other hand, *O. p. pubescens* is found along the Western and Northern Cape coast, in the Western Strandveld and the Namaqualand Hardeveld and Sandveld bioregions, from sea level to about 500 m.

DISCUSSION

The genus *Odontorrhina* is a Cape endemic, restricted to the Fynbos and Succulent Karoo biomes (Mucina & Rutherford 2006). The newly described *O. maraisi* inhabits the Namaqualand Granite Renosterveld bioregion and, together with *O. pubescens hantam*,

Fig. 5. *Odontorrhina maraisi* sp. n., female perched on koringbos plant (Witwater, October 2010).

appears to be isolated and adapted to a highly specialized habitat (Fig. 6). Conversely, all the other members of the genus are quite widely distributed in the region. While *O. p. pubescens* occurs through most of the South African Atlantic coastal belt, at or near sea level, from at least Bloubergstrand in the south to Port Nolloth in the north (Fig. 6), the other two species, i.e. *O. hispida* and *O. krigei*, are typically montane and generally occupy the most inland portion of the range of the genus (Fig. 6). *O. hispida* occurs further to the east than any other member of the genus, having been recorded at least as far as Komsberg in the Northern Cape Province (A.K. Brinkman, specimen data label) and Calitzdorp in the Western Cape Province (J.B. Ball, specimen data label). Its habitat includes parts of the Shale Renosterveld and the Granite & Sandstone Fynbos bioregions. Although there appear to be no recent records from the Cape Town area, the species has repeatedly been collected there in the past, probably at the highest altitudes on Table Mountain and at other major elevations in the Cape Peninsula (e.g. Lions Head, specimen data label) (Fig. 6). *O. krigei* appears to be restricted to a smaller region in the Western Cape mountain Sandstone Fynbos, from Jonaskop above Villierdorp in the south, to Van Rhyn's Pass in the north (Fig. 6).

Regarding seasonality of adult activity, the genus is essentially restricted to the winter rainfall region of South Africa and its members fly mostly during late winter and spring, i.e. at the end of the wettest and coldest part of the year. While *O. maraisi* has so far been recorded only in September and October, most of the records for *O. p. pubescens* are from September (49 %), followed by August (26 %) and October (25 %), with very

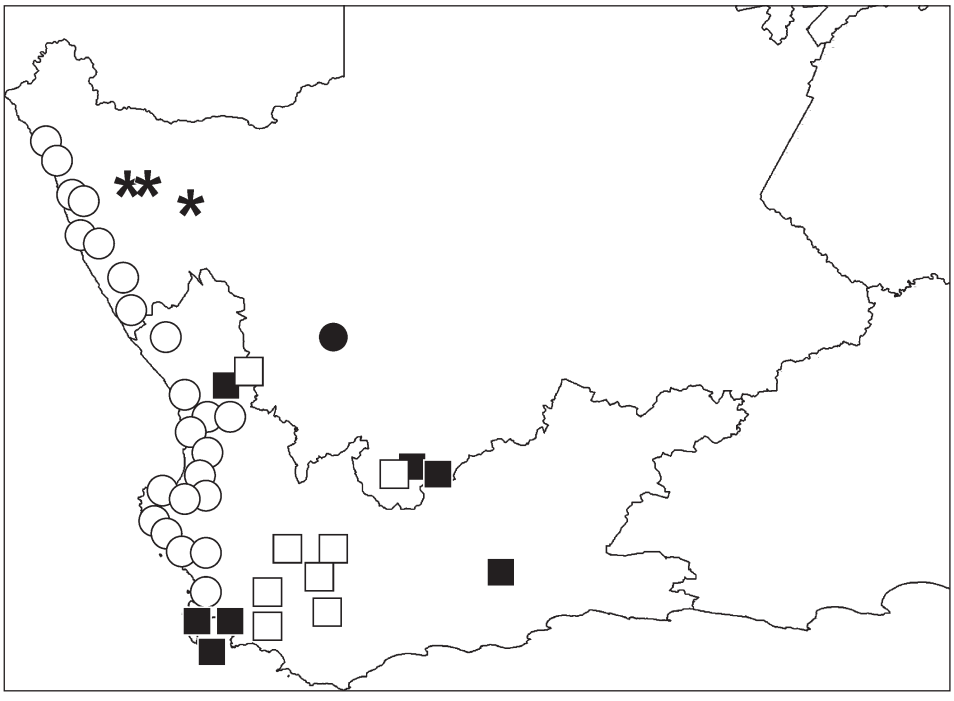


Fig. 6. Known distribution of *Odontorrhina* species. *O. maraisi* sp. n. (✻); *O. p. pubescens* (○); *O. p. hantam* ssp. n. (●); *O. hispida* (■); *O. krigei* (□).

few in November (0.05 %) and only one in July. *O. p. hantam*, on the other hand, has so far only been recorded during summer, from December to March, indicating potential seasonal segregation between the two subspecies in respect of adult activity. Like *O. p. pubescens*, *O. hispida* also appears to fly preferentially during the spring months, particularly in October (59 % of records) and September (24 % of records), but also exhibits a secondary period of activity in autumn, with about 10 % of records in March and April. Finally, *O. krigei* exhibits the longest period of adult activity, from July to May, with most records being for January (22 %), November (15 %), and August, October and March (all at 11 %).

The adult feeding biology of the genus has only partially been investigated. *O. p. pubescens* is the only member of the genus that has been observed feeding on the sap of *Melianthus* spp. shrubs (Fig. 7). At least three species of this plant genus are known to be utilized by *O. p. pubescens* for this purpose: *M. major* (Holm & Marais 1992), *M. elongatus* and *M. comosus* (pers. observ.). Adults of *O. pubescens* have also been collected on flowers on at least one occasion (Endrödy-Younga, specimen data label), and observed flying around flowering *Leucodendron pubescens* plants (S.K. & R.W. Gess, specimen data label). This may indicate a limited ability on the part of the species to utilize nutrition directly from flower nectar, in addition to *Melianthus* sap.

Conversely, *O. maraisi*, *O. hispida* and possibly also *O. p. hantam* do not appear to feed on either flowers or sap and fly regularly during sunny days, even after the soil has become completely desiccated following a rainfall event. Indeed, it has not yet been established whether adults emerge from their underground cocoons only after major

Fig. 7. *Odontorrhina p. pubescens*, male feeding on sap of a freshly barked *Melianthus* sp. branch.

rains (moisture cue), or at a particular and fixed time of the spring season (photoperiod/thermal cue). All adults of these species collected thus far were active during the hottest hours of the day, from about 10:30 to about 14:30. This is in contrast to the pattern of activity exhibited by the coastal species, *O. p. pubescens*, which is generally observed flying from about 9:00 until about 16:00–17:00. The difference may be related to the ability of the latter to regularly resupply its energy reserves by feeding on *Melianthus* sap and, therefore, spend more time flying around to search for mates and for suitable places to lay eggs. Conversely, *O. maraisi, O. hispida* and *O. p. hantam* may, in the absence of a suitable/reliable food source, be forced to restrict their daily window of activity in order to save energy and maximise reproductive output.

All records for *O. krigei* indicate that this species also does not feed in the adult stage and that it flies only occasionally, generally spending most of its time hidden under or within termite mounds (A.P. Marais pers. comm.). No evidence could be found to support the claim that "adults of both *O. hispida* and *O. pubescens* have been collected under dry cattle dung and near cattle enclosures", as reported earlier (Marais & Holm 1989; Holm & Marais 1992).

Their larval development also does not appear to depend on dry bovine dung, but rather on decaying leaf litter accumulated under a variety of shrub species or, in the case of *O. krigei*, on the detrital material deposited in nests of blackmound termites, *Amitermes hastatus* (Marais & Holm 1989; A.P. Marais pers. comm.). Larvae of *O. hispida* have repeatedly been found under shrubs of unidentified Rhamnaceae and/or Asteraceae species at Sutherland and were bred successfully in captivity using only leaf litter of these plants as food source (pers. observ.). Similarly, A.P. Marais (pers. comm.) reared *O. pubescens* larvae collected in the Hantamsberg on dead plant matter found underneath unidentified bushes. He also found larvae of this species within dung middens of Klipspringer, *Oreotragus oreotragus*. While no larval stages of *O. maraisi*

Fig. 8. Aerial web (approximately 3 m long × 1.5 m high) of social spider *Stegodyphus dumicola*, capturing *Odontorrhina maraisi* sp. n. and other insect prey (Witwater, October 2010).

have been observed and/or bred to date, a female was seen landing on a koringbos shrub, *Anthospermum spathulatum* s. str., at Witwater (Fig. 5), indicating the possibility that again its larval development may take place at the base of large but short shrubs. This seems plausible, as such shrubs will not only provide food for the larvae, but also protect them from desiccation and the extreme temperatures that the soil experiences in these semiarid regions, particularly during the hottest part of the summer.

While little is known about the predators of *Odontorrhina* in general, *O. maraisi* was observed to be heavily predated upon by the social spider *Stegodyphus dumicola*, which spreads its silk sheets in a very effective, vertical v-shaped web from a central nest made of hard silk incorporating prey remains and pieces of vegetation (Fig. 8). There are up to several dozen spiders in one of these community nests, and as soon as anything that moves becomes entangled in the web, some of them rush out to overpower and immobilize the potential prey. At Witwater (the type locality for the species) in early October 2010, more than 20 adult *O. maraisi* were found trapped in various webs of *S. dumicola* on a single day. They were in various stages of consumption, but all were relatively fresh and some still alive (Fig. 8).

ACKNOWLEDGEMENTS

The University of KwaZulu-Natal provided partial funding for the project through a productivity reward grant. Thanks are due to the various curators of collections cited for loan of material and provision of specimen data and photographs. I am particularly grateful to Ruth Müller of the Ditsong National Museum of Natural History, Pretoria (formerly Transvaal Museum), Simon van Noort and Dawn Larsen of the Iziko South African Museum, Cape Town, as well as Fred Gess of the Albany Museum, Grahamstown, Ashley and Mary Kirk-Spriggs of the National Museum, Bloemfontein, Riaan Stals of the South African National Collection of Insects, Pretoria, Max Barclay and Hillery Warner of the Natural History Museum, London, and Andre P. Marais and Jonathan Ball of the private collections cluster in Cape Town. I am also very grateful to Lynette Clennell, who took digital photographs of the specimens illustrated.

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APPENDIX

The examined or recorded material of previously described species of the genus *Odontorrhina*. Abbreviation: ex. – specimen(s) not sexed.

***Odontorrhina hispida* (Olivier, 1789)**
SOUTH AFRICA: *Western Cape*: 1ex. Cape Town [33°55'S 18°25'E], 3318CD, ix.1913, G. Davids (DMSA, No. 11606); 2ex. Cape Town, 19.viii.1914, A. Roberts (TMSA); 2♂ 1ex. Cape Town, x.1983, R.L. [R. Lightfoot?], "*Odontorrhina hispida* (Olivier) det. E. Marais 1988" (SAMC, SAM-COL-A027067); 1♂ Cape Town, ix.1983, R. Lightfoot, "*Odontorrhina hispida* (Olivier) det. E. Marais 1988" (SAMC, SAM-COL-A027068); 3ex. Cape Town, Lion's Hill, ix.[18]83, det. E. Holm (SANC); 1ex. Cape Town (after Rigout & Allard 1992: 60); 1ex. Cape Peninsula, S.A. Museum, [no collection date], "*Odontorrhina hispida* (Ol.) det. A.V. Evans '87" (SAMC, SAM-COL-A027069); 1ex. Stellenbosch [33°55'S 18°52'E], ix.1925, H. Brauns (TMSA); 1♂ x.1978, T.J. Joubert (after Sakai & Nagai 1998: pl. 105, fig. 1169-1); 1♂ 20 km SE of Calitzdorp [33°39'S 21°49'E], 6.iv.1987, J.B. Ball (PCBM); 1♂ Western Cape Mountains (C.R. Owen). *Northern Cape*: 1ex. van Rhyn's Pass [31°22'22"S 19°01'00"E], 4–5. xi.[19]33, G. van Son (TMSA); 1♂ Sutherland [32°24'S 20°40'E], 17.x.1988, J.B. Ball (PCBM); 1♀ Sutherland, 30.x.1994, C.R. Owen (after Sakai & Nagai 1998: pl. 105, fig. 1169-2); 2♀ Sutherland, Observatory, 30.x.1995, A.P. & M.E. Marais (PCBM); 1♀ Sutherland, 6.ix.1997, A.P. Marais (PCBM); 1♂ Sutherland, 15.ix.1997, A.P. Marais (PCRP); 3♂ 1♀ Sutherland, 19.x.2002, R. Perissinotto & L. Clennell (PCRP); 1♂ Sutherland, emerged at Durban iii.2005 (PCRP); 1♀ same data iv.2005 (PCRP); 1♂ Sutherland, Swaarweerberg [32°25'S 20°35'E], 22.x.1993, A.P. & M.E. Marais (PCBM); 1♀ same data but 25.x.1993 (PCBM); 1♂ same data but 26.x.1993 (PCBM); 1♂ 1♀ same data but 28.x.1993 (PCBM); 1♂ same data but 22.x.1994 (PCBM); 2♂1♀ same data but 23.x.1995 (PCBM); 2♂ same data but 24.x.1995 (PCBM); 7♂ 2♀ same data but 19–20.x.2002, J. Ball & A. Brinkman (PCBM); 1♂ Sutherland Dist., Quaggafontein [32°14'21"S 20°16'47"E], 26.x.1994, A.P. & M.E. Marais (PCBM); 1♂ 3 km W of Sutherland [32°24'S 20°38'E], 3.x.[19]92, J.B. Ball (PCRP); 1♂ Komsberg [32°40'S 20°49'E], 26.ix.1993, A.K. Brinkman (PCRP). UNKNOWN PROVENANCE: 1ex. [no details], "*Odontorrhina hispida* det. Evans '87" (SAMC, SAM-COL-A027070); 1ex. [label dark, broken and illegible] (DMSA, No 11605); 1ex. [no locality data], Coll. Brady, 1904, R.C.D. (DMSA, No. 11607); 1♂ "59.57, Vigors Coll., BMNH(E), #943929" (BMNH); 1ex. "59.57, Vigors' Coll., *hispida*" (BMNH); 1ex. "Bombay?, 69.7." (BMNH); 1ex. "CAP, Péringuey, Bourgoin Coll.,B.M. 1938-252., *Odontorrhina hispida* Ol." (BMNH); 1ex. [no data] "*O. hispida* Oliv." (BMNH).

***Odontorrhina krigei* Schein, 1950**
Lectotype: SOUTH AFRICA: *Northern Cape*: van Rhyn's Pass [31°22'22"S 19°01'00"E], 4–5.11.33, G. van Son (TMSA).
Paralectotypes: SOUTH AFRICA: *Western Cape*: 2ex. Stellenbosch [33°55'S 18°52'E], viii.1918, Grobbelaar (1 TMSA, 1 ZSMC); 1♂ 1♀ Stellenbosch, viii.1918, Grobbelaar, "*Odontorrhina krigei* det. Schein. Munchen, Paralectotype *Odontorrhina krigei* Schein, Holm & Marais 1988" (SAMC, SAM-COL-A066119).
Other material: SOUTH AFRICA: *Western Cape*: 4ex. Farm Grootfontein [32°59'56"S 18°10'47"E], pool nr campground, 19CC, 15.xi.1996, K Steiner, "*O. krigei* det. J. du. Harrison 2005" (SAMC, SAM-COL-A066120); 1ex. Paarl Dist., Du Toitskloof Mountains [33°44'S 19°09'E], northern side, lower slopes, xii.2004, A.P. & M.E. Marais (current holder unknown); 1ex. Stellenbosch [33°55'S 18°52'E], x.1919, H. Brauns (TMSA); 1ex. Stellenbosch, 5.xi.1919 (TMSA); 1♀ Stellenbosch, 3218AB, x.1919, Brauns, "*Odontorrhina krigei* Schein det. E. Marais" (SAMC, SAM-COL-A027071); 1♂ 1♀ Stellenbosch, 3218AB, v.1919, "*Odontorrhina krigei* Schein det. E. Marais" (SAMC, SAM-COL-A027072); 1ex. Stellenbosch, 3318DD, vii.1918, G. Grobbelaar, ex Coll. Barker (DMSA, No. 11614); 2♀ Waaihoek [33°30'S 19°18'E], 4.i.1997, J. Ball (PCRP); 1♂ 1♀ Waaihoek Mtn, lower slopes, 4.i.1997, A.K. Brinkman (PCRP); 1♂ Worcester Dist., Zuurberg [33°31'S 19°23'E], 1400 m, 3.i.1998, A Brinkman (PCRP); 3ex. Worcester Dist., Keeromberg, 33°34'36"S 19°37'32"E, 17.i.2007, A.P. Marais, [ex] J.B. Ball and A.P. Marais collection (SAMC, SAM-COL-A067984); 1♀ same data (PCBM); 2♂ 2♀ Villiersdorp Distr., Jonaskop [33°58'S 19°30'E], 1323 m, 9.xii.1995, A.P. & M.E. Marais (3 PCBM, 1 PCRP); 1♀ same data but 13.i.1996 (PCBM); 2♂1♀ same data but 18.ii.1996, emerged in Cape Town, (PCBM); 3♀ same data but 27.ii.1996 (PCBM); 2♀ same data but 10.iii.1996 (PCBM); 10♂ 16♀ same data but found in cocoons 4.iv.1996 (PCBM); 6♂ 1♀ same data but 6.iv.1996 (PCBM); 4♂ 4♀ same data but 15.iii.1997 (PCBM); 4♂ 3♀ same data but 21.iii.1997 (PCBM); 3♂ 4♀ same data but emerged in Cape Town, viii.1997, A.P. Marais (PCRP); 1♂ Western Cape Mountains (C.R. Owen). *Northern Cape*: 1♂ van Rhyn's Pass [31°22'22"S 19°01'00"E], 11–21.xi.1931, Prof. T.D.A. Cockerell, Pres. by Imp. Inst. Ent., B.M.1934-303, "*Odontorrhina krigei* Schein det. H. Schein 1954", "*Heteroclita gariepena*? G. & P.", "BMNH(E) #943660" (BMNH); 1♂ Sutherland [32°24'S 20°40'E], 30.x.1994, C.R. Owen (after Sakai & Nagai 1998: pl. 105, fig. 1168).

***Odontorrhina pubescens pubescens* (Olivier, 1789)**
Lectotypes: SOUTH AFRICA: *Western Cape*: ♂ 'Mus. Westerm./Cap bon sp [Cape of Good Hope, 34°14'00"S 18°25'08"E], "*O. pubescens*, design. Marais & Holm 1989" (ZMUC); ♂ 'Cap bon sp" [Cape of Good Hope, 34°14'00"S 18°25'08"E], "*O. cicatricosa*, design. Marais & Holm 1989' (NMLN).
Paralectotypes: SOUTH AFRICA: *Western Cape*: 2♂ same as lectotype (ZMUC).
Other material: SOUTH AFRICA: *Western Cape*: 1ex. 15 km S Doringsbaai, 31°58'S 18°17'E, 19.viii.1983, Endrödy-Younga & Penrith, white sand, day, E-Y:1949 (TMSA); 1ex. Graafwater district, Heerenlogement, 31°58'S

18°33'E, 6.x.1995, F.W., S.K. & R.W. Gess (AMGS); 1ex. Ratelfontein/Olaf Bergfontein, 32°02'01"S 18°35'31"E, 7.x.1995, F.W., S.K. & R.W. Gess, flying around *Leucodendron pubescens* R.Br., Proteaceae (AMGS); 2ex. Nortier farm, 32°03'S 18°19'E, 25.viii.1981, Endrödy-Younga, on flowers, E-Y:1846 (TMSA); 1♂ 10 km N of Clanwilliam [32°06'S 18°53'E], "61.", "*O. pubescens*" (PCRP); 7♂ 1♀ Lamberts Bay [32°06'S 18°19'E], 7.xi.1988, J.B. Ball (PCBM); 6♂ same data but 21–25.ix.1994, A.P. & M.E. Marais (PCBM); 1♂ same data but x.1995, A.P. Marais (PCBM); 7♂ 4♀ Lamberts Bay, 5.x.1995, R. Perissinotto & L. Clennell, on *Melianthus* sp. (PCRP); 1♂ 1♀ Lamberts Bay, 1.x.1997, A. Gardiner (PCRP); 1♂ Lamberts Bay (after Rigout & Allard 1992: pl. 5, fig. 4); 1♂ Leipoldtville [32°14'S 18°29'E], x.1957, Museum Exped. (SAMC, SAM-COL-A027056); 1♂ 1♀ Rocherpan [32°36'S 18°19'E], 6.x.1995, R. Perissinotto & L. Clennell (PCRP); 2ex. Velddrif [32°47'S 18°10'E], SE3218Ca, 6.ix.1990, E. Holm & S. Gussmann (TMSA); 6♂ St Helena Bay [32°46'S 18°01'E], 10.ix.1994, A.P. & M.E. Marais (2 PCBM, 4 PCRP); 8♂ same data but 20.ix.1996, A.P. Marais (PCBM); 1ex. Vredenburg [32°54'S 17°59'E], 3217DD, vii.1989, C.R. Owen (DMSA, No. 11613); 1♂ Jacobsbaai [32°58'S 17°54'E], 26.viii.1964, J.J. Cillié, Entomologist Ac. Ca. 651, det. W. Breytenbach 2009 (SANC); 1ex. Jakobsbaai, 21.viii.1975, A.J. Prins (SAMC, SAM-COL-A027391); 1ex. Saldanha Bay [33°00'S 18°03'E], 1885 (SAMC, SAM-COL-A027064); 1ex. Saldanha Bay, 1886 (SAMC, SAM-COL-A027060); 1ex. Saldanha Bay, 1886, det. Péringuey, det. Holm (SANC); 3♂ 2♀ Saldanha Bay, 1905, RM Lightfoot (SAMC, SAM-COL-A027054); 17ex. Saldanha Bay, 1906, R.M. Lightfoot (SAMC, SAM-COL-A027063); 1ex. Saldanha Bay, 1906, R.M. Lightfoot (SAMC, SAM-COL-A027066); 3ex. Saldanha Bay, R.M. Lightfoot, 1906, det. Péringuey, det. Holm (SANC); 1♂ Saldanha Bay, 5.ix.[19]12, K.H. Barnard, 1914-15, BMNH(E) #943870 (BMNH); 14ex. Saldanha Bay, ix.1912, L.P. (SAMC, SAM-COL-A027057); 4ex. Saldanha Bay, 3317BB, 1916, R.M. Lightfoot (DMSA, Nos. 11608-11611); 1ex. Saldana Bay [?], 1901, K.M. Lighten [?], "Cap bon. sp. Comp. Ht" (TMSA); 3♂ 1♀ near Soutkuil [33°02'S 18°07'E], 6.x.1995, R. Perissinotto & L. Clennell (PCRP); 1ex. Langebaan [33°05'S 18°03'E], 21.ix.[19]75, N.J. Duke (TMSA); 1♂ 1♀ Langebaan, 27.ix.2004 (PCRP); 4♀ Langebaan, Loc. Nr. 20 (after Schein 1950: 98); 2ex. Yzerfontein [33°20'S 18°10'E], 4.ix.[19]55, A.J. Duke (TMSA); 9ex. Ysterfontein, 33°20'S 18°10'E, ix.1960, S.A.M., "*Odontorhina pubescens* det. Evans '97" (SAMC, SAM-COL-A027052); 4ex. Yzerfontein, ix.1960 (SAMC, SAM-COL-A027062); 4ex. Yzerfontein, 6.ix.[19]75, N.J. Duke (TMSA); 1ex. Yzerfontein, 12.x.[19]76, N.J. Duke (TMSA); 2♂2♀ Yzerfontein, 12.ix.1986, J.B. Ball (PCBM); 4♂ 1♀ same data but ix.1988, A.P. Marais (PCBM); 1♂ same data but 8.viii.1989 (PCBM); 2♂ same data but 13.viii.1989 (PCBM); 7♂ same data but 31.viii.1989 (PCBM); 2♂ same data but 7.ix.1989 (PCBM); 1♀ same data but x.1996 (PCBM); 1♂ Yzerfontein, 15.ix.1993, A. Brinkman (PCRP); 1♀ Yzerfontein, ix.1986 (after Sakai & Naga 1998: pl. 105, fig. 1167-3); 1♂ Darling [33°23'S 18°23'E], 5.ix.[19]97, A.K. Brinkman (PCRP); 9ex. Melkbosstrand, 33°43'S 18°26'E, 29.viii.1965, F. Gess & S. Gess, "*Odontorhina pubescens* det. Evans '87" (SAMC, SAM-COL-A027053); 1♂ Bloubergstrand [33°47'S 18°28'E], 12.ix.1976, H. Geertsema, aedeagus and wing dissected, det. E. Holm (SANC); 1ex. Cape Town [33°55'S 18°25'E], 3318CD, ix.1913, G. Péringuey (DMSA, No. 11612); 1♂ 1♀ Western Cape Coast (C.R. Owen). Northern Cape: 1ex. Port Nolloth [29°15'S 16°53'E], viii.1890 (SAMC, SAM-COL-A027061); 3♂ Port Nolloth, ix.1890, "*Odontorrhina pubescens* (Olivier) det. E. Marais 1987" (SAMC, SAM-COL-A027058); 2ex. Kleinsee, Sandkop 322, 29°39'55"S 17°10'34"E, 28–30.x.1996, Harrison & Scholtz, vegetated dune red sand (TMSA); 1♂ Soebatsfontein [30°07'S 17°35'E], Ferreira Collection; "*Odontorrhina pubescens* Oliv. Det. H. Schein 1955" (BMSA, old No. 738); 1ex. Hondeklipbaai [30°19'S 17°17'E], 11.xi.[19]33, G. van Son (TMSA); 3♂ same data but ix.1981, J.B. Ball (PCBM); 2♂1♀ same data but 28.ix.1981 (PCBM); 2♂ Wallekraal [30°22'S 17°31'E], 28.ix.1994, A.P. & M.E. Marais (PCBM); 2♂ same data but 29.ix.1994 (PCBM); 5♂ same data but 15.x.1994, A.P. Marais (PCBM); 1♂ same data but 11.x.1995 (PCBM); 1♂ Wallekraal, 30.ix.2010, on *Melianthus* cf. *comosus* (PCRP); 1ex. Namaqualand, Gemsbok Vlakte farm, 30°30'S 17°29'E, 31.viii.1977, Endrödy-Younga, dunes & vegetation, E-Y:1362 (TMSA); 2ex. same data but 2.ix.1977, Endrödy-Younga, E-Y:1371 (TMSA); 1ex. Namaqualand, farm Rondabel, 30°47'S 17°50'E, 30.x.1977, Endrödy-Younga, E-Y:1403, grassnetting (TMSA); 1ex. Namaqualand, Green River Mouth [30°51'S 17°35'E], 24.viii.1979, Endrödy-Younga, E-Y:1593 (TMSA); 1ex. same data but 10 m, 3–4.ix.1986, Evans & Bellamy (TMSA); 1♂ Green River, viii.1990, C.R. Owen (after Sakai & Naga 1998: pl. 105, fig. 1167-2); 1ex. Namaqualand, Waterval Farm, 31°03'S 17°46'E, groundtraps, 63 days, 25.viii.1979, Endrödy-Younga, E-Y: 1598 (TMSA); 4ex. Namaqualand, 3 km NW Titiesbaai [31°10'S 17°46'E], 28.viii.1979, Endrödy-Younga, E-Y:1614 (TMSA); 1ex. Namaqua coast, Soutpan dunes, 31°15'S 17°52'E, 13.ix.1987, Endrödy-Younga, coastal dunes, day, E-Y:2494 (TMSA); 1ex. Namaqualand, Kommandokraal farm, 31°30'S 18°12'E, 23.ix.1994, Endrödy-Younga, on sandy ground, E-Y:3033 (TMSA). UNKNOWN PROVENANCE: 2ex. "S Africa, Zulu 48 63" (BMNH); 1ex. "Dr. Smith, S. Afr. 44-6, *Odirria pubescens*" (BMNH); 1ex. "Bowring, 63-47*" (BMNH); lectotype, 1 paralectotype [no collecting data], "*pubescens*, *O. pubera*, design. Marais & Holm 1989" (UZIU); 1ex. "Johannesburg, 5600 ft, 2.xi.1898, Alex Ross" (TMSA); 1♀ [no details] "*Odontorrhina pubescens* (Olivier) det. E. Marais 1988" (SAMC, SAM-COL-A027055); 1♂ [no details] "*Odontorrhina pubescens* (Olivier) det. E. Marais 1987" (SAMC, SAM-COL-A027059); 1ex. [no details] (SAMC, SAM-COL-A027065); 1♂ "Cape, Uredenlong, x.1988, C.R. Owen leg." (after Sakai & Nagai 1998: pl. 105, fig. 1167-1).