

Revision of the Afrotropical species of the genus *Spilophorus* Westwood (in Schaum), 1848 (Coleoptera: Scarabaeidae: Cetoniinae: Cremastocheilini)

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The seven species and one subspecies, at present attributed to *Spilophorus* in the Afrotropical region, are revised. One new species, *Spilophorus pringlei* sp. n., and one new subspecies, *S. plagosus vrystaati* subsp. n., are described. A key and illustrations to the species and subspecies are provided. The male of *S. grandis* Schein, 1949 is described for the first time. A new subgenus, *Spilophorus (Prospilophorus)* subgen. n., is established.

Key words: Scarabaeidae, Cremastocheilini, new species, new subspecies, new subgenus, Afrotropical region.

INTRODUCTION

The Cremastocheilini are a group of cetoniines that exhibits unusual lifestyles and feeding modes. They are widely reported to live in association with ants and termites and, as adults, they are mainly active at night (Scholtz & Holm 1985). Ghorpade (1975) recorded *Spilophorus maculatus* (Gory & Percheron, 1833) feeding on Membracidae on *Acacia concinna* and reviewed predacious habits in the Scarabaeidae. In this review, he omitted to mention *Oplostomus fuliginus* (Olivier, 1789) known to beekeepers in Africa as the 'Large Hive Beetle'. This species not only enters beehives for honey, but also feeds on the brood (Péringuey 1907; Scholtz & Holm 1985). In autumn they attack nests of paper wasps and devour the unhatched brood (Scholtz & Holm 1985). Another day-flying cremastocheiline with predatory habits is *Campsisiura* (= *Macroma*) *cognata* (Schaum, 1841), which has been recorded feeding on scale insects. As Ghorpade (1975) points out, many more predacious groups may be discovered in the Cremastocheilini, particularly in the poorly investigated nocturnal genera. Noting the development and armature of mandibles may be a useful approach to correlate morphology with feeding biology.

While no positive records of predation by African *Spilophorus* spp. exist, there are interesting observations on captures of live *S. plagosus* in a social spider nest, where they would hardly venture for purposes other than predation (J. Steyn, specimen data label). *Spilophorus grandis* has also been observed in nests of *Crematogaster* ant species

(L. Berger & N. Leleup, specimen data labels) again hardly for purposes other than feeding on the ants' brood.

The larval biology of the genus is equally extraordinary among Cetoniinae, as development seems to be linked to birds' nests. There are records of larvae and cocoons of *S. plagosus* Boheman, 1857, *S. lugubris* (Fabricius, 1775) and *S. kolbei* Antoine, 2006 found in various bird nests, where the larvae presumably feed on bird droppings and refuse (Péringuey 1907; Antoine 2006).

Antoine (2006) recently described two new species and a subspecies of *Spilophorus* Westwood 1848 from East Africa, and established that the genus should be attributed to Westwood (in Schaum 1848) and not to Schaum (1848). A new species was recently collected in the Eastern Cape Province of South Africa. This, along with Antoine's (2006) omission of three of the previously described species, makes it necessary to revise the described taxa, since the nomenclatorial corrections of Antoine (2006) were all accepted and approved.

MATERIAL AND METHODS

Square brackets within the data labels reported in the text indicate authors' own insertions, used to provide current country names and locality coordinates. Abbreviations of types are as follows: HT, Holotype; PT(S), Paratype(s); LT, Lectotype.

Institutional and collection abbreviations. AMGS, Albany Museum, Grahamstown, S.A.; BMNH, The Natural History Museum, London, U.K.; BMSA, National Museum Bloemfontein, S.A.;

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DMSA, Durban Natural Science Museum, S.A.; MNHN, Museum National d'Histoire Naturelle, Paris, France; MRAC, Koninklijk Museum voor Midden Afrika, Tervuren, Belgium; NHRS, Naturhistoriska Riksmuseet, Stockholm, Sweden; PCCJ, Private Collection C. Joly, Jurbise, Belgium; PCDC, Private Collection D. Camiade, Sallespisse, France; PCDG, Private Collection C. Di Gennaro, Arcueil, France; PCJL, Private Collection J-Ph. Legrand, Paris, France; PCLR, Private Collection B. Le Rü, Paris, France; PCPA, Private Collection Ph. Antoine, Raubaix, France; PCRP, Private Collection R. Perissinotto, Durban, S.A.; SAMC, Iziko South African Museum, Cape Town, S.A.; SANC, South African National Collection of Insects, Pretoria, S.A.; SMWN, National Museum of Namibia, Windhoek, Namibia; TMSA, Transvaal Museum, Pretoria, S.A.; ZMUC, Zoological Museum, University of Copenhagen, Denmark; ZSMC, Zoologische Staatssammlung München, Germany

Genus **SPILOPHORUS** Westwood, 1848

Spilophorus Westwood (in Shaum), 1848: 61; Blanchard 1850: 43; Lacordaire 1856: 545; Boheman 1857: 49; Westwood 1874: 28; Antoine 2006: 181.

Spilophorus Schaum, 1848: 61; Krikken 1984: 43; Marais & Holm 1992: 73.

Spilophorus Lacordaire 1856: 545; Gemminger & Harold 1869: 1335; Schoch 1895: 132; Kraatz 1899: 62; Péringuey 1907: 504; Arrow 1910: 31, 201; Distant 1911: 279; Kolbe 1913: 218; 1914: 415; Schenkling 1921: 363.

Pseudospilophorus Kraatz, 1899: 62; Péringuey 1907: 504 (= *Spilophorus*); Arrow 1910: 201 (= *Spilophorus*); Schenkling 1921: 363 (= *Spilophorus*); Marais & Holm 1992: 70 (= *Spilophorus*); Antoine 2006: 181 (= *Spilophorus*).

Type species. *Cremastocheilus maculatus* Gory & Percheron, 1833 (subsequent designation by Antoine 2006: 183).

Diagnosis

Within the Cremastocheilini the genus *Spilophorus* is placed by Krikken (1984) in its own subtribe, the *Spilophorina*. The characteristics of the genus or subtribe that collectively distinguish it from other Cremastocheilini are the following: body proportions as in Cetoniini, not elongated or flattened, abdominal sternites not protruding beyond elytral

sides; always with tomentose spots on at least elytra or venter; pronotum without basal depressions, pronotal base roundly sinuate above scutellum; clypeus unarmed, at most ridged; protibia with two (rarely three) external denticles, and a longitudinal ridge on the underside ending in a distal spine.

Discussion

The genus is one of several (e.g. *Campsiura*, *Coenochilus*) within the Cremastocheilini that is distributed in the Afrotropical and Oriental regions. In Africa it is represented by a few apparently localized and relict species, and a closely related and common species complex (*lugubris*-group) spanning the whole continent. It is more than likely that further localized relicts may exist. These two groups of species form unambiguous phylogenetic clades, and are separated into two subgenera below.

Antoine (2006) recently clarified the multitude of nomenclatorial ambiguities, and described two new species and a subspecies of the *lugubris*-group (*Spilophorus* s. str.). The taxa of this subgenus are all very similar in structure, and can only be reliably identified by aedeagal parameres, ornamentation and provenance. With adequate records, it turned out that one more form mentioned by him in fact constitutes a well-defined subspecies. The African species of the subgenus are remarkably similar in morphology, except in ornamentation and sculpture.

The type species, *C. maculatus* Gory & Percheron, from India, fits in the African species within *Spilophorus* s. str. Colouring is as in *S. plagosus*, but with additional small white maculae on pronotal and elytral discs and on mesepimeron. Pronotal sides are more angular than in *S. plagosus*, the clypeal carina is incompletely formed (Fig. 11.1).

Subgenus **Spilophorus** (**Spilophorus**)

Westwood (in Schuam), 1848

The nominal subgenus comprises two species from the Indian subcontinent, *S. (S.) maculatus* (Gory & Percheron) (Fig. 11.1) and *S. (S.) cretosus* (Hope), which are not considered further here, and five species from the Afrotropical region: *S. (S.) lugubris* (Fabricius) (Fig. 11.6); *S. (S.) plagosus* Westwood (Fig. 11.7); *S. (S.) kolbei* Antoine (Fig. 11.9); *S. (S.) fernandezi* Antoine (Fig. 11.10); and *S. (S.) pringlei* sp. n. (Fig. 11.5).

Diagnosis

Characters are as follows: small species, length rarely above 13 mm; clypeus with prominent subapical transverse ridge (Figs 4.4, 5.4, 6.4, 7.4, 8.4, 9.4); inner dorsal mid-metatarsal spine well developed (Figs 4.2, 5.2, 6.2, 7.2, 8.2, 9.2); colour patterns within species and subspecies stable.

Subgenus *Spilophorus* (*Prospilophorus*)

subgen. n.

Type species. *Spilophorus grandis* Schein (here designated).

This subgenus comprises *S. (P.) grandis* Schein, *S. (P.) aurifer* Westwood and *S. (P.) cervinus* Bourgoïn.

Diagnosis

Characters are as follows: large species, length rarely below 14 mm; clypeus convexly rounded, without ridge (Figs 1.4, 2.4, 3.4); inner dorsal mid-metatarsal spine obsolete (Figs 1.2, 2.2, 3.2); colour pattern variable in at least two of the three species, with completely ornamented to nigrito-forms in the same series.

Discussion

There is little doubt that *S. (Prospilophorus)* is the more conservative subgenus, with only the third character (representing a reduction) possibly apomorphic. Furthermore, *S. (P.) cervinus* has a tridentate protibia (at least in the female), which is undoubtedly a plesiomorphic state. The relic distribution of species also suggests an old phylogenetic lineage. On the other hand, *Spilophorus s. str.* is the presumed Gondwanan lineage shared by Africa and India/Sri Lanka (Sakai & Nagai 1998).

Key to the subgenera and African species and subspecies of *Spilophorus* Westwood

1. Anterior clypeal margin with sharp transverse pre-apical carina (e.g. Fig. 4.4); median metatarsal spine bifurcate (e.g. Fig. 4.2) *S. (Spilophorus)* Westwood . . . 4
- Anterior clypeal margin declivously rounded (e.g. Fig. 1.4); median metatarsal spine with only outer denticle developed (e.g. Fig. 1.2): *S. (Prospilophorus)* subgen. n. . . 2
2. Elytral disk (except humeral and apical callus) covered by greenish-yellow tomentum (Fig. 11.2); pronotum with bilateral large yellow tomentose spots (Fig. 11.2); median

- mesotibial spine bifurcate; protibia (of female) tridentate (Fig 11.1) . . . *S. (P.) cervinus* Bourgoïn
- Tomentose spots ochreous-yellow, differently distributed on dorsum (Figs 11.3a, 11.4b); median mesotibial spine with only outer denticle developed; protibia bidentate (Figs 2.1, 3.1) 3
 3. Tomentose band on elytral side subcontinuous, when present (Fig. 11.3a); size 16 mm or smaller; distribution north of 5°5'N *S. (P.) aurifer* Westwood
 - Tomentose band on elytral side clearly interrupted, when present (Fig. 11.4b); size 16 mm or larger; distribution south of 5°5'N (Fig. 12) *S. (P.) grandis* Schein
 4. Dorsal markings cream yellow, in thin irregular and interrupted transverse wavy lines (Fig. 11.5); distribution Eastern Cape, South Africa (Fig. 12) *S. (S.) pringlei* sp. n.
 - Dorsal markings pure white (Figs 11.6, 11.7, 11.8, 11.9) 5
 5. Pygidium with bilateral white spots or unmarked (Figs 6.6, 7.6, 9.6) 6
 - Pygidium with one large median white spot (Figs 5.6, 8.6) 8
 6. Bilateral median white spots on elytra larger than scutellum (Fig. 11.6, 11.7, 11.8, 11.9); distribution southern Africa (Fig. 12) . . 7
 - Bilateral median white spots on elytra much smaller than scutellum to absent (Fig. 11.10); distribution West Africa *S. (S.) fernandezi* Antoine
 7. Pronotum with bilateral marginal white bands (Fig. 11.7); underside and pygidium always with white spots (Figs 6.5, 6.6) *S. (S.) plagosus plagosus* Westwood
 - Pronotum unmarked (Fig. 11.8); pygidial and ventral markings reduced or absent (Figs 7.5, 7.6) . . . *S. (S.) plagosus vrystaati* ssp. n.
 8. Pronotum unmarked (Figs 11.6, 11.9) 9
 - Pronotum with bilateral marginal white bands *S. (S.) kolbei kolbei* Antoine
 9. Metasternum unmarked (Fig. 8.5); distribution northeast Africa *S. (S.) kolbei digennaroi* Antoine
 - Metasternum with large white spot (Fig. 5.5); distribution Cape, South Africa (Fig. 12) *S. (S.) lugubris* (Fabricius)

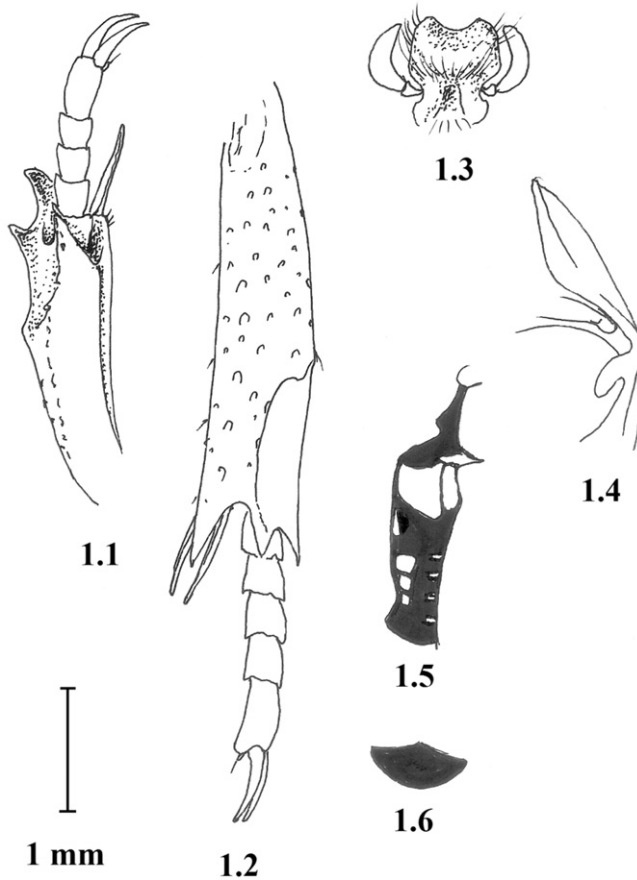


Fig. 1. *Spilophorus (Prospilophorus) cervinus*. **1.1**, Ventral view of right protibia and tarsus; **1.2**, left lateral view of metatibia and tarsus; **1.3**, labium and palps; **1.4**, left lateral view of head; **1.5**, left lateral view of underside; **1.6**, pygidium.

Spilophorus (Prospilophorus) cervinus

Bourgoin, 1921, Figs 1.1–1.6, 11.2

Spilophorus cervinus Bourgoin, 1921: 82; Marais & Holm 1992: 73

Types. HT: [D.R. CONGO], Maniema, Kindu [S02° 55' E25°52'] (MNHN), 1917, L. Burgeon.

Redescription

Size. 13.5–14.0 × 7.3–7.6 mm (*n* = 2).

Head. Anterior clypeal margin sinuate; without transverse ridge; clypeal disk highest medially, roundly receding from there in all directions; finely and evenly punctured. Frons roundly raised but not ridged between the eyes; evenly punctured, depressed between median bulge and ocular canthus. Asetose, with a yellow tomentose spot proximad of vertex (Fig. 1.4).

Pronotum. Black, shiny, asetose with fine needle

punctures on disc becoming larger and semiconfluent just proximad of rounded lateral ridge; with two large bilateral tomentose spots covering about one third of surface. *Scutellum.* Totally covered by yellow tomentum, with a few umbilicate punctures discernible in basal corners and apex. *Elytra.* Covered with yellow tomentum, except the shiny black humeral calli, apical calli and margin; evenly rounded with only first costa vaguely discernible, without depressions. Sculpture of small serial umbilicate punctures, denser towards sides but absent on matt declivity. *Appendages.* Black, without tomentose spots at joints; with inner dorsal mid-metatarsal spine obsolete (Fig. 1.2); protibia tridentate (female).

Ventral surface. Black, with yellow tomentose areas as in Fig. 1.5; with short, sparse orange setae only on abdominal sternites and prosternum.

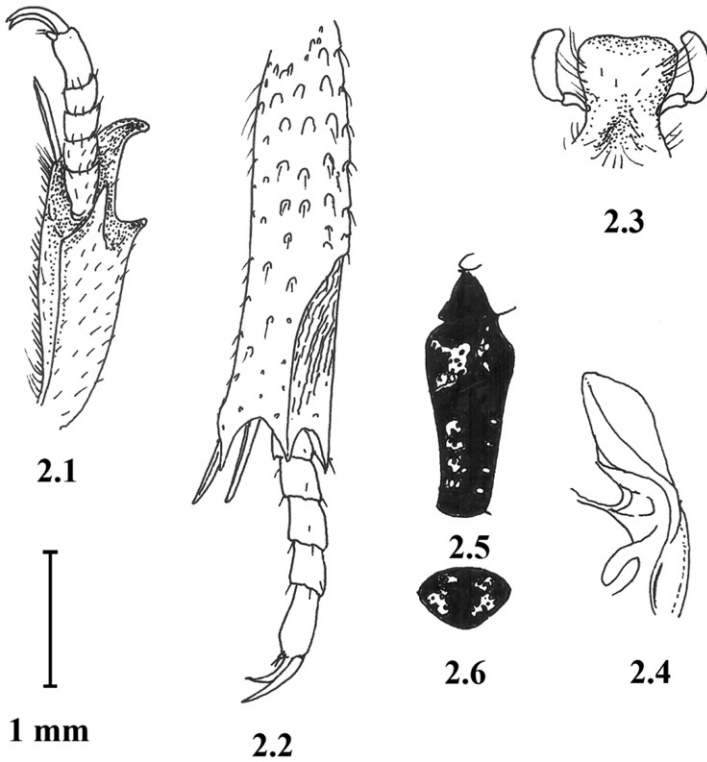


Fig. 2. *Spilophorus (Prospilophorus) aurifer*. **2.1**, Ventral view of right protibia and tarsus; **2.2**, left lateral view of metatibia and tarsus; **2.3**, labium and palps; **2.4**, left lateral view of head; **2.5**, left lateral view of underside; **2.6**, pygidium.

Punctures fine along middle, larger but well-spaced umbilicity laterad, ridges and grooves on proepisternum.

Remarks. The species is very distinct due to the striking yellow ornamentation, and also set apart by the protibia and head shape.

Material examined. [D.R. CONGO]: Uele, Dingila [N03°44' E26°06'], 31/VII/1933, J.V. le Roy (MRAC); Equateur: Bonula Sabouga [N01°05' E19°58'], VII/1926, R.P. Hulstaert (MRAC).

Spilophorus (Prospilophorus) aurifer

Westwood, 1874, Figs 2.1–2.6, 11.3

Spilophorus aurifer Westwood, 1874: 30; Marais & Holm 1992: 73.

Hoplostomus aurifer (Westwood); Schaum 1850: 62 (catalogue).

Pseudospilophorus aurifer (Westwood); Schenkling 1921: 362.

Types. HT (♀): 'Guinea / Aurifer / Westw. Mus. Westerm. Zoological Museum DK – Copenhagen.' (ZMUC). Westwood (1874) specifically mentions a

single specimen deposited in the Royal Collection (Copenhagen), and in the Westermann Collection. As the labels agree and are in Westwood's handwriting, and the mouthparts are dissected for drawings in Westwood 1874, there can be no doubt as to the identity of the specimen as the monotype of the species, and lectotype designation is not necessary. Marais & Holm (1992: 73) had not traced this type.

Redescription

Size. 13.4–15.2 × 8.0–9.8 mm ($n = 2$).

Head. Glabrous, black with punctate sculpture except on distal half of clypeus (Fig. 2.4); anterior clypeal margin roundly bilobate; middle of clypeus roundly elevated, without ridges; vertex with sharp median ridge, bilaterally depressed with ochreous tomentum.

Pronotum. Shiny black, glabrous, with fine sparse punctures on disk becoming more dense and larger towards sides; asetose; sides roundly angled in middle, widest just anterior of base;

roundly emarginate above scutellum; with irregular ochreous spots along sides. *Scutellum*. Shiny black, with only a few punctures near apex and interior corners. *Elytra*. Shiny black, depressed along suture in basal half, with depressions mediad of humeral calli; glabrous, with large sparse umbilicate punctures on disk but absent on irregular first costa, becoming more densely spaced, semi horseshoe-shaped and smaller on sides and apical declivity; from below humeri to apical declivity with ochreous tomentum interrupted by punctures; small ochreous spots also in first interstice near scutellar apex and in middle of elytral length. *Appendages*. Black with short orange setae but longer on undersides of tibiae, profemur (Fig. 2.1) and on procoxa; legs densely sculptured, tarsi short, protibial armature normal, meso and metatibia each with one median outer denticle (Fig. 2.2).

Ventral surface. Shiny, black medially with very fine punctures becoming larger and more densely spaced towards sides. Very short reddish setae discernible along middle and extreme sides of abdominal sternites and mesepisternum; ochreous spots interrupted by punctures on sides of metasternum and abdominal sternites 2–5, and on metepisternum and posterodistal corners of abdominal sternites 1–4 (Fig. 2.5).

Pygidium. Surrounded by a sharp ridge and with median carina; matt black, asetose, with semi-contiguous round punctures with irregular bilateral ochreous spots (Fig. 2.6).

Remarks. The species is closest to *S. (P.) grandis* in size, distribution of tomentum and shape of clypeus. It differs from that species in the smaller average size, different arrangement of spots and carina on pygidium. The species is known from the female only. The two specimens additional to the type have reduced tomentose areas, one being completely black dorsally.

Material examined. [D.R. CONGO]: Mayidi [S04° 22' E15°17'], 1942, Rev. Pv.Eyen (MRAC). Gallikoku, Kasai [Not traced], R. Carlier (MRAC).

***Spilophorus (Prospilophorus) grandis* Schein, 1949, Figs 3.1–3.8, 11.4, 12**

Spilophorus (Pseudospilophorus) grandis Schein, 1949: 306–8.

Spilophorus grandis Schein, Marais & Holm 1992: 73.

Types. HT (♀), SOUTH AFRICA: 'Barberton [S25° 47' E31°03']', 2.1906, Miss de Beer' / 'Typus!

Spilophorus grandis m. det. Schein, München' / '*Spilophorus grandis* Schein Holotype [det. Holm & Perissinotto]' (TMSA).

Remarks. The single female was described adequately by Schein (1949), but a male specimen without labels (apart from Schein's identification label: '*Pseudospilophorus grandis* m. det. Schein, München') was found in the collection of Schein in München (ZSMC). This specimen is better preserved, more elaborately ornamented and allows for the description of male characteristics. A series, containing two males and five females, was additionally found in the Tervuren Collection (MRAC). These originate from Tanzania, and do not differ from the type, casting some doubt on the type locality.

Description (male)

Size. 15.2–18.5 × 9.0–12.0 mm ($n = 3$).

Head. Anterior clypeal margin bilobate; middle of clypeus bulbous, but without sharp ridge; vertex with a rounded median ridge, a distal ridge and bilateral oblique ridge to the base of ocular canthus, with small golden-cream tomentose spots (Fig. 3.4).

Pronotum. Trapezoidal, widest at base, with irregularly interrupted golden-cream tomentose spots along sides, asetose; disk very finely punctured, punctures becoming large and umbilicate towards sides and semi-confluent at the margin.

Scutellum. Triangular, with fine sparse punctures along base, becoming dense on declivous anterior angles and coarse at very apex, otherwise asetose and without tomentum. *Elytra*. Depressed at scutellar base, inside humeral callus, along suture and anterior of apical callus; golden-cream tomentum distributed in irregular spots along lateral half and apical declivity, with a small spot on disk near suture (Fig. 11.4); sculpture crescent to horseshoe sculptures, absent on baso-sutural elevations, becoming contiguous and resulting in a sharp network of ridges on lateral and apical declivity. *Appendages*. Tarsi short, tapering with basal segments shortest and widest; meso- and metatibia (Fig. 3.3) each with one median external denticle; protibia (Fig. 3.1) with two denticles approximated in distal third of length; setation extremely short, limited to ventral ridges; tibial joints with golden tomentose spots; antenna as in female.

Ventral surface. Black, asetose except on prosternal spine, with golden-cream tomentose spots on

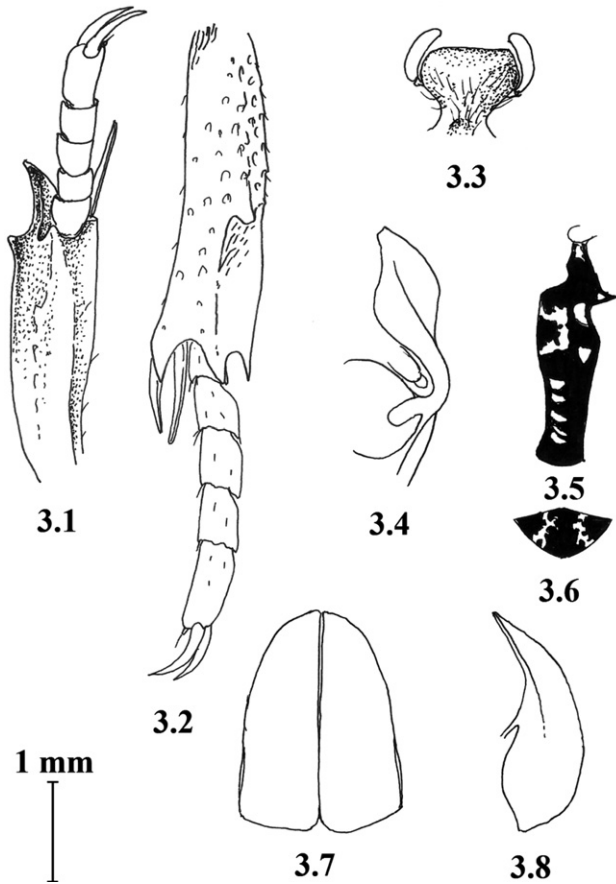


Fig. 3. *Spilophorus* (*Prospilophorus*) *grandis*. **3.1**, Ventral view of right protibia and tarsus; **3.2**, left lateral view of metatibia and tarsus; **3.3**, labium and palps; **3.4**, left lateral view of head; **3.5**, left lateral view of underside; **3.6**, pygidium; **3.7**, aedeagal parameres, dorsal view; **3.8**, aedeagal parameres, left lateral view.

proepisternum, mesepimeron, metasternum, metacoxa and all abdominal sternites, except last; all abdominal sternites except last deeply, roundly depressed medially.

Pygidium. With bilateral basal depressions and weak median protuberance; with irregular bilateral golden-cream tomentose marks (Fig. 3.6); with round umbilicate sculpture all over.

Aedeagus. As in Fig. 3.7–3.8.

Remarks. This species is hard to separate from *S. aurifer* Waterhouse when series of both are compared. Apart from an average size difference, all differences turn out to be in degree only, and variable. It is possible that it is a subspecies of *S. aurifer*, but with no males of the latter to compare genitalia, this opinion is best deferred. The sexual differences are limited to the depressed abdominal sternites in the male, as in other species of the

genus. The holotype female from South Africa is badly preserved (probably found dead), but is consistent with specimens from Tanzania. Variations in degree of ornamentation are not sex-linked, as totally black and well-ornamented specimens occur in both sexes. The type is reportedly from the Barberton area (where at least three other relictual cetoniine species occur), but in view of the series from Tanzania, which differs in no way from the specimen of the type locality, its origin is dubious. Apart from the exceptional size, rounded clypeal surface and approximated protibial denticles, *S. grandis* shows no deviation from the generic morphology. The Tanzanian series was collected in arboreal nests of *Crematogaster* ants.

Material examined. HT (see above); 1♂ (unlabelled, see above: ZMSC). TANZANIA: Morogoro, Kiroka

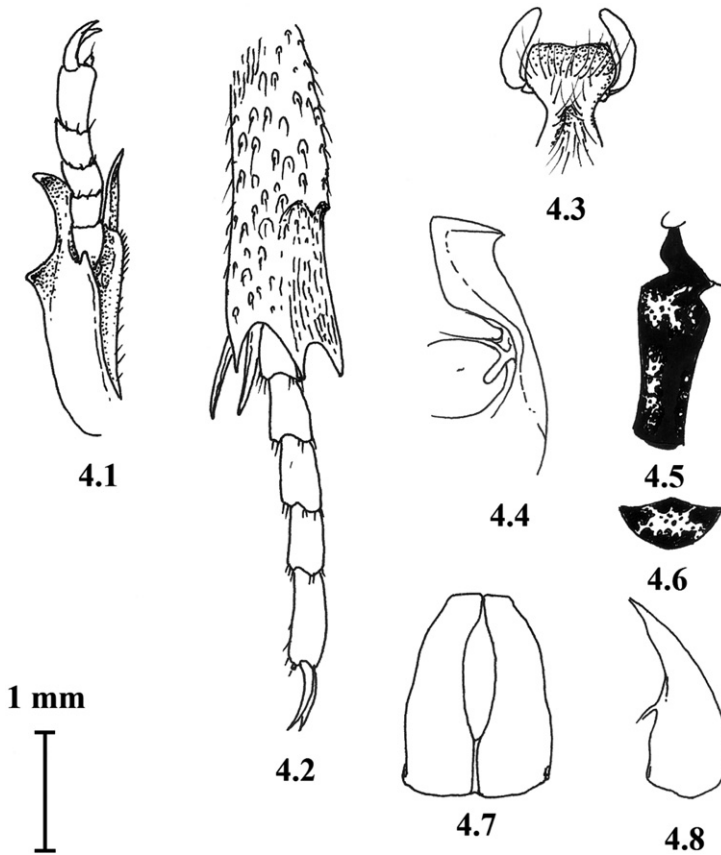


Fig. 4. *Spilophorus (Spilophorus) pringlei*. 4.1, Ventral view of right protibia and tarsus; 4.2, left lateral view of metatibia and tarsus; 4.3, labium and palps; 4.4, left lateral view of head; 4.5, left lateral view of underside; 4.6, pygidium; 4.7, aedeagal parameres, dorsal view; 4.8, aedeagal parameres, left lateral view.

Forest [S06°50' E37°39'], V/1971, L. Berger, N. Leleup, dans nid aerien de *Crematogaster* (MRAC); Uluguru Mts, Kiroka For. [S06°50' E37° 39'], 725 m., 21–31/V/1971, nido *Crematogaster*, L. Berger, N. Leleup, J. Debecker (MRAC).

***Spilophorus (Spilophorus) pringlei* sp. n.,**

Figs 4.1–4.8, 11.5, 12

Types. SOUTH AFRICA: (HT ♂), E. Cape, Addo Eleph. [NP] [S33°29' E25°45'], 19 Dec. [19]98, R. Perissinotto & L. Clennell (TMSA); (allotype ♀), Nr Adelaide, EC [S32°42' E26°18'], 9 Jan 2005, E.L. Pringle legit (AMGS); (PT ♂), Mount Frere [S30°53' E28°59'], 3 VII 1956, G du Toit, (SANC).

Description

Size. 11–11.9 × 6.5–6.7 mm ($n = 3$).

Dorsum. Black, asetose, with ochreous-cream spots and lines (Fig. 11.5).

Head. As in *S. lugubris*, but transverse clypeal ridge not reaching sides and not concave proximad of ridge (Fig. 4.4); sculpture reticulate.

Pronotum. Trapezoidal as in *S. plagosus*, but punctures larger over disk and denser on sides; sides with irregular ochre-cream tomentose spots, more concentrated near anterior corners. *Scutellum.* With a median elongated ochreous spot. *Elytra.* Shape as in *S. grandis*, but with longitudinal costa more evenly raised, straight; sculpture coarse horseshoe umbilici except on costae and humeral callus, on apical and lateral declivity contiguous resulting in reticulate appearance; whole elytral surface with transverse wavy lines of ochreous tomentum, becoming wider on apical and lateral declivities only. *Appendages.* As in *S. plagosus*, but with sculpture coarser and short orange setae all over; tarsi significantly longer than in other *Spilophorus* s. str.; metatarsus longer than tibia (Fig. 4.2).

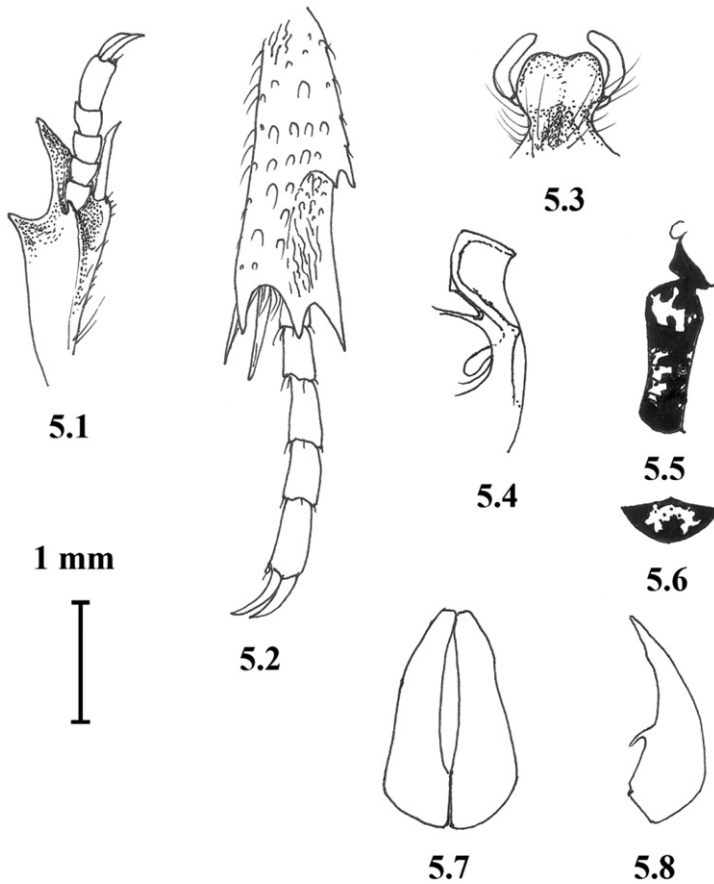


Fig. 5. *Spilophorus (Spilophorus) lugubris*. **5.1**, Ventral view of right protibia and tarsus; **5.2**, left lateral view of metatibia and tarsus; **5.3**, labium and palps; **5.4**, left lateral view of head; **5.5**, left lateral view of underside; **5.6**, pygidium; **5.7**, aedeagal parameres, dorsal view; **5.8**, aedeagal parameres, left lateral view.

Ventral surface. Black, with very fine and short orange setae; irregular ochreous tomentose spots on mesepimeron, metasternum, metepisternum and abdominal sternites 2–5, as well as small spots on posterodistal angles of sternites 2–5 (Fig. 4.5); punctures fine along middle, becoming large horseshoe-umbilici towards sides and semi-contiguous on very sides and metacoxa; prosternal sculpture as in *S. lugubris*; abdominal sternites 1–5 medially depressed in male, with fine sculpture and very fine white setae.

Pygidium. Strongly depressed in proximal corners, with sculpture coarsely umbilicate; with an irregular ochreous tomentose spot over whole surface (Fig. 4.6).

Aedeagus. As in Fig. 4.7–4.8.

Remarks. This distinct species probably represents a very localized relict (like *S. (P.) cervinus*) and

is easily recognized on size and ornamentation alone.

Etymology. This new species is named after Eastern Cape lepidopterist E.L. Pringle, who collected both holotype and allotype specimens.

Spilophorus (Spilophorus) lugubris

(Fabricius, 1775), Figs 5.1–5.8, 11.6, 12

Cetonia lugubris Fabricius, 1775: 819.

Coenochilus lugubris (Fabricius); Schaum 1841: 270.

Spilophorus lugubris (Fabricius); Westwood (in Schaum 1848): 61; Westwood 1874: 30; Distant 1897: 577; 1911: 279; Péringuey 1907: 505; Kolbe 1910: 360; Marais & Holm 1992: 73; Antoine 2006: 185.

Pseudospilophorus lugubris (Fabricius); Kraatz, 1899: 63; Schenklng 1921: 362.

Types. LT (♀): 'Cetonia lugubris F. / Banks coll. No 53' (BMNH).

Redescription

Size. 10.5–12.4 × 6.3–7.4 mm ($n = 5$).

Head. Anterior clypeal margin shallowly sinuate; with an entire premarginial transverse ridge, highest medially and receding bilaterally; clypeus concave and densely punctured proximad of ridge, finely punctured and shiny distad of ridge; frons densely punctured with bilateral triangular depressions between median bulge and oblique lateral and distal ridges; asetose, with a white tomentose spot proximad of vertex (Fig. 5.4).

Pronotum. Black, shiny, asetose and without white marks; sides evenly rounded, widest medially; sculpture of fine sparse punctures on disc, becoming larger on sides and denser but not confluent in anterolateral corners and sides of base. *Scutellum.* Shiny, unsculpted except on depressed basal and apical corners, which may each have about a dozen small punctures. *Elytra.* Black, asetose, depressed near scutellar base, inside humeri and along basal third of suture; one large, irregularly edged white spot occurs in the middle of length of elytron, extending about halfway to suture, and a very small white spot often on apical declivity below apical callus (Fig. 11.6); sculpture of fine sparse punctures in basomedian half of disk; elsewhere large sparse umbilici, denser on declivities but only contiguous in small area below apical callus. *Appendages.* Black, with white tomentose spots on femoral joints, with short orange setae all over, including pro- (Fig. 5.1) and mesofemora.

Ventral surface. Black, shiny with orange setae limited to prosternal spine, proepisternum and mesepimeron; punctures fine, sparse along middle, larger on abdominal sides, mesepimeron and metepisternum; proepisternum with fine longitudinal grooves and ridges; abdominal sternites with very fine punctures between large rounded punctures on sides; large white tomentose spots occur on sides of metasternum and visible abdominal sternites 2–5, with small white spots on posterodistal edges of sternites 1–4 (Fig. 5.5); male abdominal sternites not medially depressed, but slightly more concave than in female in lateral view.

Pygidium. Convex, with median longitudinal ridge in basal half, moderate umbilicate punctures denser around edge, glabrous, with a single irreg-

ular white tomentose spot (Fig. 5.6). *Aedeagus.* Parameres as in Fig. 5.7–5.8.

Remarks. Of the four species and two subspecies now recognized in the African *Spilophorus* s. str., *S. (S.) lugubris* is the most clearly separated. It is limited to the Eastern and Western Cape winter rainfall regions of South Africa.

Material examined. SOUTH AFRICA: Klipkraal, Tarkastad [S30°34' E25°48'], 1922, H.W. James (SAMC); Oudtshoorn [S33°35' E22°12'], (SAMC); Rondebosch [S33°58' E18°28'], XI/1889, Péringuey (TMSA); Willowmore [S29°50' E29°26'], (Constantly with larvae in nests of birds like finks [sic], hawks etc. while breeding), Dr. Brauns (SAMC); Willowmore [S33°17' E23°29'], 25/VI/1904, Dr Brauns (MNHN, SANC, TMSA)

Spilophorus (Spilophorus) plagosus plagosus

Westwood, 1847, Figs 6.1–6.8, 11.7, 12

Centrognathus lugubris Burmeister, 1847: 565.

Spilophorus plagosus Westwood (in Schaum), 1848: 61 (*nom. nov Spilophorus lugubris* (Burmeister) *nec S. lugubris* (Fabricius); Lacordaire 1856: 546; Boheman 1857: 49; Arrow 1910: 201; Antoine, 2006: 181.

Spilophorus plagosus Schaum; Blanchard, 1850: 43.

Spilophorus plagosus Boheman, 1857: HT: 'Caf-fraria, Wahlberg / *Spilophorus plagosus* Boh' (NHRS).

Spilophorus plagosus Boheman; Gemminger & Harold 1869: 1335; Schoch 1895: 132; Distant 1897: 577; 1911: 279 (= *lugubris*); Péringuey 1907: 505 (= *lugubris*); Kolbe 1913: 218; Marais & Holm 1992: 73.

Pseudospilophorus plagosus (Boheman); Kraatz 1899: 63; Schenckling 1921: 362.

Types. *Centrognathus lugubris* Burmeister, 1847 (not traced).

Redescription

Size. 10.2–13.4 × 4.8–7.4 mm ($n = 82$).

Because of the close similarity between taxa in the *lugubris* group, only features differing significantly from *S. (S.) lugubris* (see above) will be described below.

Head. Frontal depressions and punctures shallower than in *S. (S.) lugubris* (Fig. 6.4).

Pronotum. Sides parallel in basal half, not rounded; bilateral irregular white spots always on sides in anterior two thirds to three quarters of length. *Scutellum.* Similar to that of *S. (S.) lugubris*.

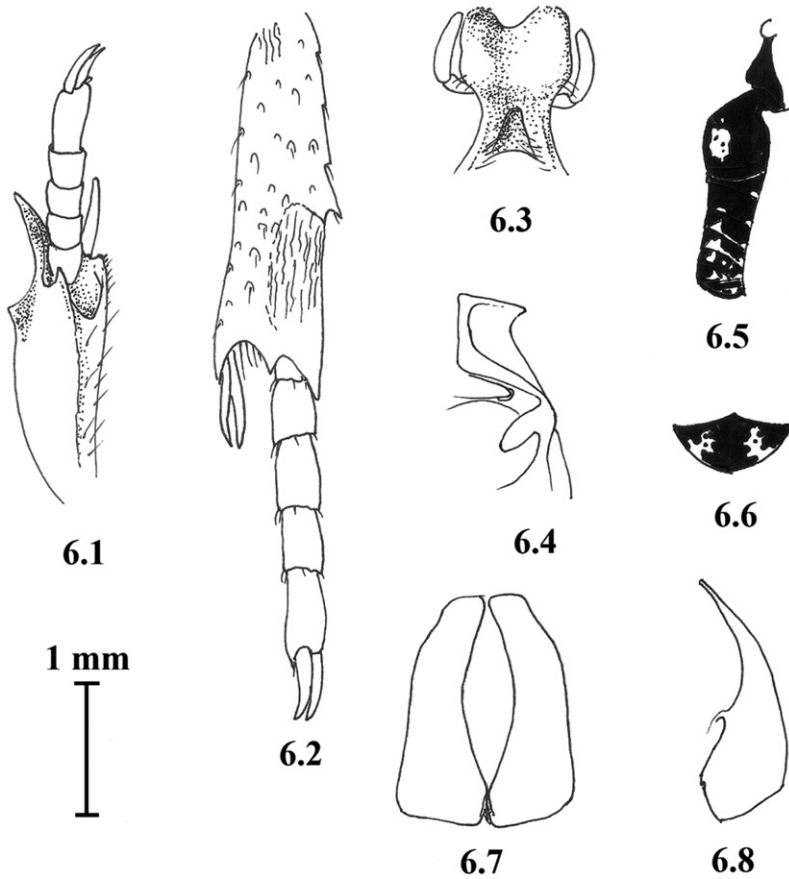


Fig. 6. *Spilophorus (Spilophorus) plagosus plagosus*. **6.1**, Ventral view of right protibia and tarsus; **6.2**, left lateral view of metatibia and tarsus; **6.3**, labium and palps; **6.4**, left lateral view of head; **6.5**, left lateral view of underside; **6.6**, pygidium; **6.7**, aedeagal parameres, dorsal view; **6.8**, aedeagal parameres, left lateral view.

Elytra. With large white maculae on apical declivity (Fig. 11.7), with large sculpture clearly crescent- or horseshoe-shaped rather than umbilicate. *Appendages*. Similar to those of *S. (S.) lugubris* (Figs 6.1–6.2).

Ventral surface. Large sculpture more clearly crescent-shaped; male abdominal sternites 2–4 clearly depressed medially; fine lateral punctures on abdominal sternites not distinct (Fig. 6.5).

Pygidium. With white tomentose spot always separated in the middle (Fig. 6.6). *Aedeagus*. Parameres as in Figs 6.7–6.8.

Remarks. This is by far the most common subspecies in the genus, occurring in all the savanna areas of southern Africa. Several instances of larvae and cocoons containing bird down were found in bird nests (Fig. 10; see 'Material examined'). The subspecies is remarkably stable all over its distribution range.

Material examined. BOTSWANA: Central Kalahari, SE2124Ca, I/1973, Barker (SANC); Francistown-Makarikari [S21°13' E27°31'] (TMSA); Langjan, S22°55' E23°16', 26/III/1988, M. Prinsloo (TMSA); Shorobe, S19°45' E23°41', IV/1994, M. le Roux (SANC). MOZAMBIQUE: Delagoa Bay [S26°00' E32°40'], Junod (AMGS); Delagoa Bay [S26°00' E32°40'], VI/1889, J. de Coster (SAMC); Lourenço Marques [S25°58' E32°35'], rev. Junod (TMSA); Namaacha [S26°00' E32°00'], 2/I/1950, J. Va Pente (BMSA); Zambezi [S18°50' E36°17'], 1879, Bradshaw (SAMC). NAMIBIA: Etosha, Kaross, S19°21' E14°31', II–III/1987 (pit traps) E. Griffin (SMWN); Kalkfontein, SWA [S28°01' E18°45'], IV/1923, J.S. Brown (SAMC); Kamanjab, SWA [S19°38' E14°50'], I/1926, Mus. exp. (SAMC); Neuhoof-Kowas, Damaral. [S24°29' E16°06'], V/1956 (TMSA); Otjiwarongo, SWA [S20°27' E16°39'],

- 1920, R. Tucker (SAMC). SOUTH AFRICA: Beacon bay, E. London [S33°00' E27°50'], 18/II/1984, N.J. Duke, (TMSA); Bedfordview [S24°10' E28°09'], XII/1954, A.L. Capener (SANC); Boksburg [S26°12' E28°14'] (SANC); Brits, S25°40' E27°45', 28/III/1992, R. Jeffrey (TMSA); Bushmans river mouth [S33°42' E26°40'], 1890, Mr. Wille [?] (AMGS); Crocodile r.–Marico r. junct. [S24°11' E26°52'], II/1918, R. Tucker (SAMC); Dikhololo, SE 2527 Dd, 12/XII/1986, J. v.d. Berg (TMSA); Driekoppies, S25°42' E31°35', 25/III/1997, I.M. Millar & R. Stals (SAMC); Durban [S29°55' E30°56'], 4/XI/1917, Marley (TMSA); Elandshoek [S25°30' E30°42'], Capener (TMSA); Eshowe [S28°58' E31°29'], XI/1904, Anderson (TMSA); Eshowe, Zululand [S28°53' E31°28'], A. Cowley (DMSA); Gingindlovu, S29°02' E31°38', XI/1974, P. Reavell (SANC); Griffin Mine [S23°59' E30°31'], I/1915, H.G. Breÿer (TMSA); Hilton, Grahamstown [S32°13' E18°02'], 6/XII/1978, F.W. Gess (AMGS); Johannesburg [S26°15' E28°00'], X/1905, G. Kobrow (TMSA); Johannesburg [S26°12' E28°05'], X/1905, *cocoon & larva in birds' nests*, G. Kobrow (SAMC); Johannesburg [S26°12' E28°05'], 1949, Mary Kraft (AMGS); Kasouga, EC [S33°39' E24°45'], 24/II/1996, R. Perissinotto & L. Clennell (PCR); Komatipoort [S25°25' E31°55'], 6/XII/1972, E. Holm (SANC); Kosi Bay [S26°59' E32°50'], II/1985, P. Reavell (SANC); Letaba [S23°51' E31°35'], 18/XI/1947 (TMSA); Leydsdorp [S23°59' E30°32'], 1906, Naughton (SAMC); Mafikeng [S25°52' E25°38'], 1895, Miss M. Francis (AMGS); Maltabos [S24°09' E30°13'], I/1973, R. Strydom (TMSA); Malvern [S29°53' E30°55'], 10/X/1913, ex C.N.B. can (DMSA); Malvern [S29°53', E30°55'], 10/X/1913 (TMSA); Manguzi Forest, S26°58' E32°44', 1/V/1985, P.E. Reavell, *forest margin* (SANC); M'fogosi, Zululand [S28°43' E30°48'], 1934, W.E. Jones (SAMC); Moketsi, [S23°36' E30°05'], 1/III/1992, Streeter (TMSA); Mtubatuba, SE 2832 Ac, XI/1980, R. Oberprieler (SMWN); Mtunzini, S28°59' E31°44', XI/1985, P. Atkinson, *at light* (SANC); Nelspruit [S25°30' E30°58'], 18/XI/1953, W. Bultiker, *feeding on Lec. Hesperidium* (SANC); Nigel [S26°30' E28°28'], II/1971, L.N. (TMSA); Onderstepoort [S25°26' E27°01'], 20/XII/1994, F.M. Neville, *inside abattoir* (SANC); Oribi Gorge, KZN [S30°40' E30°15'], 21/XI/1999, R. Perissinotto & L. Clennell (PCR); Pienaars r. [S25°12' E26°17'], XI/1900, v. Jutrzenka (TMSA); Pietersburg [S23°54' E29°27'] (SAMC); Pinetown [S29°49' E30°51'], 1894, Bell-Marley (SAMC); Pongola, S27°21' E31°37', XI/1997, P.E. Reavell (SANC); Port Natal [S29°51' E31°01'], Mus. Westermann (ZMUC); Potchefstroom [S26°46' E27°01'], 15/I/1910, L. Guinning (TMSA); Pretoria [S25°43' E28°11'], XI/1932, J.S. Taylor (on flowers) (AMGS); Pretoria [S25°45' E28°12'], XII/1942, H.K. Munro, *in birds' nests* (SANC); Quinera v., E. London [S33°00' E27°55'], 12/II/1984, N.J. Duke (TMSA); Rietfontein [S25°43' E28°13'], 12/V/1997, G. de Boer (SANC); Rustenburg [S25°37' E27°08'], III/1933, W. Impey (TMSA); Sandown Bay [S29°29' E17°05'], XII/1939, J.S. v.d. Merwe (SANC); Schurveberg [S25°45' E27°50'], 29/VII/1997, C. Deschodt (SANC); Shilouvane [S24°02' E30°16'], XI/1908, rev. Junod (TMSA); Smithfield, O.R.C. [S28°27' E23°54'], 1909, Kannemeyer (SAMC); So[r]dwana [S27°32' E22°41'], IV/1968, L.S. (TMSA); Springs [S26°15' E28°28'], 26/XII/1941, Col. Rox Bourgh (AMGS); Thabazimbi, S24°35' E27°25', XI/1987, E. Holm (TMSA); Tzaneen [S23°50' E30°10'], 21/I/1959, *found alive in nest of social spiders, Stegodyphus sp.*, J. Steyn (SAMC); Umzinto, S30°13' E30°39', IX/1994, P.E. Reavell (SANC); Vryburg distr. [S26°57' E24°22'], 1907, J.M. Bain (SAMC); Warmbad, S24°55' E28°15', X/1996, T. Beyers (SANC); Warmbaths [S27°32' E30°52'], I/1909, G. Kobrow (BMSA); Waterberg [S24°00' E28°00'], 1888–99, v. Jutrzenka (TMSA); White River [S24°30' E31°00'], XII/1995, W.W.G. Büttiker, *AcP 5063* (SANC); Windsorton [S28°16' E24°44'], 20/XII/1992, Dr. Brauns (TMSA); Zoutpansberg [S22°53' E29°56'], Forster (SAMC). ZIMBABWE: Bulawayo [S20°10' E28°35'], 1/XII/1923, R. Stevenson (SAMC); Christon Bank [S17°36' E31°00'], IV/1965, A.J. Duke (TMSA); Hillside [S20°12' E28°36'], 4/II/1923, Swinburne (TMSA); Salisbury, S. Rhodesia [S17°50' E31°02'], I/1915, D. Dodds (SAMC); Victoria Falls, rive gauche du Zambeze [S17°55' E25°51'], VII/1960, L. Leleup (MRAC). Sikororo [not traced], VII/1992, G.P.F. v. Dan (TMSA).

***Spilophorus (Spilophorus) plagosus vrystaati* subsp. n.**, Figs 7.1–7.8, 11.8, 12

Types. SOUTH AFRICA: (HT ♂), Reddersburg [S29°38' E26°07'], Dr. Brauns (TMSA); (28 PTS): Bloemfontein, SE 2926 Aa, III–IV/1975, Mus. Staff (BMSA); Bloemfontein, Middelpunt 100, SE 2826 Cd, XI/1982, Mus. Staff (BMSA); Boshof, SE 2825 Ca, 30/XI/1977, E. Holm (TMSA); Glen res. Farm, Brandfort, SE 2826 Cd, 24.III/1975, Ferreira & v. Ec (BMSA); Hopefield, S28°54' E26°14', 29/I/2001, C. Haddad (BMSA); Kimberley [S28°45' E24°46'],

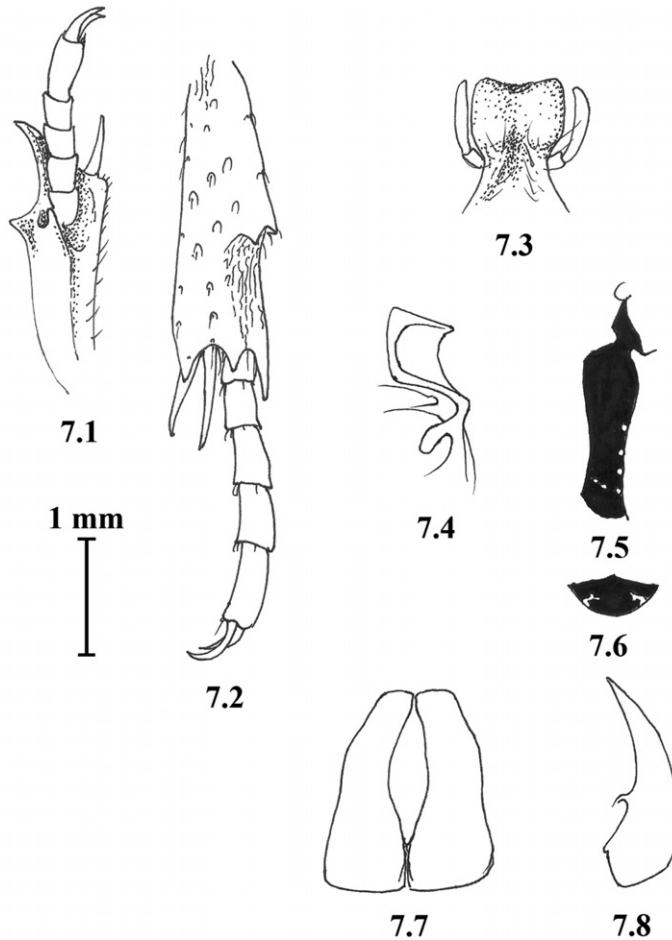


Fig. 7. *Spilophorus (Spilophorus) plagosus vrystaati*. **7.1**, Ventral view of right protibia and tarsus; **7.2**, left lateral view of metatibia and tarsus; **7.3**, labium and palps; **7.4**, left lateral view of head; **7.5**, left lateral view of underside; **7.6**, pygidium; **7.7**, aedeagal parameres, dorsal view; **7.8**, aedeagal parameres, left lateral view.

XI/1913, Bro. Power (SAMC); Modderfontein [S26°06' E28°09'], Mr. Haagner (AMGS); 'Natal' [?] Windham, (SANC); Parys, Orange F. State [S24°51' E28°51'], Allison (?) (SAMC); Petrusburg, OFS [S29°07' E25°25'], II/1914, Miss. Secoufel (?) (SAMC); Philipolis, SE 3024 B6, 17–21/IX/1976, A. Strydom (TMSA); Philipolis, Lemoenboord 320 [RSA], SE 3024 Bb, 17–21/IX/1976, A. Strydom (BMSA); Pokwani [S27°46' E24°48'], 1907, H. Bazeley (SAMC); Prieska [S29°40' E22°45'], Gould (SAMC); Rouxville [S30°29' E26°46'], 10/IV/1916, *breeding in debris in nest of cape sparrow* (SANC); Smithfield [S30°09' E26°30'], VI/1918, W.J. Bezuidenhout, *Acp2311* (TMSA); Smithfield, D.R.C. [S30°13' E26°32'], Kannemeyer (SAMC); Theunissen [S28°24' E26°43'], VII/1948 (SANC); Vryburg

dist. [S26°57' E24°44'], 1907, J.M. Bain (SAMC); Witsand [S28°32' E22°29'], 23/II/2002, V. Jessnitz, (PCR).

Description

Size. 11.8–13.8 × 6.3–7.9 mm ($n = 29$).

Head. As in *S. plagosus s. str.* (Fig. 7.4).

Pronotum. Shape as in *S. plagosus s. str.*; white tomentose maculae absent (Fig. 11.8); sculpture as in *S. lugubris*. *Scutellum.* As in *S. lugubris*. *Elytra.* Sculpture as in *S. plagosus s. str.*; white tomentose maculae as in *S. lugubris* (Fig. 11.8). *Ventral side.* As in *S. plagosus s. str.*, but with white tomentose maculae reduced as follows (Fig. 7.5): metathorax unmarked; small posterodistal spots on abdominal sternites always present, but other maculae on sternites reduced to small spots on sternites 3–5, or

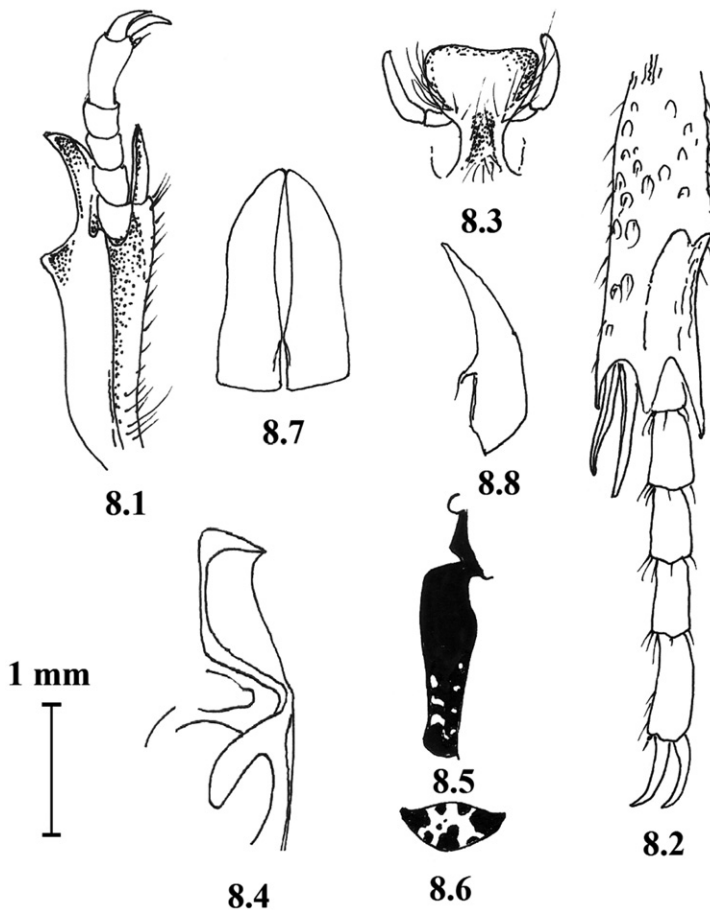


Fig. 8. *Spilophorus (Spilophorus) kolbei digennaroi*. **8.1**, Ventral view of right protibia and tarsus; **8.2**, left lateral view of metatibia and tarsus; **8.3**, labium and palps; **8.4**, left lateral view of head; **8.5**, left lateral view of underside; **8.6**, pygidium; **8.7**, aedeagal parameres, dorsal view; **8.8**, aedeagal parameres, left lateral view.

one small spot on sternite 5 (usual), or completely absent. *Appendages*. As in *S. plagosus s. str.* (Fig. 7.1–7.2).

Pygidium. As in *S. plagosus s. str.* but bilateral maculae reduced to very small premarginal spots (Fig. 7.6). *Aedeagus*. Parameres as illustrated in Fig. 7.7–7.8.

Remarks. This new subspecies is mentioned by Antoine (2006) as part of the variation of *S. plagosus*. With adequate material it is now evident that it occupies a discreet geographical area, parapatric with the typical form, and thus complies with the classical definition of a subspecies. In spite of the similar dorsal coloration to *S. lugubris*, it does not form a transition to that species: the sculpture, aedeagus, pygidium and pronotal shape all place it conclusively with *S. plagosus*. In some of the

northernmost localities, series include specimens with reduced pygidial and ventral maculation, but with lateral spots on pronotum (e.g. Prieska, Theunissen, Potchefstroom, Brandfort). These were not designated types, since they may represent intermediates to the nominal subspecies.

Etymology. Named after the Orange Free State ('Oranje Vrystaat', currently the Free State Province), where this subspecies is one of few sub-endemics.

Spilophorus (Spilophorus) kolbei kolbei

Antoine, 2006

Spilophorus kolbei Antoine, 2006: 188

Types. TANZANIA: (HT ♂) Ile Ukerewe [S01°51' E33°54'], Neuwied, juillet, A. Conrads leg. (ZMHB); ditto (1♀ allotype, 4♀ PTS, 1♂ PT) (ZMHB);

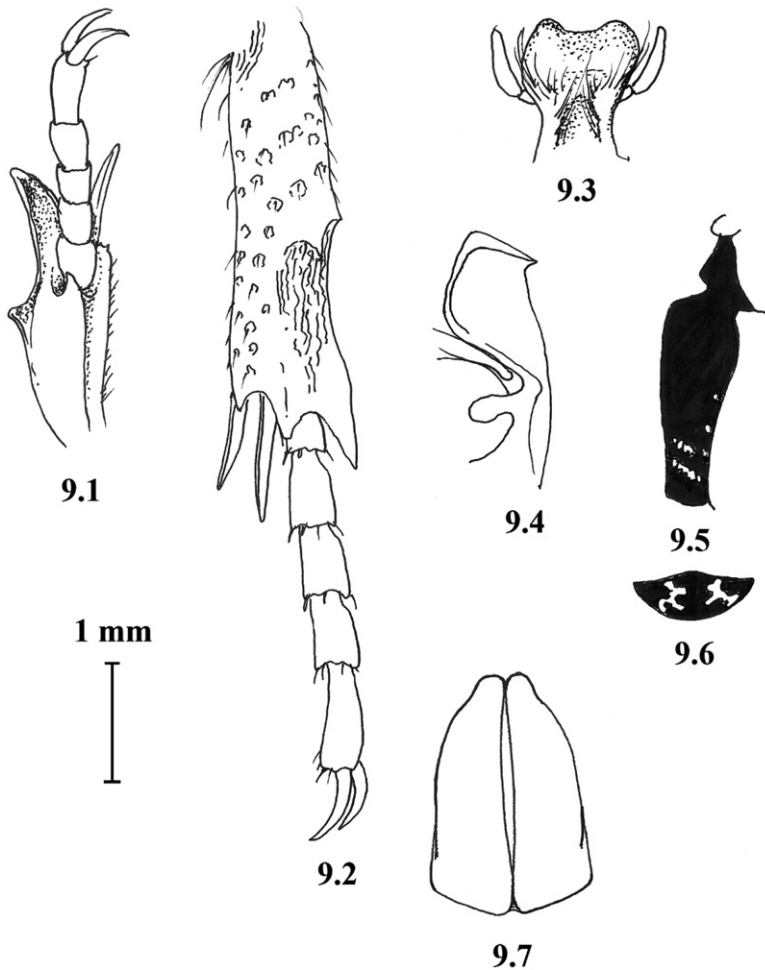


Fig. 9. *Spilophorus (Spilophorus) fernandezii*. **9.1**, Ventral view of right protibia and tarsus; **9.2**, left lateral view of metatibia and tarsus; **9.3**, labium and palps; **9.4**, left lateral view of head; **9.5**, left lateral view of underside; **9.6**, pygidium; **9.7**, aedeagal parameres, dorsal view; **9.8**, aedeagal parameres, left lateral view.

Ukerewe, 1905 (1♂), coll. Burgeon (MRAC). KENYA: Bungoma [N00°32' E34°35'], XI/2001 (1♂); IX/2002 (1♂); I/2003 (1♀); Endebess [N01°42' E34°50'], II/2003 (1♂) *all* B. Le Rü leg. (PBLR; PCPA).

Diagnosis

Size. 9.6–11.7 × 5.8–7.0 mm ($n = 12$).

Remarks. The species has been adequately and very recently described by Antoine (2006: 188), the differences from *S. plagosus* amounting mainly to ornamentation of pygidium and slight differences in the aedeagus. To this, it could be added that *S. kolbei* exhibits longer tarsi and less sinuate anterior labial edge than *S. plagosus* (compare for instance Figs 6–7 with Fig. 8).

The northern *Spilophorus s. str.* species are difficult to interpret, since records are extremely patchy. While the geographical separation between *S. plagosus* and *S. kolbei* seems to be located around the southern Rift Valley, this division is often merely a subspecific one in cetoniines. With no intermediates known, however, it is reasonable to regard *S. kolbei* as a separate species, provisionally.

Spilophorus (Spilophorus) kolbei digennaroi

Antoine, 2006, Figs 8.1–8.8; 11.9

Spilophorus kolbei digennaroi Antoine, 2006: 190.

Types. ETHIOPIA: (HT ♂), Konso, Gamo Goffa [N05°15' E37°31'], IV/2004, C. Di Gennaro leg. (MNHN); *ditto* (1♀, allotype) (MNHN); *ditto*,



Fig. 10. Dissected cocoon of *Spilophorus plagosus* s. str. retrieved from a bird's nest.

IV/2004 (3♂; 28♀); ditto, IV/2003 (1♂); ditto, IV/2004 (3♂; 7♀) all: C. Di Gennaro leg. (PCDG; PCJL; PCPA); ditto IV/2003 (3♂); ditto, V/2003 (1♂); ditto, VII/2003 (1♂) all: C. Di Gennaro leg. (PCDC); Debre Zeit, Shoa [N08°43' E38°58'], C. Di Gennaro leg. (2♂; 1♀) (PCDG, PCPA). SOMALIA: Afgoi [N02°09' E45°07'], VII/1977, Olmi leg. (1♂) (MRAC); Mahadday Weyne [Not traced], 9/III/1990, (1♂) (PCCJ).

Diagnosis

Size. 10.7–12.3 × 6.2 × 7.5 mm ($n = 86$).

Remarks. This subspecies has been adequately described by Antoine (2006: 190), the differences from *S. kolbei* s. str. amounting to ornamentation only.

It is interesting to note that the subspecies of *S. kolbei* form a virtual mirror image of those of *S. plagosus*, with extreme northern and southern species (*S. fernandezi* and *S. lugubris*) repeating the pattern. It is likely that this pattern represents two subsequent vicariant evolutionary events along the arid savanna corridor of Africa. Antoine (2006) mentions transitional populations between *S. kolbei* s. str. and *S. kolbei digennaroii* from the following localities. KENYA: Buchuma [S00°26' E37°11'], XII/2001, Le Rü, (PCLR); Emali Range [S02°05' E37°28'], IV/1940, v. Someren (BMNH); Kajiado

[S01°51' E36°50'], 31/VII/1957, P. Basilewsky & N. Leleup (MRAC); Kibwezi [S02°23' E37°57'], II/2004, Le Rü (PCLR); Magadi [S 01°52' E36°15'], VII/1941, v. Someren (BMNH); Naivasha [S00°43' E36°26'], IV/2002, Le Rü (PCLR); Ngong [S01°22' E36°39'], II–III/1941, v. Someren (BMNH).

Material examined. ETHIOPIA: Konso [N05°15' E37°31'], 4/V/2003, Cyril Di Gennaro (PCRP). KENYA: Namanga [S02°33' E36°47'], IX/1981, P.P. de Moor (TMSA).

Spilophorus (Spilophorus) fernandezi

Antoine, Figs 9.1–9.7, 11.10

Spilophorus fernandezi Antoine, 2006: 192.

Types. BURKINA FASO: (HT), Pabré [N12°30' W01°35'], 26/XI/1977, R.P. Fernandez (MNHN); 32 PTS (in various private collections specified by Antoine, 2006): Pabré [N12°30' W01°35'], VI/1976 and 26/XI/1977; Ouagadougou [N12°22' W01°31'], 1978, V/1980, VII/1981, XII/1982, VII/1989 and XII/1989, C. Joly.

Diagnosis

Size. 9.2–12.0 × 5.5–7.3 mm ($n = 34$).

Remarks. The species has been adequately described by Antoine (2006: 192). He separated it from *S. plagosus* on grounds of distribution, reduction of elytral spots and different aedeagal parameres. The specimen we have seen from

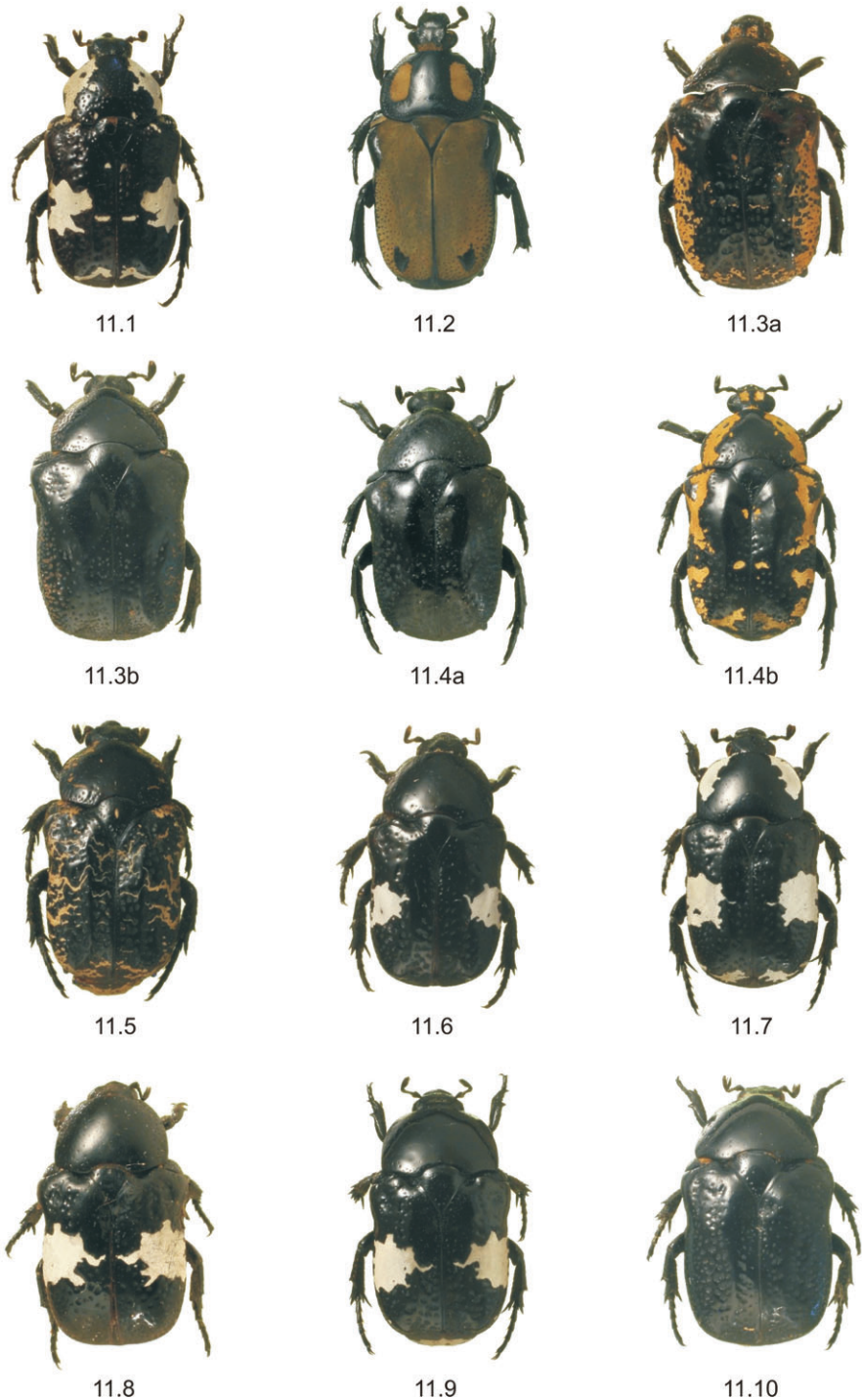


Fig. 11. *Spilophorus* spp., dorsal views. **11.1**, *S. (S.) maculatus*; **11.2**, *S. (P.) cervinus*; **11.3**, *S. (P.) aurifer* (a: type; b: nigrito form); **11.4**, *S. (P.) grandis* (a: typical nigrito form; b: ornamented form); **11.5**, *S. (S.) pringlei*; **11.6**, *S. (S.) lugubris*; **11.7**, *S. (S.) plagosus plagosus*; **11.8**, *S. (S.) plagosus vrystaati*; **11.9**, *S. (S.) kolbei digennaroi*; **11.10**, *S. (S.) fernandezi*.

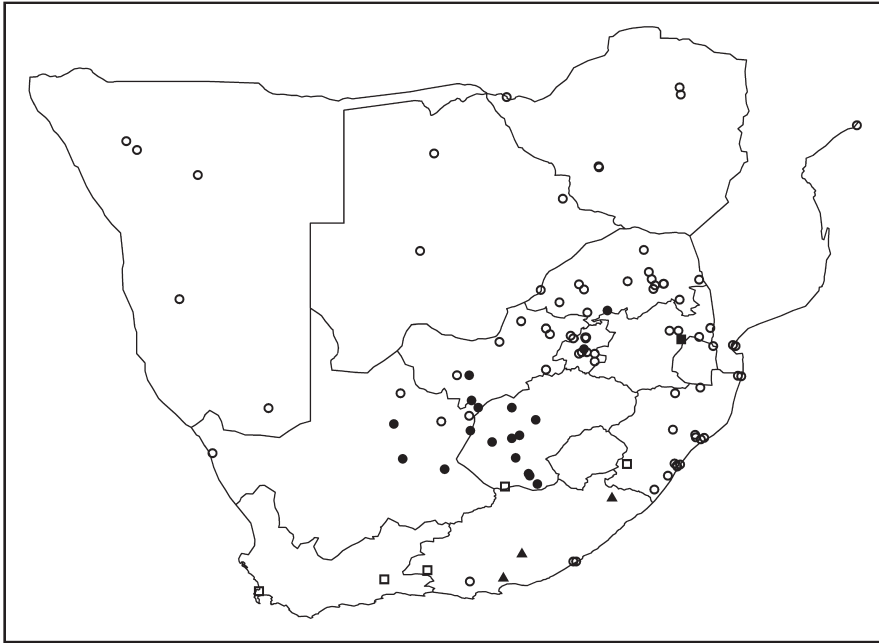


Fig. 12. Known distribution of *Spilophorus* species and subspecies in southern Africa. *S. (P.) grandis* (■); *S. (S.) pringlei* (▲); *S. (S.) lugubris* (□); *S. (S.) plagosus plagosus* (○); *S. (S.) plagosus vrystaati* (●). (Courtesy: J. du G. Harrison).

Chad is completely black dorsally. Otherwise it agrees surprisingly with *S. plagosus vrystaati*, even the labium and slightly squared-off aedeagal apex are closer to that subspecies than to *S. kolbei* (compare Figs 7 and 9).

Material examined. CHAD: Fort Lamy [N12°07' E15°03'], XI–XII/1957, P. Renaud, (1♀) (MRAC).

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