

The southern African species of *Pharoscymnus* Bedel and *Pharopsis* Casey (Coleoptera: Coccinellidae)

by

HELMUT FÜRSCH

Universität Passau, Postfach 2540, D–8390 Passau West-Germany

A synopsis of the southern African species of *Pharoscymnus* Bedel and *Pharopsis* Casey is given and the male genitalia are figured. *Pharoscymnus kuissebensis*, *Pharoscymnus uncosiphonatus* and *Pharopsis tonderae* are described as new, and *Pharoscymnus semiglobosus* Karsch is found to be synonymous with *Platynaspis capicola* Crotch.

Both *Pharoscymnus* Bedel and *Pharopsis* Casey belong to the tribe Sticholotidini (Pharini), the genera of which were excellently reviewed by Pope (1961). Mader (1954) provided a tabular synopsis of the species of *Pharoscymnus* and *Pharopsis*, and Smirnof (1956) revised *Pharoscymnus* on a world basis. The latter author also recognized the importance and reliability of the tip of the siphon (internal sac) in the male genitalia for identification purposes, adding useful illustrations of these structures to his otherwise brief species descriptions. I have found that the whole male genitalia as well as the female abdominal plates are useful for species distinction.

The tip of the siphon has to be enlarged about 400 × to depict its characteristics, and the genitalia must be mounted on microscope slides for this purpose. Smirnof (1956) recommends Canada balsam as a mounting medium, but I have achieved better results with the following method. The specimen is softened in hot distilled water, the genitalia are dissected out and, if necessary, briefly boiled in 10% KOH, then washed in distilled water and transferred to isopropyl alcohol for a short time. After that they can be embedded in Euparal (Carl Roth, Karlsruhe). This method offers the advantage of yielding better contrasts with weakly sclerotized genitalia. Old slide preparations seldom show enough detail, especially when they have been treated with KOH.

Unfortunately the genitalia preparations are often separated from their corresponding specimens (particularly in the case of Smirnof) and I therefore recommend that these preparations be attached to the pins of their specimens, especially in the case of types. For this purpose the genitalia may be glued onto ordinary card platforms with polyvinyl lactophenol or, even better, with Hoyer's mixture. These media are completely water soluble, and the genitalia can be easily transferred from them into alcohol or Euparal.

The species dealt with in this paper occur in Africa, south of the Kunene and Zambesi rivers. The sexes can only be distinguished by dissection. Therefore descriptions apply to both sexes.

Key to the southern African species of *Pharoscymnus* Bedel and *Pharopsis* Casey

- 1 Pronotum and elytra densely pubescent **Pharoscymnus** 2
 Pronotum with short hairs, elytra with only few setae laterally **Pharopsis** 7
 2 Elytra each with a single red, drop-shaped lateral marking starting behind elytral shoulders and broadening posteriorly, without reaching the lateral or the inner margins of the elytra; aedeagus as in Fig. 12 **kuisebensis** sp. nov.
 Elytra each with two or three orange spots on a black background 3
 Elytra with two spots each 4
 Elytra with two spots each 5
 4. Body longer than 2,2 mm; aedeagus as in Fig. 4 **sexguttatus** (Gyllenhal)
 Body shorter than 2,0 mm; aedeagus as in Fig. 25 **uncosiphonatus** sp. nov.
 5 Body elongate; aedeagus as in Fig. 15 **inaequalis** (Casey)
 Body round 6
 6 Body distinctly hairy; pronotal punctation fine; aedeagus as in Fig. 7 **exiguus** Weise
 Body setation sparse; pronotal punctation coarse and distinct; aedeagus as in Fig. 18
 **tomeensis** Fürsch
 7 Body shorter than 1,5 mm; elytral punctation distinct; aedeagus as in Fig. 31
 **subglaber** Casey
 Body longer than 1,6 mm; elytral punctation indistinct; aedeagus as in Fig. 38
 **tonderae** sp. nov.

PHAROSCYMNUS Bedel

Pharoscymnus Bedel, 1906: Bulletin de la Société entomologique de France: 306

All representatives of this genus are distinctly covered with setae on the head, pronotum and elytra. The antennae comprise ten segments, including a three-segmented club, and the abdomen has five visible sternites (Figs 1–3).

Type-species: *Pharoscymnus sexguttatus* (Gyllenhal, 1808).

Pharoscymnus sexguttatus (Gyllenhal), Figs 1–6.

Coccinella sex-guttata Gyllenhal, 1808. In: Schönherr, C. J. *Synonymia Insectorum* 1(2): 206, footnote

Holotype in Naturhistoriska Riksmuseet, Stockholm, Sweden. (Seen, but not dissected) (Type locality: Caput Bona Spei).

Smirnof (1956: 29) lists the Paris Museum as type depository of this species. This is incorrect. Furthermore Smirnof's figure in Plate D does not coincide with my examinations. *P. sexguttatus* is known from southern Africa, Ghana (as predator of *Aonidia mytilus*) (det. Fürsch 1984) and Senegal (old statements only).

Length: 2,2–2,6 mm. Width: 1,9–2,1 mm.

Colour: black, elytra each with three orange spots. The anterior and posterior ones situated in a row in the middle of the elytra, the median one closer to the inner margin. Body round. Punctuation on pronotum stronger than on elytron; on pronotum interspaces smaller than pit diameter, on elytron larger than pit diameter. Setation white; setae semi-erect, sparse. Aedeagus as in Fig. 4.

MATERIAL EXAMINED. SOUTH AFRICA: Cape Province: Cape Town: Bot-river Vlei, 5 miles ENE Kleinmond, 20.xii.1950, leg. P. Brinck; material examined by

Pope, see Pope (1957): 320; Citrusdal, 13.iii.1972, leg. F. Honiball; SOUTH WEST AFRICA: Kuiseb River.

Pharoscymnus exiguus Weise, Figs 7–11

Pharoscymnus exiguus Weise, 1913. Bolletino del Laboratorio di Zoologia Generale Agraria, Portici 7: 224.

Types: Istituto di Entomologia Agraria Portici (Napoli), Italia (not seen).

Type locality: Angola: S. Paulo de Loanda.

Length: 1,7–2,0 mm. Width: 1,4–1,7 mm.

Colour: black, elytra each with two red or yellow spots in a longitudinal row.

Body round. Punctuation fine. Setation white; setae short, thin and erect. Aedeagus as in Fig. 7.

MATERIAL EXAMINED. SOUTH AFRICA: Transvaal: Pretoria Morgenzon, Tshipise (preying on citrus red scale *Aonidiella aurantii* (Maskell), also found on *Mangifera indica* (Anacardiaceae)), Bronkhorstspuit District; Orange Free State: Reitz. The species is widely distributed as it was collected in West Africa (Senegal), Sierra Leone, Angola and the Cape of Good Hope.

Pharoscymnus tomeensis Fürsch, Figs 18–19

Pharoscymnus tomeensis Fürsch, 1974. *Mitteilungen der Münchner Entomologischen Gesellschaft* (c.V) 64: 19, Abb. 2a, 2b.

Holotype and paratypes in Collection Fürsch, Ruderting, West Germany (Type locality: São Tomé).

Length: 1,8–2 mm. Width: 1,4–1,6 mm.

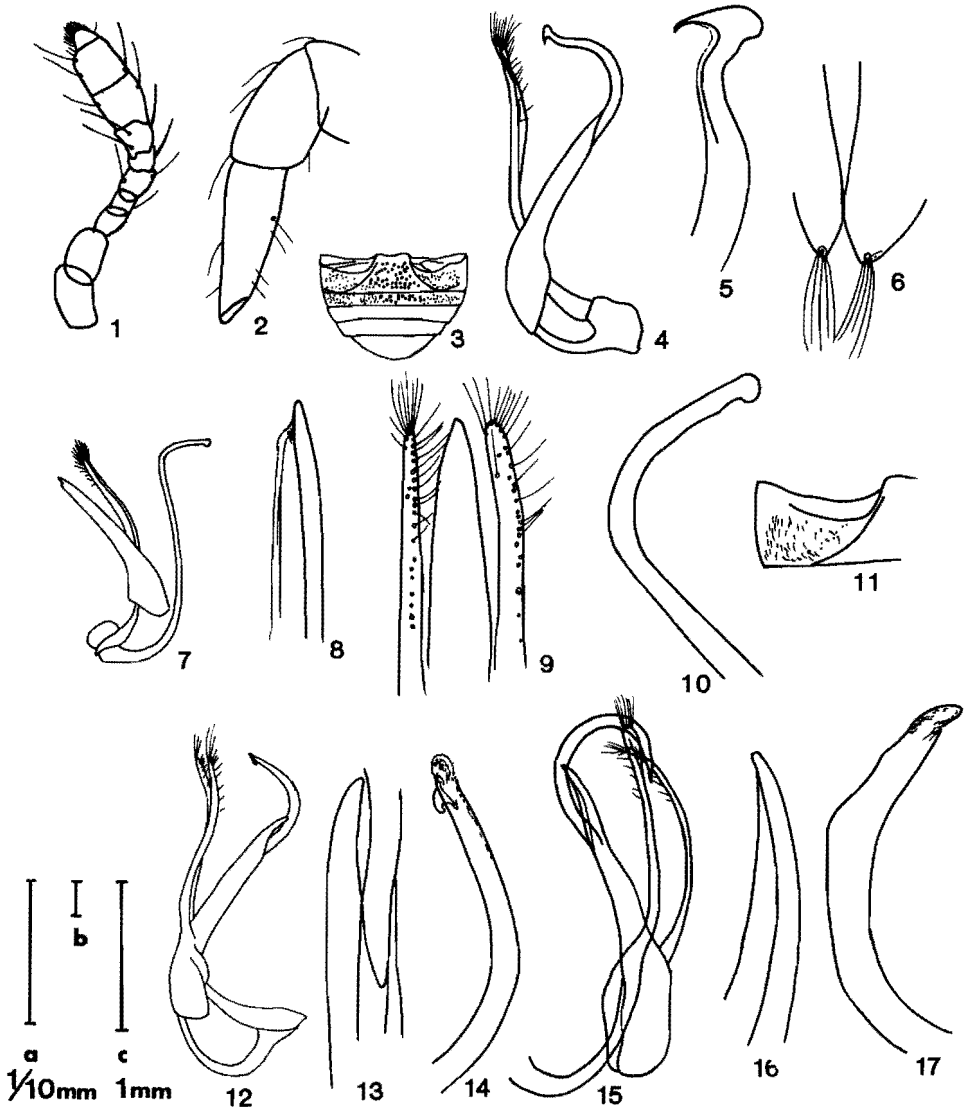
Colour: black, elytra each with two reddish-yellow spots in a longitudinal row. Body almost round. Punctuation distinct. Setation white; setae very short, sparser than in the most similar species (*P. exiguus*). Aedeagus as in Fig. 18.

MATERIAL EXAMINED. Holotype, paratypes: SOUTH AFRICA: Transvaal: Malelane. The species is also known from São Tomé (type locality) and the Cape Verde Islands. It is a predator of *Aulacaspis pentagona* Targioni.

Pharoscymnus kuisebensis sp. nov., Figs 12–14

Length: 2,2–2,3 mm. Width: 1,6–1,7 mm.

Colour: black, elytra each with a red streak starting narrowly behind shoulder, running parallel with lateral margin of elytron and broadening posteriorly into a drop-shaped marking, without reaching either lateral or inner margins of elytron. Body oval; pronotum nearly parallel-sided, anterior margin slightly sinuate, posterior margin extending backwards towards scutellum; scutellum very small; elytron oval, broadest just behind middle, elytral shoulder flat. Punctuation very distinct; on pronotum pits very dense, particularly towards the margins, so that interspaces smaller than pit diameter, surface finely reticulate; elytral punctuation similar to that of pronotum. Setation white, but delicate and unobtrusive; setae equally dense on pronotum and elytra, directed forwards on pronotum, but nearly upright and directed backwards on elytron.



Figs 1-17. *Phiaroscymnus* spp. (a) = scale line a (=1 mm): drawn with magnification 400 ×. (b) = scale line b (= 1 mm): drawn with magnification 100 ×. (c) = scale line c (= 1 mm): drawn with magnification 40 ×. 1-6. *P. sexguttatus*: 1. antenna, (a); 2. maxillary palp, (a); 3. abdominal sternites, (b); 4. aedeagus, (b); 5. tip of siphon, (a); 6. ♀ genital plates, (b). 7-11. *P. exiguus*: 7. aedeagus, (b); 8. tip of median lobe, lateral view, (a); 9. tip of median lobe, ventral view, (a); 10. tip of siphon, (a); 11. femoral line, (c). 12-14. *P. kuisebensis*: 12. aedeagus, (b); 13. tip of median lobe with siphon everted, (a); 14. tip of siphon, (a). 15-17. *P. inaequalis*: 15. aedeagus, (b); 16. tip of median lobe, (a); 17. tip of siphon, (a).

Tarsal claws with distinct tooth; apical segment of maxillary palpi narrower than preceding one, slightly conical but cut off at tip (as shown in Fig. 2). Aedeagus strikingly similar to that of *P. sexguttatus* (Fig. 12).

P. kuisebensis can be readily distinguished from *P. sexguttatus* by its more oval to elongate body form, its evenly distributed punctation and its delicate, fine setation. In *P. sexguttatus* the body is rounded, the punctation distinctly stronger on the pronotum than on the elytra and the setation coarser and more distinct.

The species is named after its type-locality, the Kuiseb river in the Namib desert.

MATERIAL EXAMINED. Holotype ♂, female paratype ♀, 2 paratypes with the following data: SOUTH WEST AFRICA, Kuiseb River Delta near Rooibank, 23.12 S 14.39 E, 18.iii.1983, Nat. Coll. Kuiseb. Survey; collected from *Stipagrostis sabulicola* (Poaceae). Holotype and female paratype in the National Collection of Insects, Plant Protection Research Institute, Pretoria; 1 paratype ♀ in Collection Fürsch, Ruderting, West-Germany; 1 paratype to be deposited in the State Museum Windhoek, SWA/Namibia.

Pharoscymnus inaequalis (Casey), Figs 15–17

Pharus inaequalis Casey, 1899. *Journal New York Entomological Society* 7: 166.

Type in United States National Museum of Natural History, Washington, D.C. (type-locality: Cape Town, South Africa).

Length: 1.5–2.1 mm. Width: 1.2–1.65 mm. Colour: black, elytra each with two orange spots in a longitudinal row. Body elongate. Aedeagus as in Fig. 15.

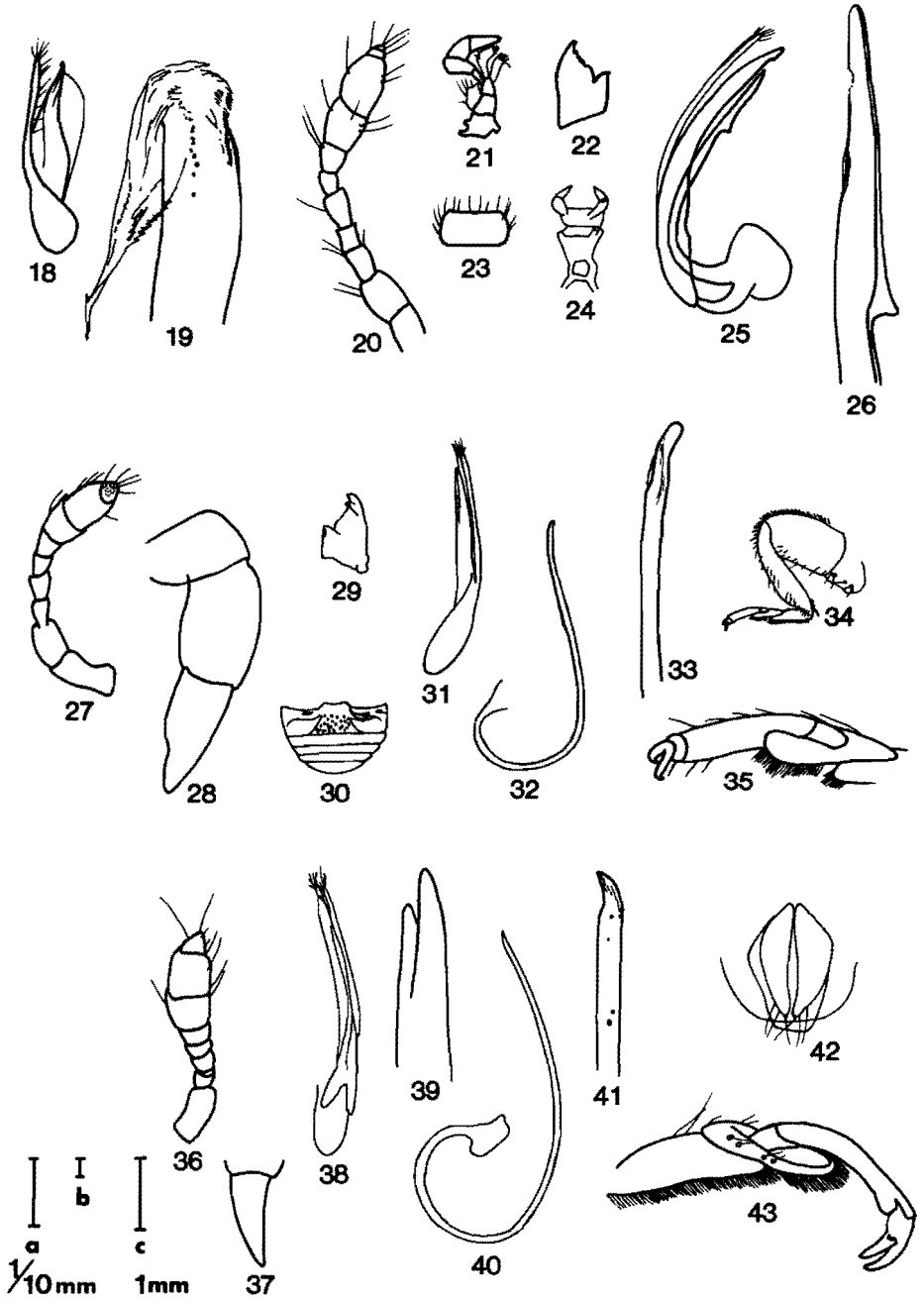
This species is very similar to *P. exiguus*, but more elongate with sparser setation.

MATERIAL EXAMINED. Holotype, SOUTH AFRICA Transvaal: Tshipise; Cape Province: Matjiesfontein. The species extends from South Africa (Cape Province) into Zaire, Central Africa.

Pharoscymnus uncosiphonatus sp. nov., Figs 20–26

Length: 1.6–1.9 mm. Width: 1.45–1.70 mm. Colour: black, elytra each with three yellowish-red spots arranged as in *P. sexguttatus*: anterior spot situated just behind shoulder entirely in first third of elytron and in the middle of elytral width, median spot with front margin on the middle of elytral length and separated from inner elytral margin (suture) by its own diameter, posterior spot entirely in last third of elytron in similar position as anterior spot. Body rounded, convex but a little broader than in *P. sexguttatus*; humeral callus flat; abdominal plate closely grained, abdominal line curving towards posterior margin of first sternite. Punctation on pronotum weaker than on elytron and pits hardly visible (cf. *P. sexguttatus*); elytron less distinctly sculptured than in *P. sexguttatus*. Setation white; setae curved backwards at an angle of 45°, thinner but otherwise similar to those of *P. sexguttatus*. Aedeagus as in Fig. 25.

P. uncosiphonatus is very similar to *P. sexguttatus*, but can be easily distinguished from all other African species by its small size and three elytral spots. The species' name is derived from the Latin *uncus* (= hook) and *sipho* (part of the male genitalia).



MATERIAL EXAMINED. Holotype ♂, 3 paratypes with the following data: SOUTH AFRICA, Messina, N-Transvaal WO, AcH 1029, 4.x.1983. Holotype and 2 paratypes in the National Collection of Insects, Plant Protection Research Institute, Pretoria; 1 paratype in Collection Fürsch, Ruderting, West Germany.

The following three species were formerly included in *Pharoscymnus*, but have been removed from this genus.

Platynaspis capicola Crotch (Platynaspini)

Platynaspis capicola Crotch, 1874. *A Revision of The Coleopterous Family Coccinellidae*: 197.

Pharoscymnus semiglobosus Karsch, 1882. *Berliner Entomologische Zeitschrift* 24: 401. **syn. nov.**

Lectotype and paralectotypes of *P. semiglobosus* are in Zoologisches Museum an der Humboldt-Universität zu Berlin (DDR) and were examined by the author in 1965.

Rhyzobius pictus (Sicard) (Coccidulini)

Pharoscymnus pictus Sicard, 1912. *Novitates Zoologicae* 19: 267.

Rhyzobius pictus (Sicard): Pope, 1961. *Annals and Magazine of Natural History* (13)4: 631, 639–640.

Midus quadristillatus (Mulsant) (Coccidulini)

Pharus (Midus) quadristillatus Mulsant, 1850. *Species des Coléoptères Trimères Sécuripalpes*: 950.

Midus quadristillatus (Mulsant): Weise, 1908. *Denkschrift der medizinisch-naturwissenschaftlichen Gesellschaft Jena* 13: 152.

Pharoscymnus quadristillatus (Mulsant): Sicard, 1909. *Annales de la Société entomologique de France* 78: 159.

PHAROPSIS Casey

Pharopsis Casey, 1899. *Journal New York Entomological Society* 7: 166

This genus can be distinguished from *Pharoscymnus* principally by its largely hairless elytra. The head and pronotum are relatively well covered with short setae. The antennae are 9-segmented (Figs 27, 36), although Pope (1961) records ten segments. The antennal insertion is covered, and the club consists of three segments. The

Figs 18–43. **Pharoscymnus** and **Pharopsis** spp. (a) = scale line a (= 1 mm): drawn with magnification 400 ×. (b) = scale line b (= 1 mm): drawn with magnification 100 ×. (c) = scale line c (= 1 mm): drawn with magnification 40 ×. 18–19. **Pharoscymnus tomeensis**: 18. aedeagus, (b); 19. tip of siphon, (a). 20–26. **Pharoscymnus uncosiphonatus**: 20. antenna, (a); 21. left maxilla, (b); 22. left mandible, (b); 23. labrum, (b); 24. labium, (b); 25. aedeagus, (b); 26. tip of siphon, (a). 27–35. **Pharopsis subglaber**: 27. antenna, (b); 28. maxillary palp, (a); 29. mandible, (b); 30. abdominal sternites (c); 31. aedeagus, (b); 32. siphon, (b); 33. tip of siphon, (a); 34. hindleg, (b); 35. metatarsus, (a). 36–43. **Pharopsis tonderae**: 36. antenna, (a); 37. apical segment of maxillary palp, (a); 38. aedeagus, (b); 39. tip of median lobe, (a); 40. siphon, (b); 41. tip of siphon, (a); 42. ♀ genital plates, setae omitted, (b); 43. metatarsus, (a).

mandibles each have two teeth (Fig. 29), the abdomen shows five visible sternites (Fig. 30), and the epipleura are flat and straight.

Type-species: *Pharopsis subglaber* Casey, 1899.

Pharopsis subglaber Casey, figs 27–35

Pharopsis subglaber Casey, 1899. *Journal New York Entomological Society* 7: 166.

Type in United States National Museum of Natural History Washington, D.C. (not seen), (type-locality: Wellington, South Africa).

Length: 1,3–1,5 mm. Width: 1,1–1,2 mm.

Body round and highly convex, nearly spherical. Lateral margin of elytron produced into a flange, separated from main portion by a distinct furrow. Elytral shoulder absent (examined specimen wingless). Punctuation weak on head and pronotum, pits shallow and not very obvious on strong surface reticulation; punctuation stronger on elytron where reticulation less developed. Aedeagus as in Fig. 31.

MATERIAL EXAMINED. SOUTH AFRICA: Cape Province. Maamschijukop, 7 miles E Hermanus. 21.xii.1950, leg. Brinck-Rudebeck (1 ♂ and several specimens from Cape Town, Rondebosch 30.i.1951) and Botrivier Vlei 5 miles ENE Kleinmond, 20.xii.1950 (Zoological Institute of the University Lund, Sweden) (Pope (1957): 320).

Pharopsis tonderae sp. nov., Figs 36–43

Length: 1,8–1,95 mm. Width: 1,5–1,65 mm.

Colour: black, elytra without spots, but each with a faint reddish-brown tint. Body form similar to preceding species. Lateral margin of elytron with a narrow but definite flange; elytral shoulder hardly visible although specimens are winged. Surface reticulation present on head and pronotum. Punctuation conspicuous on pronotum, pit diameter nearly twice size of interspaces; punctuation much weaker on elytron, pits much smaller than interspaces. Setation white and conspicuous, sparse on head and central pronotum, denser towards sides of pronotum; only a few rows of short erect setae on edges of elytra. Aedeagus as in Fig. 38.

This species is, apart from its larger size, difficult to distinguish from *P. subglaber*. Its elytral punctuation is much finer, and the elytral flange is not separated by a definite furrow as in the other species. The aedeagus hardly differs and the tip of the siphon is also very similar (Figs 31–34, 38–41).

The species is named after Miss Hanlie van Tonder, formerly of the Plant Protection Research Institute, for all the interesting Coccinellidae material she forwarded to the author, enabling him to study the fauna of southern Africa.

MATERIAL EXAMINED. Holotype ♂, female paratype ♀, 5 paratypes with the following data: SOUTH AFRICA, Burgersfort Transvaal, viii.1980. S. Kamburov, ex *Aonidiella aurantii* (Maskell). Ac.P. 8500. Holotype, female paratype and 3 paratypes in the National Collection of Insects, Plant Protection Research Institute, Pretoria; 2 paratypes (♂, ♀) in Collection Fürsch, Ruderting, West-Germany.

ACKNOWLEDGEMENTS

The author is grateful to Mr Ralf Oberprieler, National Collection of Insects, for material used in this study and especially for the translation and final preparation of the manuscript.

REFERENCES

- MADER, L. 1954. Coccinellidae. In: *Exploration du Parc National Albert. Mission F. G. de Witte* (1933-1935). Fascicule **80(3)**: 181-189.
- POPE, R. D. 1957. Coleoptera-Coccinellidae. In: *South African Animal Life* **4**: 292-322.
- POPE, R. D. 1961. A review of the Pharini. *Annals and Magazines of Natural History Series* **13**, **4**: 631, 639-640.
- SMIRNOFF, W. A. 1956. Les *Pharoscymus*. *Service de la Défense des Végétaux, Rabat, Travaux originaux* **9**: 27-32.

Accepted 4 January 1985