

Revision of the subtribe Gonopina (Coleoptera: Tenebrionidae, Opatrinae, Platynotini)

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In this revision of the subtribe Gonopina, based on more than 4000 specimens from southern and East Africa, sixteen species are recognized, three of which are new: *Stenogonopus rautenbachi*, *Gonopus (Agonopus) bellamyi* and *Gonopus (Gonopus) mozambiquensis*. In addition, seven new subspecies are described (*Gonopus (G.) mozambiquensis muellerae*, *G. (G.) tibialis kalaharicus*, *G. (G.) t. costatus*, *G. (G.) t. skeletonensis*, *G. (G.) t. punctatus*, *G. (G.) t. alternatus* and *G. (G.) t. capensis*), while three new synonyms are proposed (*Gonopus rugicollis* Gebien, 1920 = *G. (A.) puncticollis* Solier, 1848; *Gonopus nitidipleuris* Gebien, 1920 = *G. (G.) prosternalis* Gebien, 1920; and *Gonopus prosternalis* Gebien, 1920, and *Gonopus agrestis* Fähræus, 1870 = *G. (G.) deplanatus* Fähræus, 1870). *Gonopus puncticollis* is designated as the type species of *G. (Agonopus)*. A neotype is designated for *Blaps tibialis* Fabricius.

Keywords: Taxonomic revision, Gonopina, Coleoptera: Tenebrionidae, New Species, New Subspecies, New Synonyms, Neotype, Distribution.

INTRODUCTION

The first species of Gonopina, namely *Blaps plumosus* (now considered the type species of *Stenogonopus* Gebien, 1938), was described by Thunberg (1787), followed by another new species, in the genus *Blaps* Linnaeus by Fabricius (1798). Latreille (1829) created the genus *Gonopus* to accommodate the species described by Thunberg and Fabricius. During the mid to late 1800s, eight new species were described, three by Solier (1848), one by Bertoloni (1849), one by Gerstaecker (1854), five by Fähræus (1870) and two by Fairmaire (1888). Subsequently, seven new species were described by Gebien (1920), one by Koch (1953) and one by Schultze (1976).

The first revision of the genus *Gonopus* was that of Gebien (1920), but for a number of described species he had only one or at most a few specimens. We now know that the genus manifests great geographic and intrapopulation variation in a number of important characters, mainly of the integument and that this has in the past rendered interpretation of observed patterns of variation difficult. Examination of more than 4000 specimens in the present revision helped clarify many taxonomic problems in the group.

Within the *Opatrinae/Platynotini*, Koch (1956) designated the grouping of *Gonopina* in the tribe *Platynotini* together with *Anomalipina* and *Platynotina*. The main separating characters are the

deep, collar-like anterior margin of the prosternum; the protibia bearing 2–6 lateral teeth or corresponding undulation, and the humerally visible pseudo-pleuron tapering to the apex of the elytron.

In Gebien's (1938) second catalogue of Tenebrionidae, 14 species, one subspecies and five synonyms are listed. In the present revision 16 species, three of which are new, and seven new subspecies are recognized while three new synonyms are designated.

MATERIAL

Material was made available by the following institutions (acronyms in brackets), followed by the number of specimens examined from each collection: Deutsches Entomologisches Institut, Eberswalde (DEI) 52; Museum and Institute of Zoology, Academy of Sciences of Warsaw (MIZPAN) 2; Museum für Naturkunde der Humboldt Universität zu Berlin (ZMHB) 338; Muséum National d'Histoire Naturelle, Paris (MNHN) 178; National Collection of Insects, Pretoria (NCIP) 152; National Museum of Namibia, Windhoek (SMWN) 380; Frey Collection, Naturhistorisches Museum, Basel (NMB) 8; South African Museum, Cape Town (SAMC) 245; Swedish Museum of Natural History, Stockholm (SMNH) 96; The Natural History Museum, London (BMNH) 8; Transvaal Museum, Pretoria (TMSA) 2618.

Label data for type material, when cited *verbatim*,

are within inverted commas, and a forward slash indicates separate labels.

CHECKLIST OF *GONOPINA*

Genus *STENOGONOPUS* Gebien, 1938

- S. plumosus* (Thunberg), 1787
Stenogonopus cordicollis Solier, 1848
S. rautenbachi **spec. nov.**

Genus *GONOPUS* Latreille, 1829

Subgenus *AGONOPUS* Gebien, 1920

- G. (A.) puncticollis* Solier, 1848
Gonopus rugicollis Gebien, 1920 (**syn. nov.**)
G. (A.) edentatus Gebien, 1920
G. (A.) pliciventris Gebien, 1920
G. (A.) hirtipes Fåhraeus, 1870
G. (A.) bellamyi **spec. nov.**
G. (A.) transvaalensis Schulze, 1976

Subgenus *GONOPUS*

- G. (G.) amplipennis* Fairmaire, 1888
G. (G.) deflexus Gebien, 1920
G. (G.) conpachysoma Koch, 1953
G. (G.) mozambiquensis **spec. nov.**
G. (G.) mozambiquensis muelleriae **subspec. nov.**
G. (G.) prosternalis Gebien, 1920
Gonopus nitidipleuris Gebien, 1920 (**syn. nov.**)
G. (G.) deplanatus Fåhraeus, 1870
Gonopus costatus Fåhraeus, 1870 (**syn. nov.**)
Gonopus agrestis Fåhraeus, 1870 (**syn. nov.**)
G. (G.) angusticostis Gebien 1920
G. (G.) tibialis (Fabricius), 1798
Gonopus sulcatus Solier, 1848
Gonopus ventricosus Bertoloni, 1849
Gonopus exaratus Gerstaecker, 1854
Gonopus ater Fåhraeus, 1870
G. (G.) t. kalaharicus **subspec. nov.**
G. (G.) t. carinatus **subspec. nov.**
G. (G.) t. skeletonensis **subspec. nov.**
G. (G.) t. punctatus **subspec. nov.**
G. (G.) t. alternatus **subspec. nov.**
G. (G.) t. capensis **subspec. nov.**

MORPHOLOGY

VARIATION. External morphological characters within the genus *Gonopus* are important diagnostically. Many characters are more or less variable and the early authors often had only one or two specimens for which even the most variable characters were considered to be specific characters. These errors were recently discovered when long series of specimens from widely scattered areas were examined.

Head: dorsal surface moderately convex in all species. Clypeal emargination sometimes shows slight specific differences. Epistomal sulcus sharp or hardly discernible within species. An important character in a few species are the presence of deep punctures with short setae. The collar margin differs considerably between the two genera.

Pronotum: in the genus *Stenogonopus* it is shallow, covering the mouthparts if the head is bent. In the genus *Gonopus* the collar margin is very deep with a sharp crest not covering the mouthparts if the head is bent. The presence or absence of setae on the collar margin is also a specific character. The shape of the prosternal apophysis is a group-forming character. It might be either evenly bent towards the gula or straight. The dorsal shape of the pronotum, together with the margins, is a specific character, with slight variation in the shape of the lateral margins near the posterior angles. The straight or nearly straight posterior margin of the pronotum in contrast to the deep emargination is also a specific character. Only a few species have setae along the lateral margin of the pronotum.

Elytra: the shape and setation of the elytra are specific characters. The shape and number of dorsal costae are usually specific. In some widely-distributed species these characters are sub-specific, such as in *Gonopus tibialis*. Gebien mentioned a sharp ridge ventrally on the first sternum behind the metacoxae, but this character is non-specific. The shape and setation of the legs are specific characters.

Aedeagus: one of the greatest difficulties in identifying species is that the aedeagus displays virtually no differences between species, as opposed to the species of, for example, *Anomalipus*.

Sculptural elements of dorsum: the punctuation, granulation and wrinkling of the epidermis are enigmatic. These characters are sometimes not specific, and if not restricted to particular geographical areas, cannot even be considered subspecific characters. Examples are *G. puncticollis*, *G. prosternalis* and *G. deplanatus* in which these characters vary even within a single sample. For instance, on the farm Chulon a large number of *G. deplanatus* was collected, all with the same specific characters, e.g., shape of the prosternal apophysis and shape of the metatibia, although the pronotal structure was different: a smooth pronotum in 13 specimens, densely and finely granulate in 57, punctate and wrinkled in 48. It is obvious that this represents individual variation. Similar variation is apparent in *G. rugicollis*, and also in the elytral structure in *G. deplanatus*, whose new synonyms *costatus* and *agrestis* occur in the same areas, having gradually smoother elytra. Moreover there is another form with almost entirely smooth elytrae occurring in the

same area as *G. deplanatus*. By contrast, some subspecies of *G. tibialis* manifest similar discal differences, but all are geographically restricted.

GENERAL DISTRIBUTION

The *Gonopus* species are generally more widely distributed than those of *Anomalipus*. There are several *Gonopus* species that manifest very little selectivity with regard to ecological conditions. It is remarkable that *Gonopus deplanatus* and *G. tibialis* (the latter with more subspecies) occupy the entire southern African subregion, including the Namib Desert, Kalahari and also occur at higher elevations. Curiously, in the subgenus *Agonopus*, it is only *A. hirtipes* that occupies the entire area between the Atlantic and Indian Ocean coasts. The remainder of the species in the subgenus occupy smaller, widely scattered areas.

The genus *Stenogonopus* manifests two primitive characters: a flat prosternal collar margin and the lack of profemoral teeth. This seems to be the only group whose origin can be placed in the southwestern coastal area.

Members of the subgenus *Agonopus* have no profemoral teeth, but a deep and crested prosternal collar margin. Species of the subgenus occur from Namibia as far as Gauteng and Mpumalanga. Their area of origin can, therefore, not be determined.

Species in the subgenus *Gonopus*, with profemoral teeth, can be divided into two groups in which the prosternal apophysis is either bent towards the gula, or straight. Neither of these two groups suggests an area of origin.

A further interesting point is that *G. mozambiquensis* belongs to *Agonopus* (without protibial tooth) but its prosternal collar margin is flat and not crested, thus resembling *Stenogonopus*. It cannot be linked to *Stenogonopus*, however, partly because of other morphological characters and partly because of distribution. *Stenogonopus* occurs in the southwestern coastal area and *G. mozambiquensis* on the Mozambique and KwaZulu-Natal coast on the other side of the continent.

KEY TO THE GENERA AND SUBGENERA OF GONOPINA

- 1(2) Collar margin of prosternum flat, exposing all mouthparts. Large apical tooth of protibia situated beneath tarsus
..... *Stenogonopus* Gebien
- 2(1) Collar margin of prosternum highly elevated and crested, covering mouthparts with head bent.
- 3(4) Profemur without a tooth at inner front margin ... *Gonopus* (*Agonopus*) Gebien

- 4(3) Profemur with large tooth at front margin
..... *Gonopus* (*Gonopus*) Latreille

Genus *STENOGONOPUS* Gebien

Stenogonopus Gebien, 1938: 91

Type species: *Blaps plumosus* Thunberg, 1787

The genus *Stenogonopus* is very closely related to the genus *Gonopus* but with an important morphological difference between them. The much larger genus *Gonopus* has the collar portion of the prosternum very deep and crested, covering the mouthparts when the head is bent. In *Stenogonopus* species the collar margination is shallow, exposing the mouthparts even with head in bent position. A second character mentioned by Gebien in *Stenogonopus* is a large apical tooth on the protibia, positioned under the tarsus. Elytra and legs are setose. The genus now comprises two species.

KEY TO THE SPECIES OF *STENOGONOPUS*

- 1(2) Pronotum narrow, disc finely punctate. Lateral margins contracting in straight lines to posterior lateral angles. Elytra more acutely crested, all granulate. Scutellum hardly visible at its apex. Elytra laterally and apically with long setae, legs with long, reddish setae Length 12–17 mm (Southwestern Cape Province)
..... *S. plumosus* (Thunberg)
- 2(1) Pronotum slightly broader, disc smooth. Lateral margins slightly emarginately contracted to posterior lateral angles. Disc of elytra smooth, only last three costae granulate. Apical declivity granulate on all costae. Humeral notch smaller. Scutellum exposed as a large triangle. Setation of elytra and legs similar. Length 15–17 mm (Namaqualand)
..... *S. rautenbachi* spec. nov.

***Stenogonopus plumosus* (Thunberg), Figs 1, 24, 48**

Blaps plumosus Thunberg, 1787: 91.

Stenogonopus plumipes (Thunberg). Gebien, 1938: 91 (*'plumipes' lapsus*).

DIAGNOSIS. Collar margin of prosternum low, leaving mouthparts free. A few medium-length setae emerging from margin. Profemur without tooth. Lateral margins of pronotum evenly arcuate, broadest just anterior to mid-length; posterior margin almost straight. Elytral costae uniformly granulate, intervals punctate in straight lines. Lateral and posterior margins of elytra long, setose. Centre

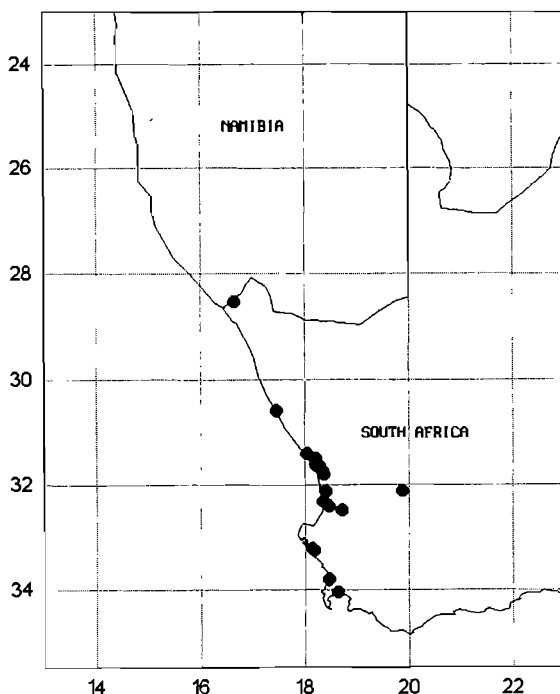


Fig. 1

Distribution of *Stenogonopus plumosus*.

of prosternum and apophysis coarsely rugose. All legs with long setae.

DESCRIPTION. Head slightly convex. Clypeus flatly emarginate. Epistomal sulcus faint to distinct. Punctuation extremely fine, but near eyes a pair of larger punctures bearing short setae. — Pronotum slightly broader than long (6.1:5.0 mm). Anterior margin evenly marginate, anterior angles not acute. Basal margin slightly emarginate, angles acutely rectangular. Disc broadest just anterior to mid-length, evenly arcuate, edge narrow with a row of larger punctures with short setae, rest of disc smooth. — Elytra longer than broad (9:7). Eight costae uniform, crested, laterally granulate, also in apical declivity. Costal intervals set with a single line of large punctures. Margins of elytra laterally and apically set with long, reddish brown setae. Pseudopleuron uniformly and coarsely punctate in about three lines. — Mid-anterior part of mesosternum almost flat. First three sternites longitudinally wrinkled, fourth and fifth punctate, last sternite finely marginate. — Anterior tibia triangular with one large preapical and one apicolateral tooth. Beneath tarsus a narrower, sharply pointed tooth, slightly bent ventrally. Inner margin of protibia and anterior part of profemur setose. Mesotibia with two sharp external teeth, setose on both outer and inner sides.

Metatibia without dorsal tooth but with long setae. All tarsi densely setose, with short setae.

Length. 12–17 mm. One of the smallest species in the subtribe.

DISTRIBUTION. Southwestern and western Cape.

MATERIAL EXAMINED: 38 TMSA, 2 SMWN, 3 SAMC.

Type material: holotype: in Zoological Museum, University of Uppsala, not examined.

Additional material: South Africa: 1 Bloubergstrand nr. Cape Town, 28.3.1975, H. Geertsema; 1 Cape Flats Nat. Res., 6.12.1980, M. H. Ricketts; 2 de Boom 273, Skerklip, Vredendal Distr., No. 199, 12–14.12.1996, leg. J. du G. Harrison; 3 Skerklip, site No. 199, 12–14.12.1996, leg. J. du G. Harrison; 1 Driekop 500, No. 78; 30.VIII.1996, leg. J. du G. Harrison; 1 Dwarskersbos 10 km N, 20.XII.1977, leg. E. Holm; 2 Geelbek Forestry, 25.8.1975, E-Y:1975, ground traps, 70 days, leg. Endrödy-Younga; 1 Geelbek Forestry, 1.11.1983, E-Y:2040, sandy hill, night, leg. Endrödy-Younga; 1 Groot Derm 25 X.1996, leg. J. du G. Harrison; 1 Grootdrift farm, 29.8.1981, E-Y:1862, ground traps 61 days, leg. Endrödy-Younga; 1 Kommandokraal farm W,

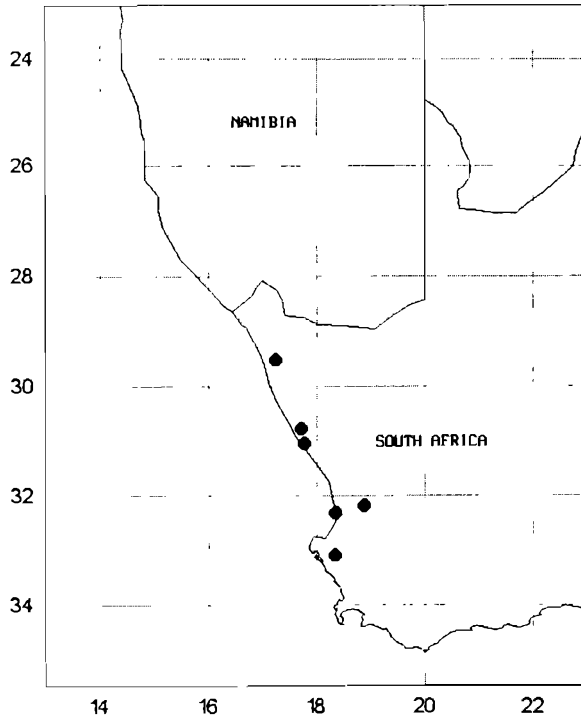


Fig. 2

Distribution of *Stenogonopus rautenbachi*.

23.9.1994, E-Y:3035, on ground, leg. Endrödy, Bellamy; 1 Kommandokraal, 23.9.1994, E-Y:3033, on sandy ground, leg. Endrödy, Bellamy; 1 Lamberts Bay 14.3.1973; 1 Lamberts Bay, 17 April 1975, Penrith; 9 Leipoldtville, Elands Bay; 1 Paleisheuvel, 2 Papendorp dunes, 24.10.1981, E-Y:1894, night red dunes, leg. Endrödy-Younga, 1 Papendorp Olifants River; 1 Seweputs coast, 28.8.1981, E-Y:1837, leg. Endrödy-Younga, 2 Seweputs coast, 23.8.1981 E-Y:1836, ground traps 64 days, leg. Endrödy-Younga; 1 Vredendal distr., Elise Erasmus Kloof 158, 7–8.XII.1996, leg. J. du G. Harrison; 2 Vredendal distr., 2 Vredendal distr. Byeneslaagte 274, 4.XII.1996, leg. J. du G. Harrison; 2 Yzerfontein 8 km N, 25.8.1978, E-Y:1978, ground traps 70 days, leg. Endrödy, Penrith, 1 Yzerfontein 8 km N, 1.11.1983, E-Y:2039, grassnetting, leg. Endrödy-Younga.

***Stenogonopus rautenbachi* spec. nov.**, Figs 2, 25, 49

DIAGNOSIS. Collar margin of pronotum shallow, leaving mouthparts free, with few short setae. Profemur without tooth. Pronotum somewhat broader in middle. Lateral margin very slightly

emarginate to basal angles. Lateral crest low, fine, with few short setae. Disc smooth with fine punctures anteriorly.

DESCRIPTION. Head similar in structure to *S. plumosus*. — Elytra slightly broader (8.3:10). Elytral costae in middle 1–2 flat, laterally 3–4 smoothly crested, rest granular, as are all on apical declivity. Elytral setation as in *S. plumosus*. — Pseudopleuron and sterna also similar. — Structure and setation of legs also similar.

Length: 15–17 mm; breadth pronotum 5.0–7.5 mm, elytra 6–9 mm.

DISTRIBUTION. West coast of South Africa Namaqualand.

MATERIAL EXAMINED: 6 TMSA, 1 SMWN.

Type material: *holotype:* Leipoldtville, Eland's Bay (TMSA), *paratypes:* 1 Dermbergsdraai farm, 24.8.1979, E-Y:1590, sandblown hill, leg. Endrödy-Younga; 1 Hopefield, 28.9.1928; 1 Clanwilliam, IV.V.1945, leg. S. S. Walters; 1 Klaver, 12 m before, C.P., 12.XI.48, leg. Koch/v. Son; 1 Rooidam Farm, 25.8.1979, E-Y:1599, singled, sandy hill, leg. Endrödy-Younga; 1 Thong-Gya Dunes 23–25 IX.1988, J. Irish, E. Marais.

ETYMOLOGY. The species is named for I. L. Rautenbach, Director of the Transvaal Museum, who kindly assisted us in our activities.

Genus **GONOPUS** Latreille

Gonopus Latreille, 1829: 17

Type species: *Blaps tibialis* Fabricius, 1798 (by monotypy) (subsequent designation by Gebien, 1938: 71).

KEY TO THE SPECIES OF GONOPUS

- 1(12) Profemora without inner teeth
 Subgenus *Agonopus* Gebien
- 2(7) Basal margin of pronotum straight.
- 3(4) Pronotum densely and coarsely punctate. Elytral costae acute, granulate, also in middle. Length 13–16 mm (Namibia and South Africa)
 *G. (A.) puncticollis* Solier
- 4(3) Pronotum smooth with scattered, round punctures.
- 5(6) Elytral costae elevated also in middle. First three or four carinae acute, granulate only laterally and at apical declivity. Disc of head with scattered, punctate, punctures without longish setae. Lateral part of pronotum ventrally faintly wrinkled longitudinally. Metasternum in anterior middle flatly concave to receive prosternal apophysis. Length 16–18 mm (Namibia)
 *G. (A.) edentatus* Gebien
- 6(5) Elytral costae flat, tuberculate from middle of fifth costa. Elytral costae laterally sharp and slightly wavy, tuberculate from middle of fifth costa and at apical declivity of elytra. Disc of head punctate, near eyes punctures with long, recumbent setae. Lateral portion of pronotal underside with a few sharp wrinkles. Mid-anterior portion of metasternum deeply V-shaped, concave to receive prosternal apophysis. Length 19–21 mm (Namibia)
 *G. (A.) pliciventris* Gebien
- 7(2) Basal margin of prosternum emarginate.
- 8(11) Disc of elytron with eight continuous costae.
- 9(10) Body large and broad. Lateral margins of prosternum converging straight to basal lateral angles. Meso- and metatibia with long, narrow apical teeth. All tibiae with double ventral crests. Length 20–26 mm (transverse belt across southern Africa)
 *G. (A.) hirtipes* Fähræus
- 10(9) Body smaller and narrower. Lateral margins of pronotum emarginate in front of basal angles. Meso- and metatibiae with a long cluster of dense, red setae. Meso- and metatibiae with broad apical teeth. Length 17–19 mm (southwestern Cape to Namaqualand)
 *G. (A.) bellamyi* spec. nov.
- 11(8) Disc of elytron with three alternate smooth and continuous costae. Posteriorly costal intervals with granular lines. Elytra and all legs with scattered black setae. Length 20–24 mm (restricted area around Ohrigstad, Mpumalanga)
 *G. (A.) transvaalensis* Schulze
- 12(1) Profemora with large inner teeth
 Subgenus *Gonopus* Gebien
- 13(21) Prosternal apophysis roundly bent behind procoxae to gula. Apex with or without a small tooth.
- 14(17) Elytral costae at least in middle of disc perfectly flat. Intervals of flat costae with straight lines of punctures.
- 15(16) Larger and broader, pronotum very broad and short (11:7 mm), disc smooth, anterior margin flat, V-shaped, emarginate, seventh and eighth costae finely granulate also in front. Metatibia inside with short setae. Length 22–24 mm (central Namibia)
 *G. (G.) amplipennis* Fairmaire
- 16(15) Smaller and more elongate-ovate, pronotum somewhat narrower (8:6 mm). Disc finely but densely punctate, anterior margin flatly and evenly emarginate, lateral margins posteriorly emarginate. Only the eighth elytral costa with few granules anteriorly. All tibiae without setae. Male protibia deeply emarginate at inner base. Length 15–19 mm (East Africa)
 *G. (G.) deflexus* Gebien
- 17(14) Elytral costae clearly convex.
- 18(19) Elytral costae alternately elevated. First four costae anteriorly not granulate; this is highest and anteriorly not granulate. Costae seven and eight more finely and densely granulate than fifth. Lateral margins of pronotal disc not or hardly emarginate to posterior angle. Disc punctate, sometimes also wrinkled (holotype). Base of mesotibia and metafemur and tibia very long, setose. Length 20–24 mm (west coast of Namibia and southwestern Cape) *G. (G.) conpachysoma* Koch
- 19(18) Elytra with only seven discal costae, costae fine, all more or less granulate. An eighth granular line is visible only in front and on pseudopleuron. Lateral third of pronotum finely but sharply granulate.

Length 12,0–12,2 mm (Mozambique and north coast of KwaZulu-Natal)

- *G. (G.) mozambiquensis* spec. nov.
- 20(21) Eight elytral costae present on dorsum. Costal granules large and round, flatter in front on middle of disc. Pronotal margins deeply emarginate in front of basal angles. Disc punctate or sharply wrinkled. Legs not setose. Length 17–22 mm (East Africa) . . . *G. (G.) prosternalis* Gebien
- 21(13) Prosternal apophysis straight or slightly elevated between procoxae. Shape of apophysis varies.
- 22(23) Dorsal surface of metatibia with a sharp longitudinal crest. Lateral margins of pronotum emarginate to posterior lateral angles. Metatibia in fresh specimens on both sides with dense, long, reddish setae. Sculpture of pronotum and elytra very variable. Length 13–23 mm (Namibia, South Africa, Angola, Botswana, Mozambique)
..... *G. (G.) deplanatus* Fähræus
- 23(22) Dorsal surface of metatibia longitudinally flat.
- 24(25) Pronotum not heart-shaped; costae of elytra narrow with broad intervals. Costae one and two not granulate. Costae three to six with elongate granules as on apical declivity of elytra. Humeral notch of elytra small. Length 12,5–20,0 mm (Namibia)
..... *G. (G.) angusticostis* Gebien
- 25(24) Elytral costae all convex and granulate, except around scutellum. Protibiae, particularly in males, inner-basally emarginate as in *G. angusticostis*. Length 13–23 mm (Namibia, South Africa, Angola, Botswana, Mozambique)
..... *G. (G.) tibialis* (Fabricius)

Subgenus **AGONOPUS** Gebien

Gonopus (Agonopus) Gebien, 1920: 110.

Type species: *Gonopus puncticollis* Solier, 1848 (designated here)

Gonopus (Agonopus) puncticollis Solier, Figs 3, 26

Gonopus puncticollis Solier 1848: 230, 233.

Gonopus rugicollis Gebien 1920: 113. **Syn. nov.**

DIAGNOSIS. Anterior margin of prosternum sharply elevated. Profemora without inner tooth. Body comparatively short 13–16 mm. Elytra much longer than combined breadth. Pronotum at base straight, lateral margins in front of basal angles emarginate. Pronotum and elytra sharply sculptured. Lateral parts of elytra and tibiae with long setae.

DESCRIPTION. Disc of head almost flat, finely granulate. Clypeus finely emarginate. Lateral angle of head slightly broader than eyes. — Pronotum moderately narrower than elytra combined (7,0: 9,5). Basal margin straight. Lateral margins emarginately contracted in front of basal angles; anterior lateral angles short but sharply produced. Disc densely and sharply punctate, punctures sometimes laterally confluent, producing longitudinal ribs (*rugicollis*). Anterior margin of prosternum elevated, with some long setae. Ventrolateral portion of pronotum with coarse longitudinal ribs. Prosternal apophysis elevated at procoxae but not sharply depressed posteriorly. — Elytra elongate-ovate, sutural profile almost straight in front of posterior declivity. All discal crests elevated and denticulate, depressed intervals finely granulate. Humeral process very small, indistinct. In the lateral portions of elytra long setae emerge from the intervals. Epipleuron even and narrow with almost smooth surface; pseudopleuron tuberculate. — Anterior part of mesosternum joining prosternal apophysis rather flat, with a pair of bilateral tubercles. Mesosternal apophysis densely punctate. First three abdominal sternites with longitudinal furrows. Sternites four and five deeply punctate. Protibia with few long setae, meso- and metatibia with long brush of setae. Mesotibia with three to a set of denticles, metatibia usually without teeth or longitudinal rib: some denticles sometimes present in specimens from Bethanien.

Length 13–16 mm, pronotal breadth 7,5–8,0 mm, elytral breadth 8,5–9,5 mm.

DISTRIBUTION. Namibia and South Africa.

MATERIAL EXAMINED. 1 NMB, 21 TMSA, 2 NCIP, 8 ZMHB, 13 SAMC, 12 SMWN.

Type material: *holotype* 'Deutsch S. W. Afr.' 'Type: No. 792' / 'Gonopus [printed] rugicollis Geb. [handwritten by unknown curator]' (NMB) The type specimen of *G. puncticollis* was not examined.

Additional material: *South Africa.* 2 Augrabies, 7.4.1996, leg. A. Rasa; 1 Cocoyams J. J. S. le Roux, 20.1.1943; 2 Groblershoop, 14.4.1979, Moolman, 2 Heidelberg, XII.1957; 1 Obobogorop, 120 miles NW Upington, 14–19.XI.1950, No. 52, Swedish South Africa Expedition 1950–1951, leg. Brink, Rudebeck; 1 Upington; 1 Beaufort West, 1909; 1 Witsand, SE 28 22 Ad, VI.1982, leg. E. Holm; 1 [no locality on label], F. Coetzee, April 1977.

Namibia: 1 Arob Keetmanshoop, 19 April 1972; 1 Bethanis, F 52 m W Welwitschia, Kaakoveld; 1 Bethanis; 5 Bethanien, 1 II.1886, Schenck, 1 Bushmanland, Henkries, Lightfoot; 1 Keetmanshoop, 1905. Schultze; 4 Khabus 146, Keetmanshoop district plain, 13.II.–14.III.1988, N. & G. Olivier;

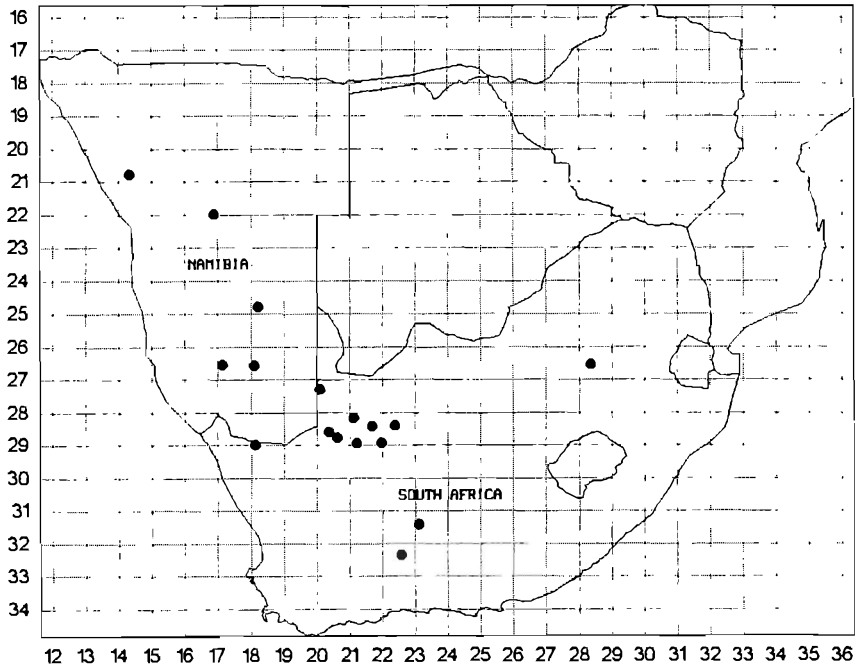


Fig. 3

Distribution of *Gonopus (Agonopus) puncticollis*.

1 Okahandja; 1 Otjosond-Kub Casper; 1 Orah, Gibeon, Benningsen; 1 Plateau 38/AAR16, Lüderitz, 14–17 January 1972; 5 Rietmond, 3 Sesriem 137, Maltahöhe, 5–8 April 1972; 2 Schwartzerland, II.1955; 1 Swartbaas West 276, Keetmanshoop, 19–22 April 1972; 2 Warmbad, 5 km S, Karasburg district, 16.III.1988, E. Marais, J. Irish; 1 Wildheim Ost 384, Keetmanshoop, 4 Aug–10 Sept 1977.

REMARKS. The main differential characters (punctuation of pronotum) of *rugicollis* mentioned by Gebien (1920) show gradual transitions and sometimes occur within the same sample from one locality (e.g., Bethanien) and it is therefore considered as a synonym of *G. puncticollis*.

***Gonopus (Agonopus) edentatus* Gebien, Figs 4, 27, 50**

Gonopus edentatus Gebien, 1920: 111.

DIAGNOSIS. Prosternal collar broad, without long setae. Profemur without tooth. Head without larger setose punctures. Pronotum finely punctate, with fine sagittal impression. Elytral ribs sharp. Anterior portion of mesosternum moderately excavate. Two apical abdominal sternites finely punctate. Meso- and metatibiae with large apicodorsal tooth.

DESCRIPTION. Disc of head almost flat, clypeus

evenly emarginate, epistomal sulcus fine but clearly visible. Surface finely shagreened and uniformly, finely punctate. — Pronotum moderately narrower than elytra combined (8:10 mm). Posterior margin straight, lateral margins emarginately contracting towards posterior angles. Disc uniformly and finely punctate, middle of disc with fine sagittal impression. Anterior prosternal crest elevated, anterior portion moderately sculptured, without long, erect setae. Lateral portion with faint longitudinal furrows. — Elytra longer than combined breadth (12:10 mm). All costae well developed, sharply tuberculate, except the four inner costae anteriorly. A small apical area of elytra lacks tubercles. Costal intervals deep, with scattered fine tubercles. Pseudopleuron with scattered fine tubercles similar to those in costal intervals. Posterolateral portion of elytra with scattered, longish setae. — Anteromedian portion of mesosternum moderately depressed where apex of prosternal apophysis ends. First three abdominal sternites with deep longitudinal furrows, surface of last two sternites (four and five) smooth, both with fine punctuation. Meso- and metatibiae with a large apicodorsal tooth. Mesotibia with a few long setae, metatibia with a dense brush of long, reddish setae.

Length 16–18 mm, breadth of pronotum 7,5–8,0 mm, of elytra 9,5–10,0 mm.

DISTRIBUTION. Namibia.

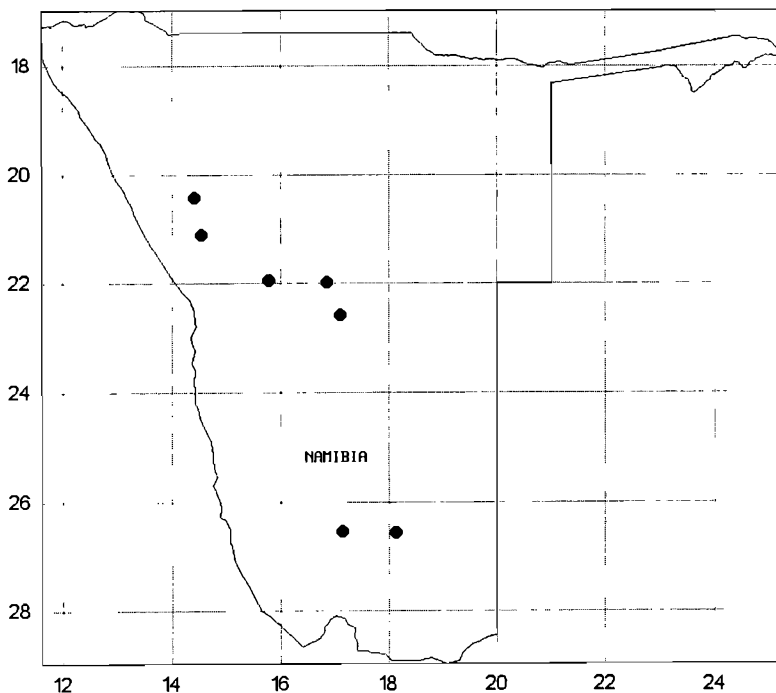


Fig. 4

Distribution of *Gonopus (Agonopus) edentatus*.

MATERIAL EXAMINED. 1 BMNH, 1 NMB, 10 TMSA, 17 ZMHB, 1 SAMC, 12 SMWN.

Type material: holotype: 'S.W. Africa Kubus iv.01' / 'Type No. 791' / '*Gonopus* [printed] *edentatus* Geb. [handwritten by unknown curator]' (NMB); *paratype:* 'S.W. Afr. Karibib' / '*Gonopus* [printed] *edentatus* Geb. [handwritten by unknown curator]' / 'cotype : No. 701' / 'Brit. Mus. 1947-241' (BMNH); *paratype:* 'S.W. Afr., Karibib [handwritten on blue label]' / '*Gonopus* [printed] *edentatus* [handwritten by unknown curator]' / '1521 [handwritten in pencil]', (ZMHB).

Additional material: Namibia: 5 Bethanien, Gr. Namaqualand, I.II.1885, A. Schenck; 1 Bethanis 514, Outjo, 8–10 May 1973; 2 Bethanis Farm, 17.2.1975, E-Y:672, ground traps with faeces bait 3 days, leg. Endrödy, Schulze; 2 Bethanis Farm, 18.2.1975, E-Y:676, mt. dunes, night, leg. Endrödy, Schulze; 1 Brandberg Plateau, 6.1955, leg. A. Viereck; 1 Claratal; 1 Guiseb 180, 30.I.1980, A. Simoes; 6 Herero, Lübbert; 2 Hereroland, Hahn; 5 Hoogland 132, Maltahöhe, 1–3. Feb. 1974; 1 Karibib; 1 Keetmanshoop, 1905, L. Schulze; 2 Okahandja, 1902; 1 Otjosondub-Kub, S. G. Casper; 2 Portsmut; 3 Regenstein; 1 Vis River, 26.1.1980, A. Simoes, 1 Windhoek, 1906, Kunze; 33 Windhoek, 7 February 1969; 18 Windhoek, 27 January 1972; 32 Windhoek, 27 Feb. 1973.

South Africa: 1 Arniston, 22.VIII.1973 ME Irwin [questionable locality label].

***Gonopus (Agonopus) pliciventris* Gebien, Figs 5, 28**

Gonopus pliciventris Gebien, 1920: 114.

DIAGNOSIS. Prosternal collar broad with a few long setae. Profemur without tooth. Head near eye with large setose punctures. Pronotum finely punctate, without median sagittal impression. Anterior portion of prosternum deeply excavate. Two apical abdominal sternites strongly punctate. Meso- and metatibiae with somewhat smaller apical tooth.

DESCRIPTION. Disc of head slightly convex, clypeus deeply emarginate, episternal sulcus clearly or hardly visible. Punctuation fine, with larger and deeper setose punctures on lateral portions. — Pronotum slightly broader than long (9.5:8.0 mm). Posterior margin straight or slightly emarginate. Lateral margins evenly contracting towards base, not emarginate in front of posterior angles. Disc in middle finely punctate, only slightly stronger laterally. Prosternal collar deep towards head, with few longish setae, surface together with epimeron roughly wrinkled. Prosternal apophysis straight,

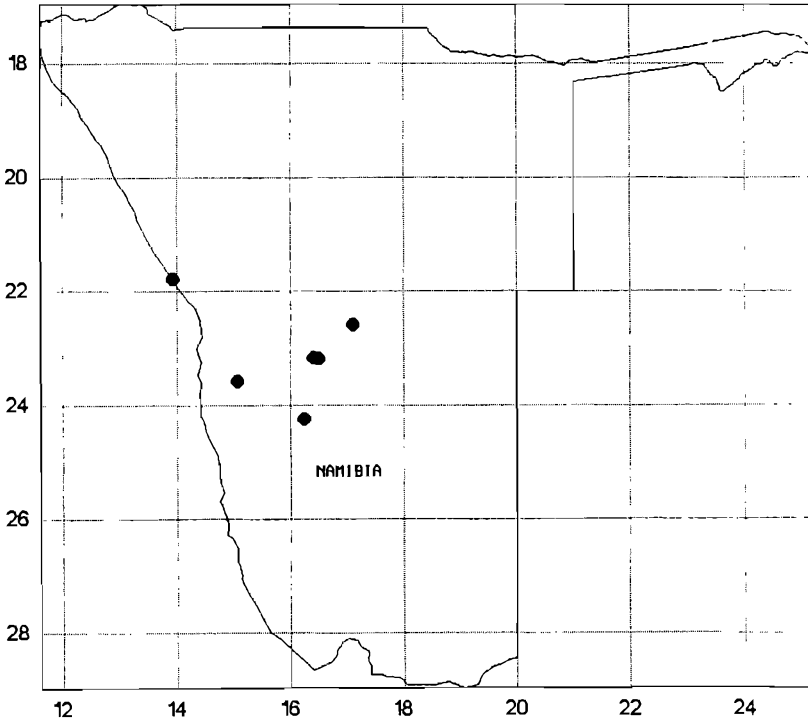


Fig. 5

Distribution of *Gonopus (Agonopus) pliciventris*.

apex drawn backward. — Elytra longer than broad (15.0:12.5), sutural profile straight or slightly convex, costae sharp, four or five inner costae not tuberculate in front of apical declivity. Humeral angle small but prominent. Pseudopleuron slightly wrinkled. Anterior portion of mesosternum deeply excavate to receive apex of prosternal apophysis. First three abdominal sternites longitudinally wrinkled, apical two sternites (four and five) deeply punctate, anal sternite completely and sharply marginate. — Profemur without inner tooth. Apical tooth of meso- and metafemora smaller than in *G. edentatus*. Tibiae much less setose than in *G. edentatus*.

Length 19–21 mm, breadth of pronotum 8.5–9.5 mm, of elytra 9.5–11.5 mm.

DISTRIBUTION. Central and western Namibia.

MATERIAL EXAMINED. 1 NMB, 1 DEI, 11 TMSA, 1 SAMC, 1 ZMHB.

Type material: *holotype*. 'D.S.W.Afr (Coll. Nonfried) / 'Type No. 793' / 'Gonopus pliciventris Geb.' (NMB); *paratype*: 'Cape Cross D.S.W.A.' / 'Gonopus pliciventris Geb. cotype! [handwritten by Gebien]' (DEI).

Additional material: *Namibia*: 1 Aukaikas, Khomas

Highl., Ill. 1953, leg. E. R. Scherz; 1 Cape Cross, X. 1957, leg. Koch; 1 Gobabeb, 408 m, 4 Naukluft, 14.2.1963, leg. F. Gaerdes; 1 Portsmouth, 70 m SW Windhoek, VIII. 1954, Vernay; 2 Valencia Farm, A. F. Port, 1 Windhoek Farm, Otjisewa, leg. Kinges.

***Gonopus (Agonopus) hirtipes* Fähræus, Figs 6, 29**

Gonopus hirtipes Fähræus, 1870: 292; Gebien 1920: 110, 114.

DIAGNOSIS. Larger species. Profemur without tooth, collar portion of prosternum elevated. Basal margin of pronotum distinctly emarginate, lateral margins contracted posteriorly in straight lines. Pronotum punctate and finely wrinkled, mostly laterally. Elytra with finely tuberculate ribs, lateral margin and posterior declivity with long setae. All femora with double crests, tibiae with long setae.

DESCRIPTION. Head moderately convex, clypeus margin emarginate, epistomal furrow usually distinct. Disc finely punctate except for a few larger setose punctures near eyes and clypeus. — Pronotum broadest in front of middle, contracting to posterior angles in straight lines. Posterior margin distinctly emarginate, posterior angles

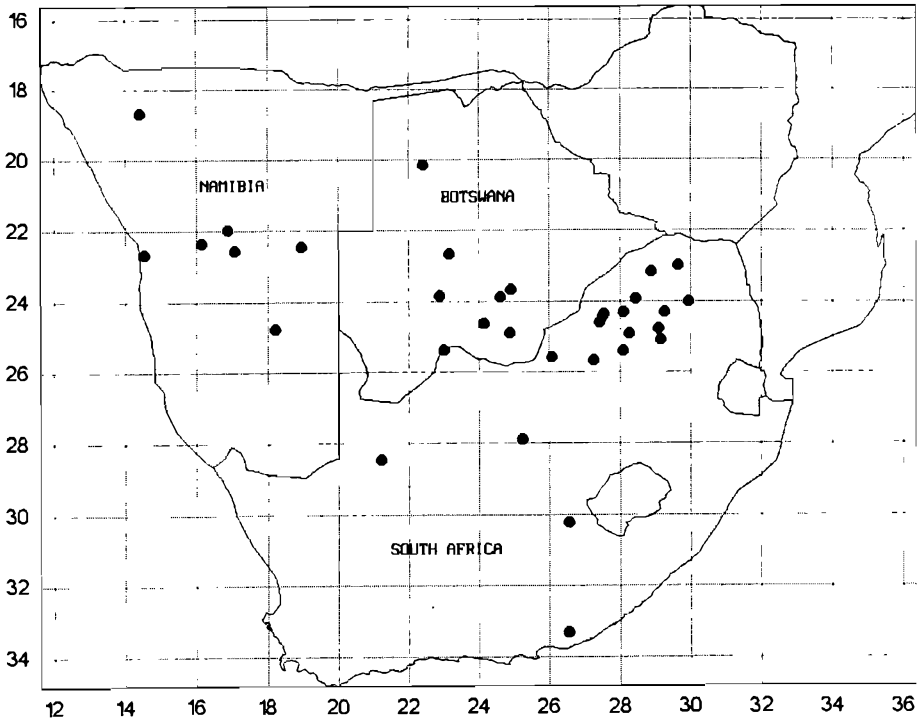


Fig. 6

Distribution of *Gonopus (Agonopus) hirtipes*.

rectangular. Disc in fresh specimens finely and densely punctate, laterally finely wrinkled, wrinkles occasionally also appearing on disc. Integument matt. — Elytra distinctly longer than combined width (18,0:13,5 mm). Clear discal costae not sharp or high, finely granulate over entire surface, except the inner two costae that are usually smooth anteriorly. Humeral tubercles sharp. Transversely wrinkled intervals of costae carry small tubercles, laterally and on posterior declivity long setae, which are worn off in old individuals. Pseudopleuron roughly punctate and wrinkled. — Collar margin of prosternum deep towards gula, with a few long setae behind margin. Prosternal apophysis flat or slightly convex, with pointed apex. First three abdominal sternites longitudinally wrinkled. Fourth sternite smooth. Anal sternite densely punctate or wrinkled at apex, where also marginate. — All femora double-crested with a flat area in between. Femora ventrally deeply punctate. Protibia with median longitudinal crest dorsally, ventrally flat with coarse punctation, dorsally and at inner margin with long setae. Meso- and metatibia denticulate and set with long setae. — Males usually smaller than females.

Length 20–26 mm; breadth pronotum 9,5–13,0 mm, elytra 12,0–16,5 mm.

DISTRIBUTION. Transverse belt across southern Africa.

MATERIAL EXAMINED. 1 SMNH, 36 TMSA, 13 SAMC, 13 ZMHB, 4 NCIP, 3 MNHN.

Type material: holotype: 'Caffraria [printed]' / 'J Wahlb. [Wahlberg printed]' / '89 [printed]' / '47 [printed] 52 [handwritten] [on red label]' / '*Gonopus hirtipes* n. sp. [most likely handwritten by Fåhræus]' / 'Typus [printed on red label, typical Stockholm type label]' (SMNH).

Additional material: South Africa. 1 Blaauwberg (Leipzig), 10.I.1931, leg. G. v. Son; 1 Blaauwberg (Leipzig), 18.I.1931, leg. G. v. Son; 1 Christiana, leg. N. Persson; 1 Geelhoutbos farm, 3 10.1995, E-Y:3143, singled, leg. Endrödy, Bellamy, 1 Grahamstown, 2.4.1931; 1 Iron Crown 8 km W, Haenertsburg distr., XI.1970, leg. Schulze, A. Strydom; 1 Kransburg, 16.II.1975, leg. Prinsloo; 1 Matlala, 4.iv; 1 Pietersburg 35 km E, I.1968, leg. L. Schulze; 1 Roedtan, 16.11.1975, Steynberg; 2 Rustenburg, XI.1949, leg. Capener; 1 Soutpan Pta, 6.12.1920, van Son; 1 Soutpan Pta, 9 XI.1926, G v. Son; 1 Soutpan, Spbg., 15–30 November 1932, leg. G. van Son; 1 Soutpan(sberg), 30.XI.1932, van Son, 1 Thabazimbi, 20.II.1983, leg. H. J. Greyling; 1 Tonkwani, February 1965, 1 Upington, 1 Vaal River,

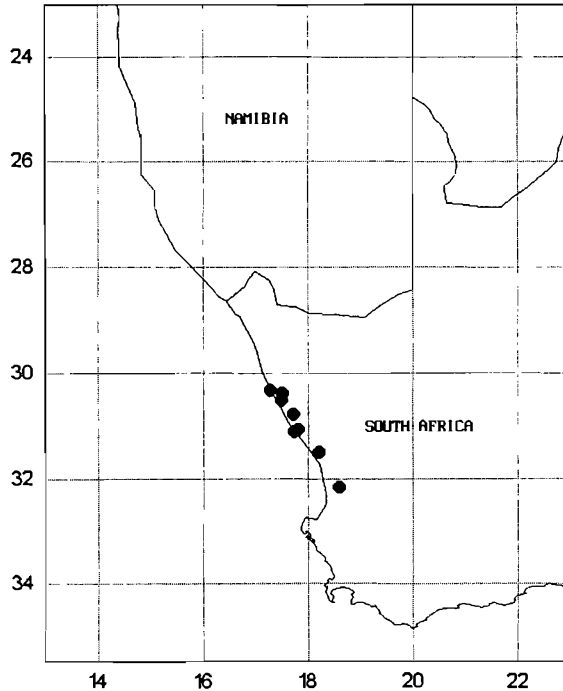


Fig. 7

Distribution of *Gonopus (Agonopus) bellamyi*.

Diamond Fields; 1 Warmbad, 14.II.03; 1 Waterberg Dist., 1898–99, leg. Jutrzencka; 1 Waterval., 25.1.00; 3 Zebediela, 8.1.1956, leg. R. B. Copley; 1 Zebediela, XI.1970, leg. R. B. Copley; 2 Zeerust, II.1962, R. B. Copley; 1 P. P. Rust., XII.1924, leg. G. v. Dam;

Botswana: 1 Kang 35 km S, 23.1.1978, leg. Holm, Scholz; 1 Kaotwe, 10.IV.1930; 1 MokoPON; 1 Mothate Pan, I.1972, leg. O. Prozesky; 1 Sekhuma, 40 km SW, 24.1.1978, leg. Holm, Scholtz; 1 SE Sekhuma, 26.1.1978, leg. Holm, Kirsten, Scholtz; 1 Severelela, L. Schulze; 1 Tsau, 40 m SW Ghanzi. *Namibia*: 1 Gobabis; 1 Okahandja, 19–29.XII.1927, leg. R. E. Turner; 1 Omaheke, X.4., leg. S. Troyha; 1 Otjimbingwe; 2 Swakopmund, 1971; 1 Windhoek, I.1936–XII.1937, leg. K. Hartmann.

***Gonopus (Agonopus) bellamyi spec. nov.*,
Figs 7, 30**

DIAGNOSIS. Profemur without tooth. Anterior prosternal margin deep. Basal margin of pronotum emarginate. Pronotum with faint sagittal furrow, punctation distinct, with lateral wrinkles. Elytral tubercles laterally and posteriorly very large. Protibia more broadly triangular than in *G. edentatus*, with dorsolateral furrow and 1–3 sharp ventral teeth. Related to *G. edentatus*.

DESCRIPTION. Disc of head slightly convex, clypeus evenly emarginate, epistomal sulcus clearly visible, punctation rather coarse, with a few semierect setae. — Pronotum slightly broader than long (8.5:8.0 mm). Basal margin moderately emarginate, disc broadest in front of middle, contracting posteriorly in very slight and even emargination, very much less than in *G. edentatus*. Sagittal impression of disc faint; punctation rather strong, with long and longitudinal wrinkles, particularly laterally and anteriorly. Prosternum behind collar margin without long setae. Episternum of prosternum laterally with diagonal wrinkles, nearer to coxa longitudinal, wrinkles. Prosternal apophysis elevated between procoxae, broad apex distinctly elevated above gula. — Elytra much longer than combined width (10.5:14.0 mm) Costae distinct, rounded in mid-section only, with few tubercles. Laterally four costae, all in apical declivity with unusually large tubercles. In posterolateral half with very long setae emerging from intervals between tuberculate ribs. Pseudopleuron along entire length, epipleuron anteriorly, roughly punctate. — Collar margin of prosternum high, posteriorly moderately wrinkled, without long setae. Episternum of prosternum strongly wrinkled. Prosternal apophysis elevated between coxae, moderately curved posteriorly on ventral side, apex well marked

and elevated above gula. Anterior portion of mesosternum slightly excavate to receive apex of prosternal apophysis. Metasternum and first abdominal sternite slightly concave between coxae. Metasternum and first three sternites roughly wrinkled, last two sternites strongly punctate, anal sternite sharply marginate. — Protibia with lateral teeth rather broadly triangular, with basally sharp longitudinal furrow. On ventral side with 1–3 small, sharp teeth. Inner margin with few long setae. All femora strongly punctate. Mesotibia at base, metatibia along entire length, set with long setae.

Length 17–19 mm, breadth pronotum 7–8 mm, elytra 9–10 mm.

DISTRIBUTION. Western Cape and Namaqualand.

MATERIAL EXAMINED. 16 TMSA, 1 SAMC.

Type material: holotype. 'Gemsboksvlakte farm, 1.9.1977, E-Y:1366, ground traps with meat bait 56 days, leg. Endrödy-Younga' (TMSA); *paratypes:* 1 'Brak River Mouth, 10.1979; E-Y:1661, offshore white sand, leg. Endrödy-Younga' (TMSA); 4 'Dermbergsdraai farm, 9.1984, E-Y:3015, on ground, day, leg. Endrödy-Younga' (TMSA); 1 'Graafwater C.P.' (SAMC), 1 'Hondeklip Bay, 15.XI.1948, leg. Koch, van Son' (TMSA), 2 'Kommandokraal farm, 23.9.1994, E-Y:3033, on sandy ground, leg. Endrödy, Bellamy' (TMSA); 1 'Kommandokraal farm W, 23.9.1994, E-Y:3035, on ground, leg. Endrödy, Bellamy' (TMSA); 1 'Rooidam farm, 28.10.1979, E-Y:1662, yellow inland dunes, leg. Endrödy-Younga' (TMSA); 2 'Tities Baai 560, 31.06' 54 S - 17.44' 28 E, S. Afr., Namaqualand, 5.XII.1996, leg. J. du G. Harrison, firm yellow sand, coastline' (TMSA); 3 'Wallekraal, October 1950, Museum Expedition' (TMSA).

ETYMOLOGY. The species is named after my colleague Dr Charles Bellamy, who assisted in collecting most of the specimens on our first joint field trip

***Gonopus (Agonopus) transvaalensis* Schulze, Figs 8, 31**

Gonopus transvaalensis Schulze, 1976: 91.

DIAGNOSIS. Collar margin of prosternum deep. Profemur without tooth. Basal margin of pronotum deeply emarginate. Elytra anteriorly with three (two, three, five) smooth ribs, blending into granular ribs behind. Pronotum with two smooth bilateral areas, from margin a number of inwardly directed setae. Closely related to *G. hirtipes*.

DESCRIPTION. Head moderately convex, clypeal margin deeply emarginate, epistomal furrow very faint to sharp. Punctuation fine, with deep, long,

setose punctures near eyes and clypeus; setae recumbent. — Pronotum broadest about at mid-length, evenly contracting towards front and base, not emarginate. Disc distinctly punctate in front and along median line, finely wrinkled laterally. Two median-bilateral areas smooth. Lateral margin elevated, with many inwardly directed, recumbent setae. Posterior margin deeply emarginate, posterior angles rectangular. Anterior margin convex between lateral emarginations, also emarginate here. Anterior angle rectangular, not protuberant. — Elytra longer than combined breadth (16,0:13,5 mm). In mid-section of disc only three smooth, broad ribs, behind and laterally tuberculate lines appear. Long setae emerge from rib intervals along entire length of lateral margins, latter finely granulate over entire surface. Humeral tubercle small. Pseudopleuron punctate and rugulose. — Collar margin of prosternum deep, margin slightly elevated and posteriorly with long setae on rugulose surface. Prosternal apophysis slightly convex, apex posteriorly, angularly extended. Anterior portion of metasternum deeply excavate to receive apex of prosternal apophysis. First three abdominal sternites wrinkled, fourth finely punctate, anal sternite wrinkled and marginate at margin. — Anterior tibia with median longitudinal, elevated line; apical lateral tooth large and sharp and three or four small lateral denticles postmedially. Ventral surface flat and wrinkled; setae of femur and tibia moderately long. Mesotibia with somewhat bigger, metatibia with one or two very small, denticles. Meso- and metatibiae with long setae. — Sexes similar in size.

Length 20–24 mm; breadth of pronotum 9,5–12,5 mm; elytra 12,5–13,5 mm.

DISTRIBUTION. All specimens were collected in a small area around Ohrigstad, Mpumalanga Province.

MATERIAL EXAMINED. 26 TMSA.

Type material: holotype ♂: 'At Echo Caves, 32 km NNW Ohrigstad, 16.xi.1967, L. Schulze & D. Goode [printed]' / 'From Insectarium No. 748' / 'Holotypus [printed in red]' 1975, *Gonopus transvaalensis* L. Schulze [handwritten by Endrödy-Younga] [white label, with red margin] (TMSA), *allotype* ♀: same data as holotype except 'Allotypus' (TMSA); *paratypes:* 14 same data as holotype except 'Paratypus', 2 'Grootdraai, N.E. Tv., x.1927, H. lang [printed]' / 'Paratypus' (TMSA)

Additional material: South Africa: 2 Ohrigstad, 3.III.1962, in humus leg. N. Leleup Z.A.93, 1 Ohrigstad, January 1984, leg. Endrödy-Younga; 2 Ohrigstad-Pilgrims Rest, 28.11.1986, E-Y:2325, on ground and bush, leg. Endrödy-Younga; 3 Waterval-rivierpas, 6.11.1980, E-Y:1722, singled on ground, leg. Endrödy-Younga.

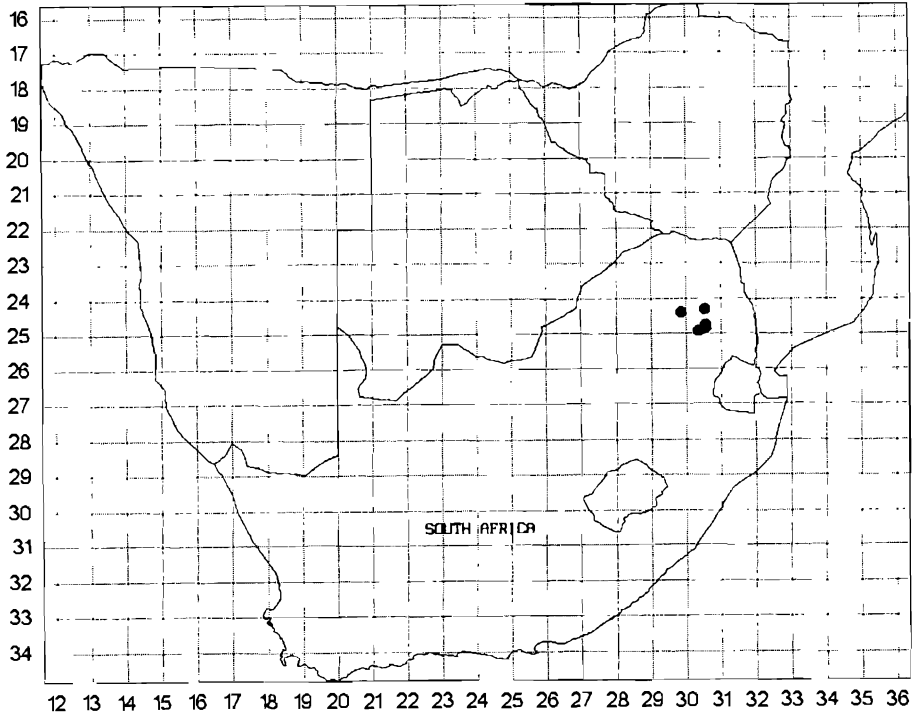


Fig. 8

Distribution of *Gonopus (Agonopus) transvaalensis*.Subgenus **GONOPUS** Gebien***Gonopus (Gonopus) amplipennis* Fairmaire,**
Figs 9, 32*Gonopus amplipennis* Fairmaire, 1888: 263.

DIAGNOSIS. Collar margin of prosternum deep, sharply crested, without setae. Profemur with rounded tooth. Posterior portion of prosternal apophysis evenly rounded to mesosternum, without an apical tooth. Pronotum broad, lateral margins in front of posterior angles concave-marginate. Disc smooth and matt, without punctation. Disc of elytra without crests, which appear in apical declivity and as a lateral triplet; granulations appear in the same areas. Pseudopleuron matt, without distinct punctation or wrinkles. Metatibia with short but distinct setae inside.

DESCRIPTION. Head slightly convex, depressed bilaterally in front of eyes. Clypeus broadly emarginate. Epistomal sulcus variable. Temporal margin roundly elevated in front of eye. Disc more or less finely punctate. Collar margin of prosternum deep, with sharp edge but without setae. Prosternal apophysis anteriorly depressed, coxae smooth and evenly bent to mesosternum, apex rounded or

with a tiny granule. Prosternal pseudopleuron faintly wrinkled longitudinally. — Pronotum much broader than long (10:7 mm), lateral margins broadly arcuate, broadest in middle. Anterior margin broadly emarginate, with small but sharp anterior angles. Lateral margins concavely emarginate in front of posterior angles, which are slightly acute. Posterior margin distinctly emarginate. Edges of disc sharp, distinctly broader anteriorly. Disc smooth, matt, without punctation. — Elytra about as long as broad, forming an apex behind. Elytra much broader than pronotum (17:11 mm). Lateral margins are marked by two dense, fine, granulate lines. Disc otherwise without crests, only marked by punctate lines, only convex at apical declivity with few granules. Pseudopleuron smooth, matt, without punctation. First three abdominal sternites with fine longitudinal wrinkles, fourth smooth, anal sternite punctate. — Protibia with one apical and two or three lateral teeth. Tibia dorsally longitudinally convex, ventrally with a sharper crest. Mesotibia bilaterally compressed, at top denticulate, at inner surface with a sharp crest. Metatibia with flat dorsal strip, setae on inside rather short.

Length 22–24 mm; breadth pronotum 10–12 mm, elytra 14–18 mm.

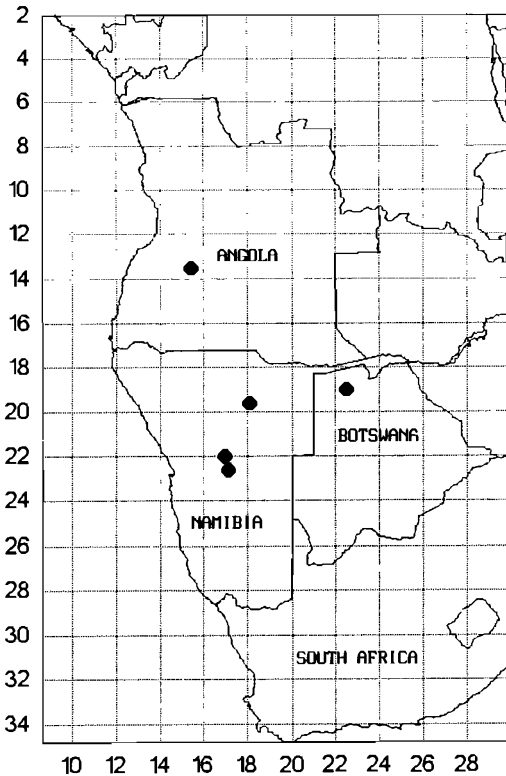


Fig. 9

Distribution of *Gonopus (Gonopus) amplipennis*.

DISTRIBUTION Central Namibia, Angola, Botswana.

MATERIAL EXAMINED. 10 TMSA, 10 SAMC, 1 NCIP, 8 MNHN, 8 ZMHB.

Type material: not examined, possibly housed in MNHN.

Additional material: Namibia: 3 Damara; 1 Grootfontein, S.W. Protect.; 1 Herero; 1 Okahandja, VI. 1901, 1 Okahandja, 1912; 1 Okahandja, XII. 1927, R. D. Bradfield; 4 Ovamboland, 1890–1891, leg. A. Erickson; 1 S.W. Afr.; 1 Windhoek, 14.IV.1982, leg. Bidlingmaier; 3 Windhoek, Hartmann; 3 Windhoek, Rehbok S.

Angola: 2 Caconda; 4 Mission Rohan Chabot, 1914.

Botswana: 1 Ambuella Cubango, 25.X.1900.

***Gonopus (Gonopus) deflexus* Gebien, Figs 10, 33**

Gonopus deflexus Gebien, 1920: 118.

DIAGNOSIS. One of the smallest species in the subgenus. Collar margin of prosternum deep, with-

out setae. Profemur with small tooth. Pronotum much broader than long (9.5:6.0 mm). Prosternal apophysis evenly rounded to mesosternum, without a notch at apex. Elytra regularly ovate, without crest at lateral margin. Humeral angle indicated only on dorsum. Seven dorsal costae shallowly rounded, only finely granulate at apical declivity. Eighth costa indicated behind on pseudopleura. All legs with only microscopic pubescence, dorsum of body bare.

DESCRIPTION. Head flat in clypeal area, slightly convex behind. Clypeus deeply emarginate. Epistomal sulcus faint. Disc of head angularly contracted behind eyes. Disc finely and densely punctate, sometimes with fine, short wrinkles laterally. Collar margin of prosternum deep, with moderately sharp crest, without setae. Surface of prosternal apophysis with some longitudinal impressions. From procoxae, apophysis bends evenly to mesosternum without a notch at apex. — Elytrae ovate, convex, both transversely and longitudinally; humeral angle very small, appearing only on humeral surface. Lateral margin without sharp crest. Seven dorsal costae flatly rounded, with narrow impression between them. Eighth costa marked as a line of posterior tubercles on pseudopleuron. Dorsal costae smooth or finely wrinkled transversely. Tubercles appear only on lateral costae in apical declivity. — First four sternites with longitudinal wrinkles, and sternites (four and five) densely punctate. Protibia with one or two lateral teeth, apical tooth somewhat larger, narrowly triangular. Male protibia emarginate at inner base, with a small notch at broadest point. Mesotibia bilaterally compressed, with low but sharp longitudinal crest on inside and three or four dorsal teeth. Metatibia with narrow, flat dorsal strip along entire length. Legs with microscopic pubescence, without setae.

Length 15–19 mm; breadth of pronotum 8.0–9.5 mm, elytra 9.0–12.5 mm.

DISTRIBUTION. Tanzania, Zambia.

MATERIAL EXAMINED. 4 NMB, 1 BMNH, 17 TMSA, 58 ZMHB, 17 MNHN.

Type material: holotype: 'D. O. Afr., Upangwa' / 'Type No. 796' / 'Gonopus [printed] deflexus Geb. [handwritten by unknown curator]' (NMB); paratypes: 1 'D. O. Afr., Upangwa' / 'Cotype: No. 796' / 'Gonopus deflexus Geb.' (NMB); 2 'D. O. Afr., Manow' / 'Cotype: No. 796' / 'Gonopus deflexus Geb.' (NMB); 1 'D. O. Afr., Upangwa' / 'Cotype: No. 796' / 'Gonopus deflexus Geb.' / 'Brit Mus. 1941-241' (BMNH), 1 'D. O. Afr., Tandala [handwritten on blue label]' / 'Gonopus [printed] deflexus Geb. [handwritten]' [label identical to the NMB and

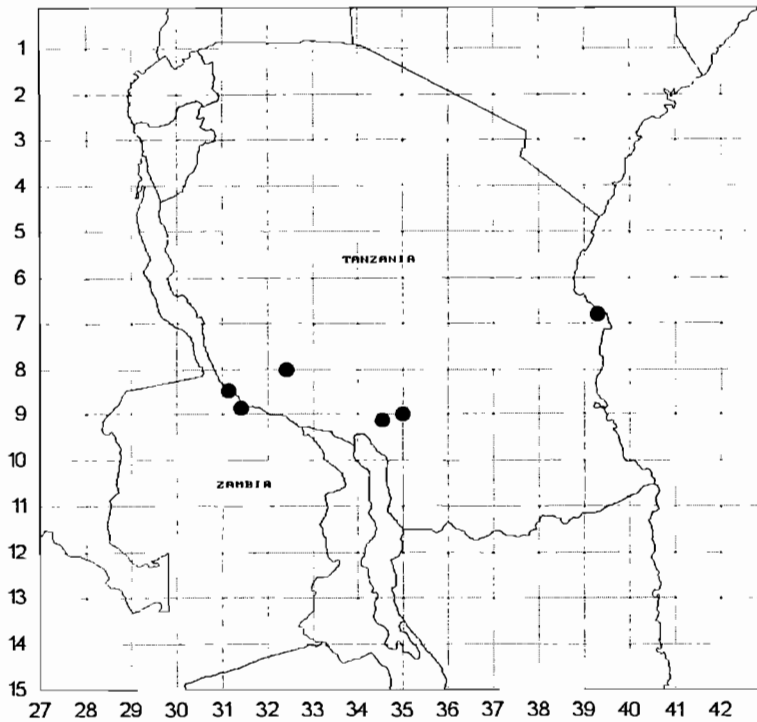


Fig. 10
Distribution of *Gonopus (Gonopus) deflexus*.

BMNH labels] (ZMHB); 1 'D. O. Afr., Manow' [handwritten on blue label] / 'Gonopus deflexus Geb.' / 'Gonopus deflexus Geb. 5128.' [unknown handwriting] (ZMHB).

Additional material: *Tanzania*: 4 Bismarckburg, D.O. Afrika Bez., leg. Zencke; 1 Fwambo; 5 Iringa, D. Ost Afrika; 6 Kidugala, Uheheland; 1 Ljake] Rukwa Area, 3700 ft., 4-38, D. G. MacInnes, 1 Mallow; 1 Mambwe; 4 Nyassa, 23 N Nyassa See, Ubena-Langenburg, IV.1899, S. Göetze; 1 N-Nyassa See, Langenburg, Ukinga, Buanyi-Poroto Hochplateau, IX.1899 S. Göetze; 11 Ubena, D. Ost Afrika, III. 1899, S. Göetze; 1 Uehe-Hochland, D.O. Afrika S. G. Fromm; 1 Uehe Iringa Umgegend, D.O. Afrika, E. Nigmann, 1 Uehe Iringa-Mgololo südlich, D. Ost Afrika, III.1899, S. Göetze; 1 Upangwa.

Zambia: 7 Abercorn, XII.1942, H. J. Brèdo.
?Country: 4 Noko, Ost Afrika, VI.1899, Stolz, 1 Tondale.

***Gonopus (Gonopus) conpachysoma* Koch,**
Figs 11, 34, 48, 51

Gonopus conpachysoma Koch, 1953: 231

DIAGNOSIS. Collar margin of pronotum deep, with fine setae behind edge. Profemur with very large tooth. Pronotum matt, with fine punctation and

wrinkles, and with faint sagittal impression. Prosternal apophysis deeply rounded from coxa towards body Elytra moderately longer than combined width, humeral angle small, striation uniform and rounded, only sixth and seventh crested. Elytra without setae Mesofemur at basal half setose; metafemur at external and internal margins with brush-like, long setae. Metatarsi also with long setae ventrally

DESCRIPTION. Head small, clypeus deeply emarginate, genal margin in front of eye double-arcuate. Epistomal furrow distinct but not sharp. Disc finely and densely punctate without setae. — Pronotum slightly broader than long (10,0:8,5 mm) Disc broadest in front of middle, contracting anteriorly in straight lines, very slightly emarginate in front of basal angles. Collar margin much narrower than basal margin (5,0:7,8 mm) Anterior lateral angles pointed and rather large, acutely angular, posterior angles rectangular. Lateral margins finely and evenly marginate Anterior emargination forming a small triangular extension in middle Posterior margin slightly emarginate. Disc matt, occasionally with faint depressions and sagittal depressions, wrinkled laterally. Punctuation very fine in middle, laterally with somewhat larger punctation and setae.

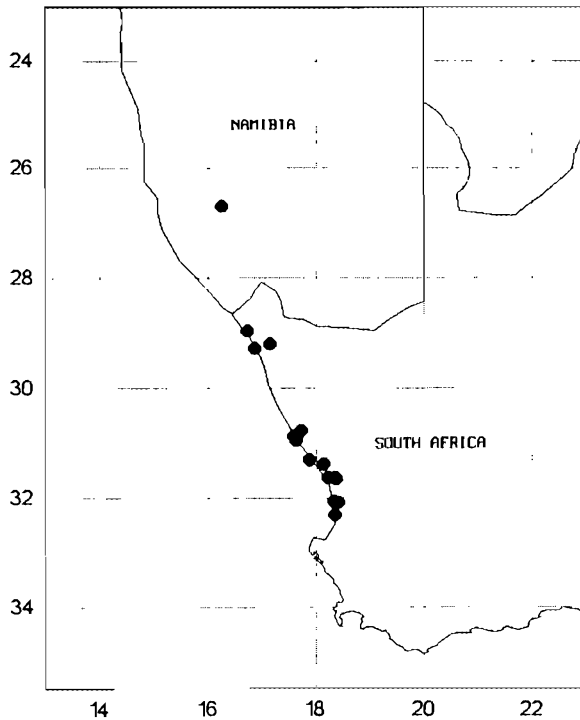


Fig. 11

Distribution of *Gonopus (Gonopus) compachysoma*.

— Elytra ovate, hardly broader than pronotum (12:11 mm) Humeral angle pointed but small. Five inner costae broad and flatly convex from base to apex. Costae six to eight more sharply elevated. Costal intervals narrow and shallow, with very fine punctation. Pseudopleuron finely punctate. — Collar margin of prosternum deep, wrinkled behind edge, with fine, long setae. Prosternal apophysis convex between procoxae arcuately turning towards gula behind, posterior apex small but angularly elevated in lateral view. Anteromedian portion of mesosternum shallowly excavate in a broad V shape — First three sternites longitudinally wrinkled, fourth finely punctate, anal sternite emarginate and densely punctate at apex. Profemur with large pointed tooth. Protibia with shallow longitudinal impression and a few fine setae. Mesotibia flat and sharp at top margin with few denticles, except at its apex with fine setae, both on external and internal sides. Metatibia flattened and crested at top margin, with extremely long and dense, reddish setation

Length 20–24 mm; width of pronotum 9.5–11.0 mm, elytra 11.0–12.5 mm.

DISTRIBUTION Cape west coast from southern Namibia to southwestern Cape

MATERIAL EXAMINED. 26 TMSA, 9 SAMC, 1 MNHN.

Type material: holotype. 'Holgat, L. Namaquald., 2.II.1953, C. Koch [printed]' / 'δ' / 'C. Koch det. 195 [printed], *Gonopus compachysoma* Koch [Koch's handwriting], C. Koch det., 195 [printed]' (TMSA), *paratypes* 2 ♂♂, 1 ♀ 'Holgat, L. Namaquald., 2.II.1953, C. Koch [printed]' (TMSA); 1 'Oograbies, L. Namaquald., 30.III.50, C. Koch, G van Son' (TMSA), 2 Leipoldtville–Eland's Bay (SAMC), 1 Papendorp, Olifants River (SAMC), 4 Port Nolloth (SAMC). (One more paratype, according to Koch (1953), should be housed in the Science Museum, California Academy, but was not examined.)

Additional material: South Africa: 1 Elands Bay forestry, 28.8.1981, E-Y 1853, ground traps 60 days with meat bait, leg. Endrödy-Younga, 1 Dermbergsdraai farm, 24.8.1979, E-Y 1590, sandblown hill, leg. Endrödy-Younga; 1 Du Toitsbaai, 3118 AC, 27.XI.1086, Whitehead, 1 Groenrivier mouth, 26.10.1979, E-Y 1657, singled at coast, leg. Endrödy-Younga, 1 Island Point, 4 km S, 25.8.1979, E-Y 1596, veget. white sand, leg. Endrödy-Younga, 1 Lamberts Bay, Nov. 1956, 1 Nortier farm, 23.8.1981, E-Y 1840, day red sand, leg. Endrödy-Younga; 1 Nortier Farm, 23.8.1981, E-Y:1845, ground traps with meat bait, leg.

Endrödy-Younga; 1 Nortier Farm, 25.8.1981, E-Y:1845, ground traps with banana bait, leg. Endrödy-Younga; 1 Nortier farm, 25.8.1981, E-Y:1845, ground traps with meat bait, leg. Endrödy-Younga, 1 Papendorp, Nov. 1956; 1 Papendorp dunes, 21.8.1981, E-Y:1826, night, red dunes, leg. Endrödy-Younga, 1 Papendorp dunes, 22.8.1981, E-Y:1828, ground traps 64 days with meat bait, leg. Endrödy-Younga; 1 Port Nolloth, Sept.1921; 1 Port Nolloth, 22.XI.1942, leg. Koch, van Son; 2 Port Nolloth, VII.1978, leg. E. Holm, 1 Port Nolloth, 16.7.1996, site no. 3, leg. J. du G. Harrison; 2 Seweputs farm, 22.8.1981, E-Y:1832, singled night, leg. Endrödy-Younga; 1 Soutpan dunes, 27.8.1989, E-Y:2671, coastal dunes night, leg. Endrödy-Younga.

Namibia: 1 Aus, 17.IX.1950, C. Koch, van Son

***Gonopus (Gonopus) mozambiquensis spec. nov.*, Figs 12, 36**

DIAGNOSIS. This species resembles *G. proster-nalis* in shape, but they can be separated by a number of characters. Pronotum densely tuberculate except for a smoother central discal area. Shape of pronotum narrower; compared to elytra, posteriorly at lateral margins much less emarginate. Elytral costae narrower, intervals broader and more finely tuberculate; costae, particularly in middle of disc, finer. Elytra only with seven costae, lateral one sharp. Rounded prosternal apophysis with a small tooth. Posterior tibiae with dense setation. Pro- and mesotibia with large, broad apical teeth.

DESCRIPTION Head narrow, clypeus deeply emarginate, epistomal furrow faint. Head behind eye angularly contracted, disc finely and densely punctate, behind clypeus finely wrinkled — Pronotum almost as broad as long (9,5:9,0 mm) Broadest behind middle, lateral dilations moderate. Anterior emargination very deep, with almost straight part in mid-section. Anterior corners of pronotum long, narrowly pointed. Lateral margins evenly arcuate, baseline only slightly broader than anterior apices (7,0:5,5 mm). Lateral margin only briefly and slightly contracted at basal angles. Basal margin slightly emarginate, with thicker margin than laterally. Disc laterally broadly, sharply and finely granulate, middle of disc to base more finely granulate. Lateral thirds of disc finely and sharply granulate, centre smoother and shinier. Collar margin of prosternum deep but edge rounded, without a crest and without setae. Prosternum and prosternal apophysis distinctly punctate and wrinkled. Apophysis deeply arcuate to mesosternum with a small notch at apex. — Elytra with only seven discal costae. Sometimes with a scattered line on

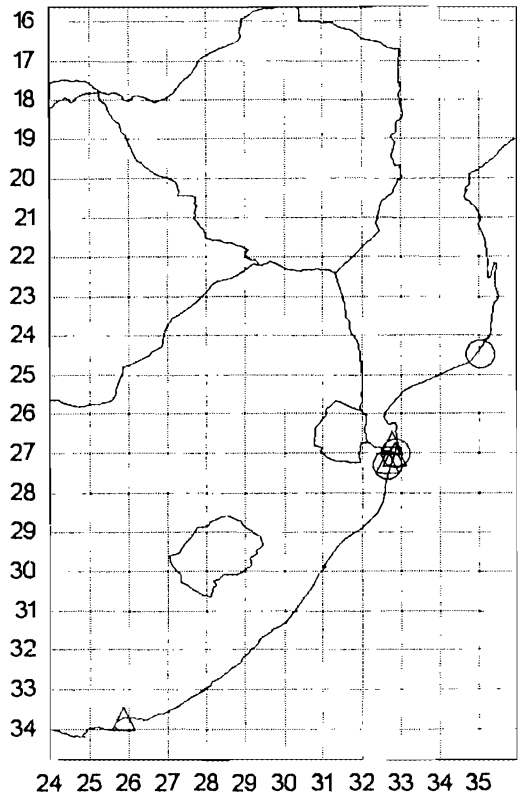


Fig. 12

Distribution of *Gonopus (Gonopus) mozambiquensis* (circles) and *G. (G.) mozambiquensis muelleriae* (triangles)

pseudopleuron that is otherwise punctate. First four sternites longitudinally wrinkled, sometime densely punctate. Anterior femur with tooth, tibia with two lateral teeth, apical lateral tooth broad. Mesofemur bilaterally compressed, with an inner longitudinal crest, apical tooth large and broad, similar to profemur. Metatibia moderately arcuate, with a narrow, dorsal flat area. All legs microscopically pubescent, but metatibia with two lines of long setae except at apex.

Length 12,0–12,2 mm; breadth pronotum 10 mm, elytra 13–15 mm.

DISTRIBUTION. Mozambique and KwaZulu-Natal coast

MATERIAL EXAMINED. 16 TMSA, 1 BMNH.

Type material: holotype ♂: 'Lake Sibayi, June 1967' (TMSA); paratypes: 1 unsexed 'Banga Neck, N Tonga Coast, 16.VII.1981, KLT' (TMSA); 4♀, 1 unsexed 'Zavora, nr. Inharrime, Mocambique' (TMSA), 7♂ (TMSA), 1 unsexed (TMSA), 1♀ (BMNH),

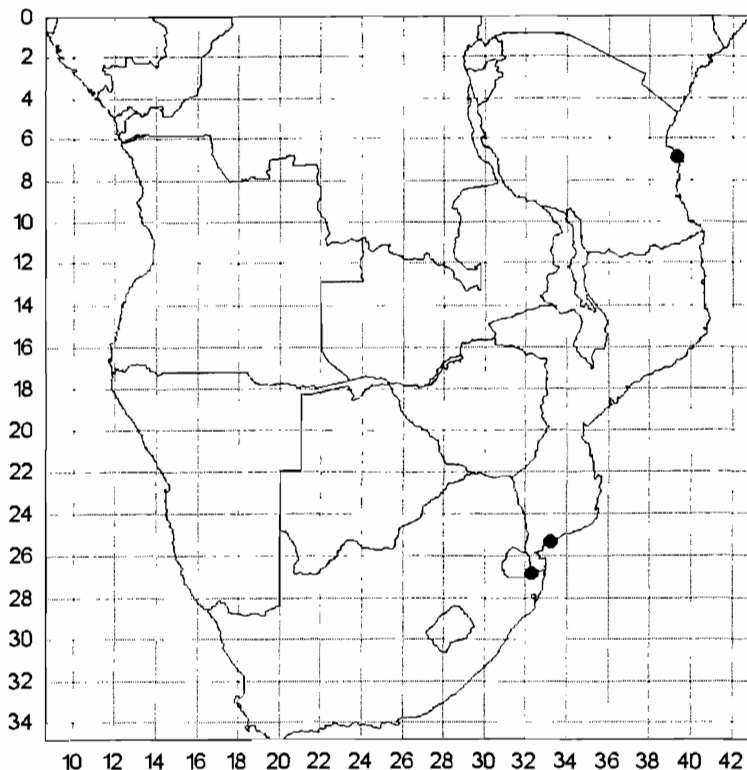


Fig. 13

Distribution of *Gonopus (Gonopus) prosternalis*.

'Zavora, 250 m N.L. Marques, V.1962, P. de Moor'; 1 unsexed 'S.E.L., 1968, S. Marthina' (TMSA)

***Gonopus (Gonopus) mozambiquensis muellerae* subsp. nov.**, Figs 12, 37

DIAGNOSIS. The main diagnostic character of this subspecies is that the disc of the elytra has no crests but only rather small granules in straight lines. Pronotal granulation is similar in both subspecies. Apical tooth of mesotibia, sexual difference in male, elevated elytral margins, similar in both subspecies.

Length 22–23 mm, breadth pronotum 9 mm, elytra 13–14 mm.

DISTRIBUTION. KwaZulu-Natal coast.

MATERIAL EXAMINED. 3 TMSA, 1 BMNH, 1 MNHN, 2 SAMC.

Type material: holotype ♀: 'Tongaland, Black Rock, 10.12.80, Haacke' (TMSA); paratypes. 1 ♀ 'S. Afr., Natal, Black Rock, 27.08S 32.49E, 7–11.xii.1982, leg L. Wessels (TMSA); 1 ♀ 'Lake Sibaya, Res. Sta., Natal, South Africa, 15–25.I.1970, W. Tschinkel, Coll.

C.U Lot 1001. Sublot 148-3, W Tschinkel' / 'SAM-COL A012320' (SAMC); 1 unsexed 'Abyssinie' [handwritten on blue label] / 'Coll. J. Thomson' / 'Gonopus n. sp. det. Gebien 1913' [handwritten by Gebien on white label with black margin] (MNHN). ['Abyssinie' is obviously a mistake, wrong label was probably attached to specimen!]; 1 ♀ 'Lake Sibayi, June 1967' (BMNH); 1 unsexed, data not verifiable (SAMC), 1 'Kosi-baai, 26.50S 32.45E, 1.IV.1998, leg. C. Jansion' (TMSA).

ETYMOLOGY. The new subspecies is named after Miss Ruth Müller who is my excellent collection manager and dedicated fieldworker

***Gonopus (Gonopus) prosternalis* Gebien**, Figs 13, 35

Gonopus prosternalis Gebien, 1920: 119.

Gonopus nitidipleuris Gebien, 1920: 120. **Syn. nov.**

DIAGNOSIS. Collar margin of prosternum deep, without setae posteriorly. Profemur with tooth. Prosternal apophysis deeply bent, with small angle

at apex, surface hardly depressed longitudinally. Pronotum somewhat broader, deeply emarginate to posterior angles, disc clearly wrinkled longitudinally. Base of pronotum not depressed. All elytral costae not sharply, but uniformly, granulate, only eighth costa (lateral) double-granulate. Humeral process very small. Pseudopleuron almost smooth. Only protibia with broad apical tooth.

DESCRIPTION Head narrow, moderately convex, clypeus emarginate, epistomal furrow faintly indicated, disc flatly wrinkled. — Pronotum broad (breadth 11, length 8 mm), broadest in middle, where broadly rounded, contracting forward in straight lines, towards basal angles deeply emarginate. Apical angles sharp, acutely angled, basal angles also slightly acutely angled. Collar emargination deep and even; basal margin slightly emarginate in middle. Lateral margins fine and sharp. Disc rather sharply longitudinally wrinkled, short lateral wrinkles laterally transverse. Prosternal apophysis evenly rounded to small apical angle, surface flat with some transverse impressions. — First three sternites faintly wrinkled longitudinally, last two sternites finely punctate. Surface of first sternite behind metacoxae without a short, sharp elevation. Protibia emarginate at base on inside; its dorsal surface slightly convex but without longitudinal crest or furrow. Protibia with large, broad apical tooth. Meso- and metatibia densely denticulate, metatibia with a narrow dorsal flat longitudinal area, without pubescence.

Length 17–22 mm; breadth pronotum 8,0–10,5; elytra 11,0–14,5 mm

DISTRIBUTION. Mozambique and Tanzania.

MATERIAL EXAMINED. 2 NMB, 4 TMSA, 1 MIZPAN, 4 ZMHB, 2 DEI.

Type material: holotype, *Gonopus prosternalis* Gebien: 'Dares Sal' / 'Type: No. 797' / 'Gonopus prosternalis Geb.' (NMB), holotype, *Gonopus nitidipleuris* Gebien: 'D.O. Afr.' / 'Type No. 798' / 'Gonopus nitidipleuris Geb.' (NMB), paratypes: 1 'Usaramo' / 'Gonopus nitidipleuris Geb. Cotype!' [handwritten by Gebien] / 'Syntypus' [printed on red label] / 'Gebien det.' [printed] (DEI); 1 'Mikindani' / 'Syntypus' [printed on red label] / 'Gebien det.' [printed] (DEI).

Additional material Tanzania: 5 Makonda Hochland, 16.XII.1910, Grote, 1 D. O. Afrika, Mikindani.

Mozambique: 1 Catuane, XI.1958, de Moor; 1 San Martinho, X.1962, de Moor; 1 Zavora, nr. Inharrime.

REMARKS. The costal profile and wrinkles on the pronotum are similar in *prosternalis* and *nitidipleuris*.

Double granulation of the seventh costa occurs in both forms, as well as the elevated rib behind metacoxae. Variation in pronotal wrinkles and elytral granulation between the two taxa are no greater than intrapopulation variation observed in several other species.

***Gonopus (Gonopus) deplanatus* Fähræus,**

Figs 14, 38, 50, 57

Gonopus deplanatus Fähræus, 1870: 290.

Gonopus costatus Fähræus, 1870: 291. **Syn. nov.**

Gonopus agrestis Fähræus, 1870: 292. **Syn. nov.**

DIAGNOSIS. Collar margin of prosternum deep, crest sharp, without setae. Profemur with large tooth. Head moderately convex. Pronotum heart-shaped, posteriorly emarginate. Sculpture of disc variable. Prosternal apophysis mostly straight, never sharply bent. Pronotum broader than long (9:7 mm). Elytra much broader than pronotum (15:9 mm). Elytra broadly arcuate, usually with complete eighth tuberculate crest. Metatibia with a pair of close crests on dorsum. Metatibiae with long, dense setae, unless worn off. *Gonopus deplanatus* is the most common southern African species.

DESCRIPTION. Head moderately convex, temporal margin slightly elevated in front of eyes. Clypeus broadly emarginate with rounded lateral angles. Epistomal sulcus might be distinct or faint in the same series of specimens, punctation similarly faint or coarse. — Pronotum narrow towards elytra (9:15 mm). Anterior emargination even, lateral process sharp but small. Discal sculpture varies from smooth, punctate and wrinkled. Pronotum broadest at middle, more or less contracted or emarginate behind. Posterior margin emarginate. — Elytra broadest in front of middle, evenly arcuate to apex. Humeral process rather large. Disc of elytron with seven granulate crests. First and third crests usually lower, eighth granular crest visible around humerus, but complete beneath lateral curvature. Anterior central portion of mesosternum deeply excavate. First four sternites longitudinally wrinkled, anal sternite punctate. — Protibia with sharp dorsal and ventral crests, with three lateral and apical teeth. Mesotibia bilaterally compressed with longitudinal crest inside, sharply denticulate at dorsum. Metatibia slightly arcuate, with sharp longitudinal crest on flat dorsal area. Fresh specimens with dense and long setation on both outer and inner surfaces.

Length 14–28 mm; breadth pronotum 5–11 mm, elytra 9–19 mm.

DISTRIBUTION. Zimbabwe, Mozambique, Namibia, Botswana, South Africa.

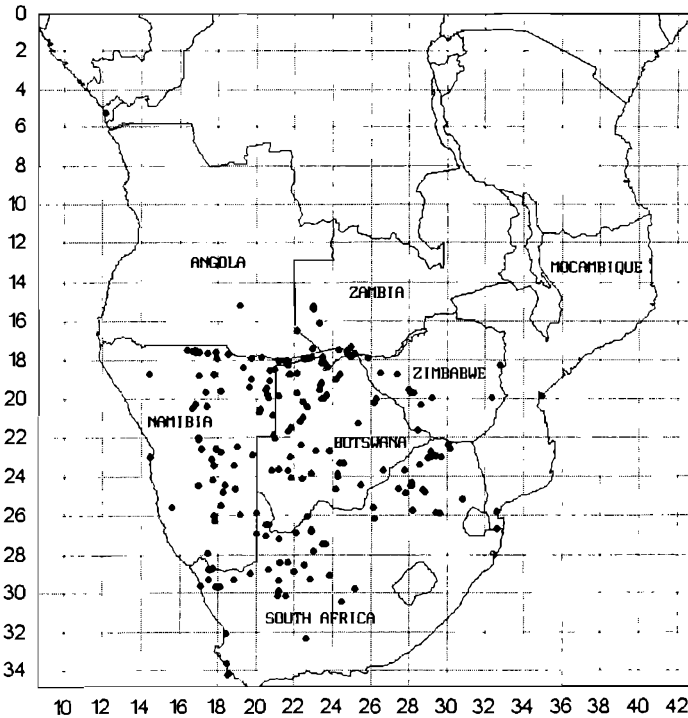


Fig. 14

Distribution of *Gonopus (Gonopus) deplanatus* in Africa.

REMARKS. The prosternal apophysis, present in both *costatus* and *deplanatus*, is convex only at procoxae, otherwise straight. This configuration also occurs in typical *agrestis*. Wide variation in elytral sculpture (extent of granulation) is present in *agrestis*: for example, at Ellisras a population occurs that has very smooth elytra but in the vicinity other populations manifest uniformly straight and even elytra typical of *agrestis*. The pronotal sculpture is also variable but without geographic pattern.

MATERIAL EXAMINED. TMSA: 574 ♂♂ dissected, 104 ♀♀, 107 unsexed; 13 SMNH, 63 MNHN, 14 DEI, 708 TMSA, 2 NCIP, 84 SAMC, 19 ZMHB, 103 SMWN, 24 UP, 77 MNHN, 18 SMNH.

Type material: holotype, *Gonopus deplanatus* Fåhræus: 'Caffraria.' [printed] / 'J. Wahlb.' [Wahlberg, printed] / 'Gonopus deplanatus n. sp.' [most likely handwritten by Fåhræus] / 'Typus' [printed on red label, typical Stockholm type label] (SMNH); holotype, *Gonopus costatus* Fåhræus: 'Caffraria.' [printed] / 'J. Wahlb.' [Wahlberg, printed] / '87' [printed] / '47 [printed] 52 [handwritten]' [on red label] / 'Gonopus costatus n. sp.' / [most likely handwritten by Fåhræus] / 'Typus' [printed on red label, typical Stockholm type label] (SMNH), holotype, *Gonopus agrestis* Fåhræus: 'Caffraria.'

[printed] / 'J. Wahlb.' [Wahlberg, printed] / '88' [printed] / '43 [printed] 52 [handwritten]' [on red label] / 'Gonopus agrestis n. sp.' / [most likely handwritten by Fåhræus] / 'Typus' [printed on red label, typical Stockholm type label] (SMNH).

Additional material: Zimbabwe: 14 Baboult; 1 Birchenough, I. 1938, v. Son; 11 Bulawayo, V. 1913; 1 Chikwarakwara; 1 Halfway Hotel, 26.I.1966; 1 Ignsi, 26.XI.1944, 1 Insiza; 1 Inyanga, 11.1970, O. Prozesky; 1 Matabele; 1 Nangweshi, 20–28.VIII. 1952, Munro; 1 Nuanetsi, 150 km SE, IV.1961; 2 Nyamandhlovu, XI.1966; 3 Sawmills, 13.XI.1971; 1 Sebungwe, Marshall coll.; 1 Shasi-Limpopo Confl., 36.12.V.1959; 1 Victoria Falls, 18.X.1972, O. Prozesky; 13 Victoria Falls, VI.; 2 Wankie Nat. Res., 1970.

Zambia: 5 Haut Lealui; 2 Lealui; 1 Senanga, 5.VII.1952, Munro; 1 Sesheke, 7.IV.1997, W. Haacke; 1 Shangombo, 7.VIII.1952, Munro;

Mozambique: 1 Beira; 1 Fito, 9.VII.1948, Koch; 1 Maputo, I.VI.1988, Vespermann; 12 Rikatla; 1 Vallée du Pongwe.

South Africa: 1 Alma, Nylstroom, I.1964, J de Beer; 1 Beaufort W; 1 Blouberg, 600ft, 10.I.1955, Tvl. Museum Expedition; 1 Blouberg, 28.XI.1996, M Krüger; 3 Breekkierie farm, 3–6.5.1985, E-Y.2214, ground traps 2 days, leg Penrith, 2 Breekkierie farm, 5.5.1985, E-Y.2214, ground traps, leg. Penrith,

- 1 Cape Town, 1 Chapudi, N Tvl., v. Son, 1 Chapudi, 5.IV.1950, van Son; 1 Douglas, 6.VI.1979; 3 Ellisras, 16.XII.1964, 2 Ellisras, 15.XI.1964, 16 Ellisras, 1.I.1971, C. H. Draper; 1 Glen, VI.1954, E. K. Hartwig, 2 Groblersdal, II.1959, P. de Moor; 65 Groblershoop, 11.IV.1990, C. G. Moolman; 2 Grootmis 20 km E, 4.X.1972, H. D. Brown; 6 Haakdoorn, Ztpb., XI.1925, C. Coombs, 2 Hellskloof, 25.IV.1975, Breytenbach; 1 Hotazel 50 km NW, VII.1978, Holm; 1 Kakamas, 15.3.1949, Bradley, 1 Kakamas, 15-18.1949, Bradley; 1 Kakamas, 12.XI.1950, Brinck, 1 Kenhardt, 1 Kenmaar, 20.XI.1964, de Moor; 2 Kuruman, V.1948, Koch; 1 Kuruman, 8.IV.1933, G. van Son; 3 Kuruman, V.1948, C. Koch; 3 Kuruman, 120 km NW, V.1969 L. Schulze, 1 Lamberts Bay, 4.X.1974, H. D. Brown; 4 Langjan Nat. Res., 20.I.1980, C. Kok; 1 Langjan Nat. Res., 27.II.1988, van Viegen, 1 Lichtenburg, IV.1971; 6 Mata Mata, V.1956, Kalahari Park Expedition; 12 Mata Mata, VI.1956, C. Koch; 14 Mata Mata, V.1957, C. Koch; 1 Mata Mata, X.1957, C. Koch; 52 Mata Mata, 11.1957, C. Koch, 1 Messina, A. L. Capener; 1 Mier Inkbospan, 6.II.1970, H. D. Brown; 1 Montagu, 6.VI.1987; 1 Niekerkhuop, 13.8.1950, Koch, 7 Niekerkhuop, IX.1951, Koch; 6 Niekerkhuop, IX.1951, C. Koch, 31 Niekerkhuop, IX.1951, Koch, van Son; 1 Nossob, L. Schulze, 2 Nossob, D. Brown; 1 Nylsvley; 2 Obogorop, 2 Obogorop, 200 km NW Upington, 14-19.XI.1950, Brinck, Rudebeck; 1 Pays des Moscies; 1 Pentonville, 100 km NW, IV.1955, D. Rorke, 3 Philipstown, XI.1925, A. Roberts; 1 P.K. le Roux Dam, II.1970, Vári, 2 P.K. le Roux Dam, 19-25.X.1970, Snyman, 1 Pofadder, 30 km E, 23.8.1977, E-Y:1326, ground traps with faeces bait, leg. Endrödy-Younga; 1 Pofadder, 30 km E, 23.8.1977, E-Y:1326, ground traps with banana bait, leg. Endrödy-Younga, 2 Pofadder, 80 km W, 25.8.1977, E-Y:1330, singled, leg. Endrödy-Younga, 1 Pofadder 30 km E, 28.8.1977, E-Y:1326, ground traps, leg. Endrödy-Younga; 1 Pretoria, II.1965; 1 Rooiberg, 28.XII.1969, R. Copley; 3 Scott farm, Amatola, 26.1.1998, E-Y:3311, leg. R. Müller; 1 Sishen, Upington, 18.IV.1964, Copley; 2 Soutpan Stp.berg, 15-30.XI.1932, van Son; 1 Soutpan, Stp.berg, XI.1925, C. Coombs; 1 Soutpansberg, XI.1925, C. Coombs, 1 Spitskop, Lydenburg; 1 Springbok, 16 km E, III.1958, G. van Son, 1 Springbok, 16.XI.1962, H. Brown; 2 Springbok, 65 km NW, 16.XI.1962, D. Brown; 1 Strandfontein, 13.XI.1949, C. Koch; 2 Steilloopbrug, 12.XII.1968, v. Schalkwyk; 2 Swartkop dunes, 1.5.1985, ground traps 7 days, with meat bait, leg. Penrith; 1 Transvaal, Nonfried; 4 Twee Rivieren, 9.II.1952, H. Brown; 1 Twee Rivieren, 20.V.1956, H. K. Munro; 14 Twee Rivieren, V.1956, Kalahari Park Expedition; 1 Twee Rivieren, II.1957, Koch; 35 Twee Rivieren, II.1957, C. Koch, 9 Twee Rivieren, 17-20.II.1957, Kalahari Park Expedition; 66 Twee Rivieren, II.1958, G. van Son; 14 Twee Rivieren, 11-20.II.1958, Kalahari Park Expedition, 1 Twee Rivieren, 11-20.II.1958, TM Kalahari Park Exp., 5 Twee Rivieren, IV.1960, O. Prozesky; 1 Twee Rivieren, 4.V.1961, 1 Twee Rivieren, 8-13.II.1961, H. Brown; 1 Twee Rivieren, I.1967, W. Haacke; 3 Twee Rivieren, V.1969, L. Schulze, R. Jones, 1 Twee Rivieren, 20.1.1986, C. H. Scholtz; 1 Twee Rivieren, 100 km SE, VII.1987, leg. E. Holm; 1 Twee Rivieren, 6.V.1995, Deckert; 1 Twee Rivieren 48 km N., D. Brown; 2 Uitzicht, Stp.berg, XI.1924, H. Heske; 2 Upington, IV.1933, N. Lang; 7 Upington, 23.XI.1950, Brinck; 5 Upington, 23.XI.1950, Brink; 14 Upington, 23.XI.1950, Brink, Rudebeck; 4 Upington, VI.1954, E. K. Hartwig; 16 Upington, V.1969, R. Copley, 1 Upington, XI.1975, C. G. Moolman, 1 Upington, 20.X.1979, Holm, Scholz, 2 Upington 29 km E, 20.X.1979, Holm; 1 Upington, 39 km E, 20.X.1979, Holm, Scholtz; 1 v. Zyl's Rust, 15.IV.1933, G. van Son; 1 v. Zyl's Rust, 12.XI.1950; 1 Vaalwater; 8 Vaalwater, 2.III.1940, A. Groenewald; 2 Vaalwater, II.1980; 1 Vaalwater, III.1980, 2 Vanzylsrus 80 km E, 8.12.1974, E. Holm; 2 Vioolsdrift 15 m W, 25.I.1975, Breytenbach, 1 Volmed farm, 3.IV.1986, leg. Wessels, 1 Waterpoort, IV.1978; 1 Witbank, 12.XII.1982, M. Janson; 4 Witsand, 14.7.1975, E-Y:817, leg. L. Schulze, 3 Witsand, 26.8.1990, Gussmann, 2 Zeerust, III.1970, L. Schulze, 1 NE Zoutpan dist., Beyer; 1 Thabazimbi, IX.8.1986, Khun; 1 Tshipise, 24.II.1973, A. Prinsloo.
- Namibia* 1 Ai-Ais, Fish River, 17.VIII.1987, R. Müller; 1 Andara Bagani, XI.1951, R. Strey; 3 Arnhem farm, XI.1966, N. Cotzee; 1 Berseba Rehbok, 2 Bradshaw, 1878; 1 Buffalo Base, 3-5.IV.1990, E. Marais; 2 Bushmanland, 8.I.-1.II.1991, E. Marais, 1 Chwaha River, 3 km NE, W Caprivi Park, 4-10.IV.1990, E. Marais; 9 Chulon farm, 14.8.1982, E-Y:1934, ground traps 45 days, leg. Penrith, 12 Chulon farm, 30.5.1982, E-Y:1932, ground traps 36 days, leg. Penrith; 15 Chulon farm, 5.7.1982, E-Y:1933, ground traps 41 days, leg. Penrith; 10 Chulon farm, 28.9.1982, E-Y:1935, ground traps 52 days, leg. Penrith; 5 Dikweya, 5 km NE Kavango, 14-27.I.1993, E. Marais; 7 Duineveld, XI.1953, E. Patzelt; 32 Duineveld, 21-24.II.1957, Tvl Museum Expedition, 1 E Caprivi; 1 Edimba, Ovambo, 14-26.I.1993, E. Marais, 5 Enyana, Ovambo, 14-27.I.1993, E. Marais, 3 Eiseb River, W of Theronsvallei, Hereroland East, 19.XI.1988, E. Marais; 2 Eiseb and Otjinoko Rivers confluence, 18.XI.-15.XII.1988, M. Paxton, E. Marais; 1 Fish River, 4.IV.1996, Wellmann, 1 Frischgewagd farm, III.1950, E. Scherz; 1 Gam road, northern vet. fence, Hereroland East, 19.XI.-15.XII.1988, M. Paxton, E. Marais; 1 Garib Ost, 10-11.VI.1993, E. Griffin; 1 Gautscha, 11.VI.1963; 1 Gautscha Pan, XII.1951, G.

- Hobohm; 1 Gautscha Pan, II.1958, Koch; 1 Gautscha Pan, XI.1958, Koch, 1 Gelukkie, Okavango, W Caprivi Park, 5–11.IV.1990, E. Marais; 7 Gobabis; 2 Gove 5 km S, Kavango, XI.1987, E. Marais, 1 Grootfontein, V.1982; 2 Grootfontein-Otavi, 18.2.1992, F. Koch; 2 Gross Barmen, 1 Kabulabula, 11–24.VII.1930, V.L. Exp.; 1 Kalkfontein 6 km E, 6.iii., Uhlig; 1 Kambonde vlei, Schwarz; 5 De Waal, X.1965, W. Haacke; 1 Karakuwisa, II.1958, C. Koch; 2 Auob Riv. 35 km up, IV.1933, G. van Son, 1 Katima Mulilo, 6.III.1962, Uhlig; 3 Katima Mulilo, 11.I.1985, E. Holm; 3 Katima Mulilo, X.1970, A. Strydom; 1 Kaudom River, Kaudom Game Reserve, 12–16.I.1991, E. Marais; 2 Kavango-Kaudora, 25.2.1997, M. Uhlig; 3 Kavango Mahango, 17.IV.1993, M. Uhlig; 1 Klein Dobe, 15–17.11.1985, H & W Rust; 1 Koës; 1 Kongola, 49 km W, W Caprivi, 30.X.–5.XI.1987, E. Marais; 1 Kuru, 3 km W, Bushmanland, 9–28.I.1991, E. Marais; 1 Kutse, IV.1994, Le Roux; 1 Kwando Riv., Caprivi, 26.IX.1970, H. D. Brown; 1 Kwando River, W Caprivi Park, 4–10.IV.1990, E. Marais; 1 Kwandu Riv., Caprivi, 14.XI.1979, C. Scholtz; 1 Mamil Nat. Park, 27.XI.–6.XII.1991, E. Marais; 1 Mangetti Forest, IX.1961, A. Abors; 1 Mangetti, II.1985, Koch; 2 Manziabubila, Mulopo, E Caprivi, 25.XI.1991–5.I.1992, E. Marais; 3 Mashari 8 km E, Kavango, 28.X.1987, E. Marais; 1 Mooi River, Maltahöhe, 4.V.1969, D. Brown; 2 Mudumu Nat. Park, 25.XI.–4.XII.1991, E. Marais; 1 Mukorob 14, Keetmanshoop district, 17–18.4.1986, J. Irish; 2 Mukorob 14, Keetmanshoop district, 17–18 April, J. Irish, 2 Mukarob 14, Namaland, 27.III.1988, E. Marais, J. Irish; 3 Nakabungo, XI.1977, M. Verleur; 2 Namutoni Gate, Etosha, 12.1.1977, R. Oberprieler; 1 Noordoewer, 1.XII.1980; 1 Odila River, 23.I.1993, E. Marais; 1 Okahandja, VI.1901; 2 Okahandja, Peters; 5 Okahandja, Schultz; 3 Okwa Riv., Ghanzi, 80 km W, 9.I.1973, E. Holm; 1 Omaheke, X.1904, Trotha; 1 Omega, Caprivi; 5 Onamihongwa, Ovambo, 14–26.I.1993, E. Marais; 3 Onduri, Ovambo, 24–26.I.1993, E. Marais; 4 Onghwiya, Ovambo, 14–26.I.1993, E. Marais; 1 Opze Rust 192, Rehoboth, 16–18 May 1973; 1 Orapa, 26.XII.1972, E. Holm; 1 Otjiku 192, Otjivarongo district, 16–29.XI.1988, E. Marais; 3 Otjivarongo, 1.X.1946, Schumann; 1 Andana Bagani, XI.1951, G. Strey; 5 Otjosondu-Kub Casper; 1 Ovambo at, 14–27.I.1993, E. Marais; 2 Popa Falls, Kavango, 26–31 August 1971; 1 Popa Falls, 25.XI.1993, F. Koch; 5 Qeya River 2 km SE, W Caprivi Park, 4–10.IV.1990, E. Marais; 2 Qonisha River 1 km SW, West Caprivi Park, 4–10.IV.1990, E. Marais; 2 Ricatla; 8 Richthofen 126, 1–31 December 1979, S. Louw, M-L Penrith; 1 Rietfontein (Mier), SE 2620Ba, 1–2 June 1972; 1 Rietfontein, IV.1897, Borchmann; 1 Rietmond; 2 Rikatla; 2 Rooiboklaagte, 19 km W of Epukiro River, Hereroland East, 21.XI.1988, E. Marais; 5 Rooikopeiland 10 km S, Gordonia, 25.3.1973; 1 Rundu, 12.XI.1975, C. Scholtz; 5 Rundu 18 km S, Kavango, XI.1987, E. Marais; 3 Sangwali, E Caprivi, 25.XI.–5.XII.1991, E. Marais; 2 Schuckmannsburg, 12.IV.1997, W. Haacke, 1 Seeheim, V.1977, v. Tonder; 2 Segeretti, Bushmanland, 11.11.1985, H&W Rust; 3 Sihope Vill., Caprivi, 18.XI.1972, H. D. Brown; 1 Takatshwane, 60 km S, 10.I.1973, E. Holm; 3 Thinderevu, Omuramba, 28.II.–13.III.1992, E. Marais, M. Pusch; 3 Tsumkwe, 1958, Koch; 1 Tsumkwe, 9.4.1970, H. D. Brown, 4 Tsumkwe, SE 1920Cb, Bushmanland, 8–17 November 1985, H. W. Rust; 2 Uithou 366, 24–26 Jan. 1975; 1 W Caprivi, 14.VII.1952, Munro; 2 W Caprivi, 13.IV.1997, W. Haacke, 1 Walfish Bay, 1 Nara, VII.1961; 1 Warmfontein 289, Keetmanshoop, Oct 1975, E. Mokgoabone; 2 Waterberg, XII.1988, C. R. Owen; 1 Waterberg Plateau, SE 2017Ad, Feb/March 1990, W. Versfeld; 1 Windhoek, 2 Windhoek, 1906, F. Kunze; 1 Windhoek-Rehoboth, XII.1896; 2 Windhoek, Techov.
- Botswana*: 4 Bushman Pits, 21.1.1969; 2 Damara Pan, 15–21.IV.1930, V.L. Exp.; 2 Damara Pan, 15–21.4.1930, V.L. Exp.; 3 Gemsbok Pan, 23.IV.–5.V.1930; 1 Gemsbok Pan, 23.4–5.5.1930, V.L. Exp., 2 Ghai Pan, 31.III.1994, R. Müller; 2 Ghanzi, 22.1.1978, Holm, Scholtz; 1 Ghanzi, Maun, 10.I.1981; 9 Gomodimo, 1–5.IV.1930, V.L. Exp., 1 Kai-Kai, 24 km SE, IX–XI.1961, Marshall Exp.; 10 Kaotwe, 8–12.IV.1930, V.L. Exp.; 1 Kakir-Kokong, XI.1905, Schultze; 2 Kang, 35 km E, 23.1.1978, Holm, Scholtz; 5 Kang, 35 km S, 23.I.1978, Holm, Scholtz; 1 Kang-Kokong, XII.1904, Schultze; 7 Kaotwe, 8–12.IV.1930, V.L. Exp.; 2 Kasane, 15.XI.1985, A. Beylveld; 1 Khonke Pan, XII.1978, Barker; 5 Kuke Pan, 21–30.III.1930, V.L. Exp.; 3 Kuke Pan, 21–30.III.1930, V.L. Exp.; 26 Kutse Game Res., I.1972, O. Prozesky; 1 Kutse Game Res., I.1972, O. Prozesky; 1 Lealui; 3 Lehututu, III.1957, L. Brentz; 1 Mababe Flats, 8–15.VI.1930, V.L. Exp.; 1 Mabeleapudi, 21.I.1978, Holm Scholtz; 2 Maboane, 37 km NW, 31.V.1982, R. Müller; 3 Masetleng, 31.III.1994, R. Müller; 1 Massaringam, Seiner; 2 Maun, 18.V.–7.VI.1930, V.-L. Exp.; 1 Maun, 20 km N, 16.I.1978, Holm, Scholtz; 2 Maun, 20 km N, 16.I.1980, Holm, Scholtz; 4 Maxwee, leg. Okaw, III.1976, Russel-Smith; 1 Mogue, Seiner; 2 Mokopani, IV.1982; 1 Mokopi (?Mokopani), IV.1982, J. Nielsen; 2 Molepolole, 1955; 1 Moocane, 1904, L. Schultze, 1 Moremi, 10.III.1993, M. Uhlig; 1 Nata, 20 km N, IV.1985, A. Beylveld; 1 Nata, IX.1954, S. Maseko; 1 Ngami Lake, V.1930, V.L. Exp., 1 Nokaneng, IV.1965, W. Haacke; 5 Nwatle Pan, 2.IV.1995, R. Müller; 7 Sekhuma, 40 km SW, 24.I.1978, Holm, Scholtz; 1 Sepopa, 29.III.1973; 1

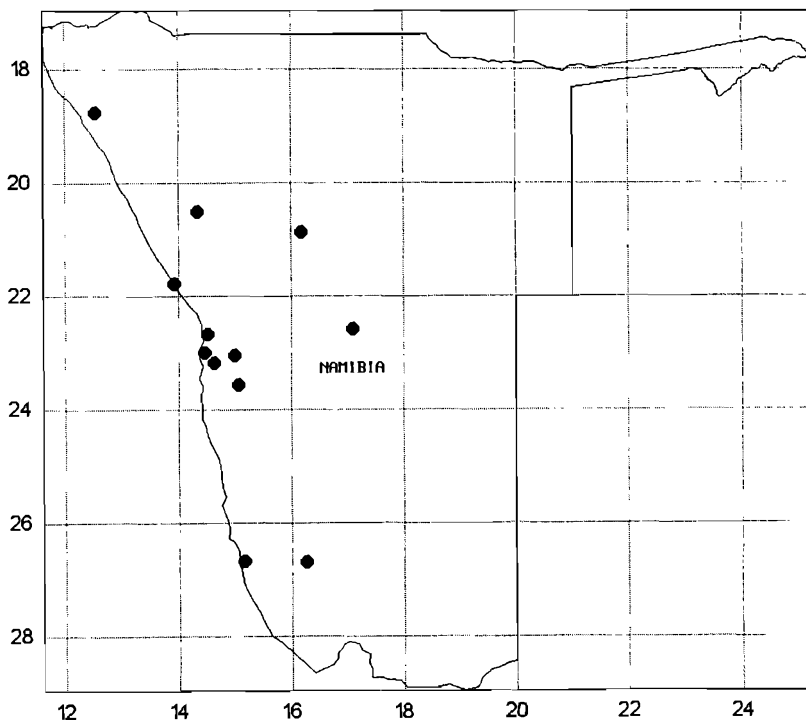


Fig. 15

Distribution of *Gonopus (Gonopus) angusticostis*

Shorobe, leg. Okaw., 23.VI.1975, Russel-Smith; 6 Thamalakane Okw., XII.1973, P. Reavel; 3 Tsane Pan, IX–XI.1961, Marsh. Exp.; 16 Tsao (Tsau), 1961, Marshall Exp.; 17 Tshane Pan, 1961, Marshall Exp.; 2 Tsodila hills, 15.IV.1997, W. D. Haacke; 1 Tsotsoroga, IX.1954, J. Meester; 2 Xai Xai, 1964, Marsh. Exp.

Angola: 3 Caconda; 1 Cuito Cuanavale, I.1988, Harms; 1 Fito, 9.VII.1948, Koch; 8 Miss. Rohan, Chabot; 1 Santa Cruz, 1952, P. Eduardo.

?*Country*: L. Tanganyika XII.1965 de Moor; 1 Manalume, 21.II.1982; 3 Lankundu.

***Gonopus (Gonopus) angusticostis* Gebien,**
Figs 15, 39

Gonopus angusticostis Gebien, 1920: 117.

DIAGNOSIS. Collar margin of prosternum deep, sharply crested, without setae. Flat and matt posterior pronotal declivity somewhat concave. Profemur with large tooth. Sutural profile straight. Pronotum almost square, without posterior contraction, disc smooth, with fine punctation. Elytral costae narrow, sharp, with tubercles from second costa. Intervals broad, transversely finely wrinkled. Prosternal apophysis flat, straight. Protibia emarginate at inside base. Meso- and metatibia

slightly arcuate. Mesotibia bilaterally compressed, with longitudinal ridge on inside. Metatibia with flat, narrow dorsal surface. Legs microscopically pubescent, metatibia with few setae on inner surface.

DESCRIPTION. Head transversely slightly convex. Clypeus broadly emarginate. Epistomal sulcus distinct, disc densely and finely punctate. Collar margin of prosternum deep, with sharp posterior edge, without setae. Prosternal apophysis flat, straight, with a longitudinal impression and coarse wrinkles. Apex sharply extended backwards, concave beneath. — Pronotum almost square, broadest in front of middle, slightly contracting in straight lines to posterior angle. Anterior margin broadly and moderately emarginate, marginal crest broadening in middle. Lateral edges finely marginate, anterior corners sharply rectangular, posterior angles also rectangular. Basal margin straight, marginal crest broader than lateral crest, with a forwardly directed triangle in middle. Disc matt, with very fine, uniform punctation. — Elytra longer than broad (15:12 mm). Humeral angle small but prominent. Lateral margins evenly rounded into pseudopleuron. Posterior declivity steep, even, slightly concave. Eight elytral costa hardly discernible from above. Discal costae narrow, with broad intervals that are finely punctate

and finely, transversely wrinkled. Very fine granulation present on third costa and at apical declivity, lateral costae distinctly granulate. Head, pronotum and elytra without setae. Pseudopleuron impunctate, indistinctly transversely wrinkled. — Central apical portion of mesosternum deeply impressed, with high lateral margins. First three sternites deeply and longitudinally wrinkled, with an elevation behind metacoxae. Fourth sternite finely wrinkled, anal sternite densely punctate. Profemur with large tooth, protibia with two lateral teeth, apical tooth broader. Mesotibia slightly arcuate ventrad, bilaterally compressed, with a sharp longitudinal crest inside; dorsal edge sharply serrate. Metatibia very slightly arcuate inwardly, with a flat longitudinal area on dorsum. Legs microscopically pubescent, only inside of metatibia with few longer setae.

Length 12.5–20.0 mm, breadth pronotum 5.5–9.0 mm, elytra 7.5–12.0 mm.

DISTRIBUTION Namibia.

MATERIAL EXAMINED. 28 TMSA, 2 NCIP, 12 DEI, 3 NMB, 2 ZMHB.

Type material: holotype: 'Deutsch-S.W. Afr.' / 'Type No. 795' / 'Gonopus angusticostis Geb.' (NMB); *paratypes:* 2 'Deutsch-S.W. Afr.' / 'Cotype No. 795' / 'Gonopus angusticostis Geb.' (NMB).

Additional material: Namibia: 2 Swakopmund riv. bed, 1 1971, leg. L. Schulze; 1 Aus-Kubub, 5.1953, C. Koch; 1 Cape Cross, 10.1957, C. Koch, 1 Kalkveld, 1.1948, Kratzschmar, 1 Sextus, 1 Lüderitz, F. Eberlanz; 1 Vogelfederberg, 1979, Wharton, 1 Aus, 17.9.1950, C. Koch, 1 Swakopmund; 1 Twyfelfontein, 2.4.1977, Boomker, 1 Walfisch Bay; 1 Khumib, Skelet., 21 1 1981, 1 Swartbank, 12.1968, Scherz; 1 Rooibank, 1.1968, Hamilton; 8 Gobabeb, 3 Gobabeb, 5 km N, 24.1.1979, Wharton; 1 Windhoek, 1 Swakopmund; 8 D. SW. Afr.; 1 Naukluft Park, 2.5.1986, Kleinjan.

***Gonopus (Gonopus) tibialis* (Fabricius), Figs 16, 17, 40, 52**

Blaps tibialis Fabricius, 1798: 48.

Gonopus sulcatus Solier, 1848: 230.

Gonopus ventricosus Bertoloni, 1849: 418.

Gonopus exaratus Gerstaecker, 1854: 533.

Gonopus ater Fåhræus, 1870: 290.

DIAGNOSIS. Collar margin of pronotum deep, sharply crested, without setae. Profemur with sharp tooth. Prosternal apophysis straight. Metatibia with broad and longitudinally flat area. Pronotum almost square, without emargination in front of basal angles. Discal crests of elytra different. Differences between populations are geographically delimited, allowing the recognition of seven subspecies.

DESCRIPTION. Head punctate without setae. Clypeus broadly emarginate. Epistomal sulcus usually faint. — Pronotum moderately narrower than elytra. Lateral margins moderately contracted but not as emarginate in front of posterior angles. Posterior margin emarginate; lateral crests differ among subspecies. Disc variously punctate, occasionally finely wrinkled. Collar margin of prosternum deep, sharply crested, without setae. — Elytral crests and granulation differ among subspecies. Humeral notch rather large. — Protibial emargination at inner base varies between subspecies and to some extent even between sexes. Mesotibia more or less compressed bilaterally, with a sharp crest on inside, and with a sharp line of teeth on dorsal margin. Metatibia on dorsal surface flat longitudinally, without a crest on inside of this tibia only, with moderately dense and long setae. Other differences are described under the subspecies. The form with the widest distribution is considered the nominal subspecies, even though in it a number of differences occur but without geographical pattern.

Gonopus (Gonopus) tibialis tibialis

Length 13–23 mm. Breadth pronotum 6–10 mm, elytra 6.5–13 mm.

DISTRIBUTION Widely distributed in southern Africa.

MATERIAL EXAMINED 971 (455♂, 516♀) TMSA, 70 SAMC, 136 NCIP, 145 ZMHB, 172 SMWN, 12 UP, 23 DEI, 144 MNHN, 58 SMNH.

Type material: neotype, Blaps tibialis Fabricius. 'Caffraria, J. Wahlb.' (SMNH — The original type specimen of *Blaps tibialis* Fabricius should have been in the Paykull collection, now housed in SMNH. However, all existing specimens in that collection were collected after the death of Fabricius. The type specimen is presumed lost and a neotype is here designated); *holotype, Gonopus ater* Fåhræus 'Caffraria.' [printed] / 'J. Wahlb.' [Wahlberg printed] / '2001' [handwritten] / 'Gonopus ater n. sp.' [most likely handwritten by Fåhræus] (SMNH). Type material of *Gonopus sulcatus* Solier, *Gonopus ventricosus* Bertoloni and *Gonopus exaratus* Gerstaecker was not examined.

Additional material: Botswana. 1 Amauni, 1 Francistown; 1 Gaberone, 2 Gemsbok Pan, 2 Gomodimo; 1 Khutze Game Res., 14 Kubi Pan, 120 km N Ghanzi; 17 Kuke Pan; 2 Lac N'Gami; 4 Lake N'Gami; 1 Makalype; 3 Maun; 3 Moocane, 1 Molohe Riv. nr. Witdraai, 13 Sehitse, 48 km SW Ngami, 1 Serowe, 4.1988, Forchammer; 1 Shovobe lagoon, 1 Tsau.

Namibia. 1 Abachaus, XI 1955, G. Hobohm; 7 Abahaus; 1 Ai-Ais, Fish River Canyon; 1 Alexander

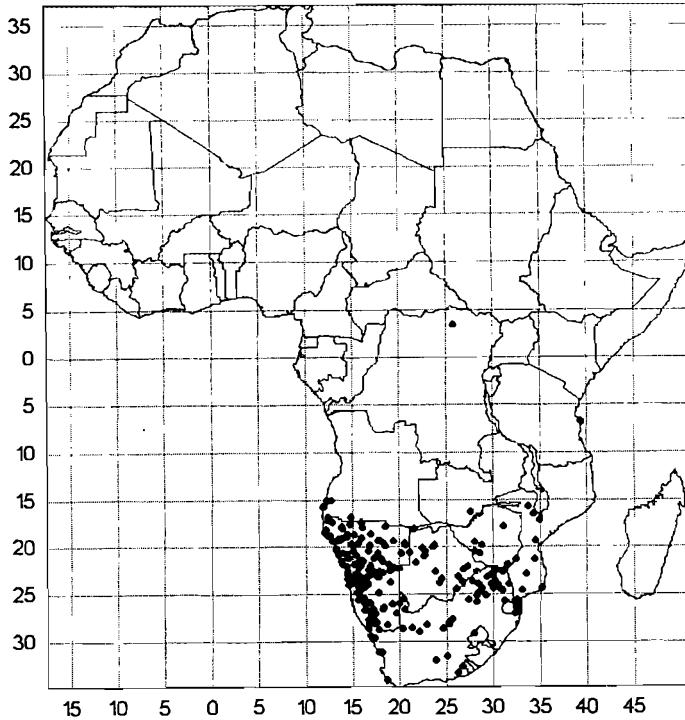


Fig. 16

Distribution of *Gonopus (Gonopus) tibialis tibialis* in Africa.

989, Grootfontein, 13–15 July 1974, 1 Andara Kavango, 20–25 Aug 1971; 1 Andoni; 1 Anigab; 2 Arnhem Cave, Windhoek district, 15.VIII.–12.X.1987, J. Irish, E. Marais; 1 Aus; 2 Avis Dam, Windhoek, Oct/Nov. 1972; 6 Barby 26, Bethanie, 2–7 Oct.1972; 5 Bergsig farm (Omaruru); 2 Bethanien; 3 Bethanien, 1.2.1885, Schenck; 1 Bethanis 514, Outjo, 8–10 May 1973; 1 Bethanis Farm, 17.2.1975, E-Y:672, singled, leg. Endrödy-Younga; 53 Bethanis Farm, 18.2.1975, E-Y:676, singled, leg. Endrödy-Younga; 1 Bethanis Farm, 19.2.1975, E-Y:677, singled, leg. Endrödy-Younga; 1 Brandberg; 2 Brandbrg/Uis Omaruru, 10.Nov. 1968; 1 Gobabis, 2.11.1953; 1 Bunya Cape Kavango, 28 June – 2 July 1976, Penrith; 2 Cape Cross; 2 Cape Fria, 2.5.1970, H. D. Brown; 1 Caracul; 1 Carlowa's Cave, Angra Fria, 14–16 November 1970; 15 Chausib farm; 3 Colorado on Glynberg 326, 27.12.1976, Louw, Penrith; 2 Conception Bay Old Mining Camp, Lüderitz 1–5 March 1976; 1 Dickdorn farm; 1 Djab farm; 2 Djab farm, Kuiseb; 3 Eiseb/Otjinoko River confluence, 18.XI.–15.XII.1988, M. Paxton, E. Marais, 1 Etiro, XI.1896, Rehbock; 3 Etosha Pan, 5 March 1969; 1 Excelsior, Maltahöhe, 11–13 Nov. 1971; 2 Finkenstein 71, Windhoek, 21 March 1972; 2 Frischgewagd, Windhoek; 1 Gaiaus 6, Karasburg,

13–17 Oct.1974; 2 Garib-Ost 275, Windhoek distr., 10–11.VI.1993, E. Griffin; 1 Gaubgrot, 3–4 November 1985, J. Irish; 1 Gautscha Pan; 2 Gelukkie, Okavango, W Caprivi Park, 5–11.IV.1990, E. Marais; 3 Ghaub 47, Tsumeb, 8 April 1972; 2 Giribesvlakte, Kaokoveld, 12.IV.1989, E. Holm; 1 Glynberg 326, Windhoek, 26 Nov. – 2 Dec. 1976, Louw, Penrith; 21 Gobabeb; 4 Gobabeb dunes, 15.11.1974, E-Y:464, ground traps, leg. Endrödy-Younga; 1 Gobabeb river bed, 17.9.1974, E-Y:372, ground traps, faeces bait, leg. Endrödy-Younga; 2 Ganab NE range; 4 Ganab water; 7 Gobabis; 3 Gobabis, Rehbock; 2 Good Hope 397, Gobabis, 22–24 May 1973; 2 Gorrasis Maltahöhe; 2 Gorrasis 99, Lüderitz, 25–31 Jan. 1974; 1 Grootfontein; 1 Haris 367, Windhoek 13 February 1974; 1 Heigums, 17.4.1988, Oberprieler; 1 Helmeringhausen, 10.4.1977, Boomker; 2 Helmeringhausen, 16 km W; 2 Hentiesbaai, 26.1.1918, Bucha; 10 Hentiesbaai, 2.1978, v. Tonder; 1 Hereroland, 15.I.1989, I. Kavendji; 1 Hereroland East, 2 km S of northern vet. fence, 20.XI.–16.XII; 1 Heusis; 1 Khorixas; 8 Hoanib, 35 km from mouth; 2 Hobaters, Kamanjab District, 7–17.V 1991, E. Griffin; 1 Hoffnung 66, Windhoek, 3 Feb. 1971; 9 Hohenheim farm; 18 Homeb; 1 Huab River mouth; 1 Isabis, Windhoek, 24–25 Dec. 1974; 1 Kalidona; 1 Kamananyab; 2 Kanaan 104,

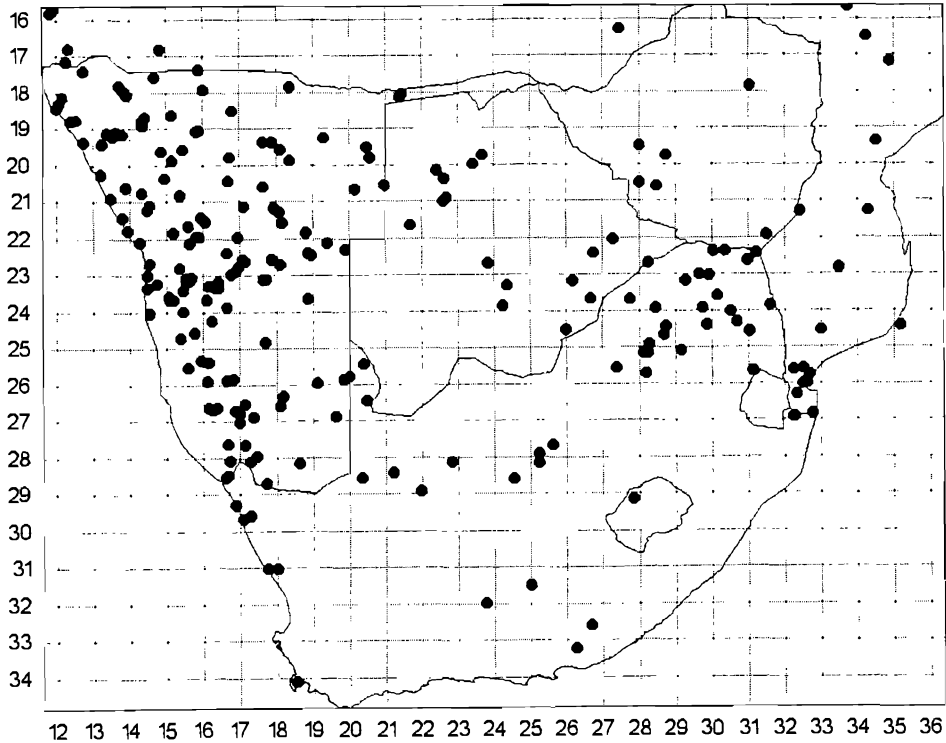


Fig. 17

Distribution of *Gonopus (Gonopus) tibialis tibialis* in southern Africa.

- Lüderitz, 15–21 October, 1976, Louw, Penrith, 3 Karamba farm 5 Karibib; 10 Karibib, IV.1901, 1 Karasburg, Warmbad, 25 April 1972, 1 Keetmanshoop, 3 Keetmanshoop, Rehbock; 3 Keetmanshoop, 1905, L. Schulze; 2 Khabus 146, Keetmanshoop district, 14.III.–14.IV.1988, N. G Olivier; 1 Khumbib 15 km from mouth; 1 Khumbib River, 27.4.1961; 1 Kleinhausen; 1 Klidona 277, Okahandja, 1–2 February 1975; 1 Koës, Keetmanshoop, 2–3 June 1972, 1 Komom-bonde-Oos 86, Omaruru, 5–7 January 1975; 2 Kos 28, Windhoek, 28 March–4 April 1977, Penrith, Louw; 1 Karibib; 1 Krone 721, Damaraland, 4–5 June 1976, S. Louw; 6 Kubub; 1 Kubub, IV 1904, Schmitze; 5 Kubub, III–IV.1904, L. Schulze; 1 Kuibis; 1 Kunene; 1 Lange Heinrich Mt; 1 Leeubron; 2 Lichtenstein, 21.2.1964; 1 Lorelei Mine, 2 km ESE, Lüderitz district, 9–20.VIII.1990, C. Roberts, E Marais; 1 Marienfluss; 1 Mentz, Gobabis, 22–23 Jan. 1975; 3 Möwebaai/lower Hoanib River, 11–15 Aug. 1973; 1 Narugas; 7 Natal, Kuiseb; 1 Naukluft; 7 Naukluft Park, 20.3.1983; 8 Navachab 67, Karibib district, III.–24.IV.1988, S. Schubert; 2 Neuhof Kowas; 5 Noachabeb 97, Keetmanshoop, 22–28 April 1972, 1 Noordoewer Karasburg, 24–25 Nov 1975; 1 Numabis Pan, Diamond area 2, 7.4.1986, J. Irish; 1 Ohopoho; 1 Ohopoho 122 km SSE, 1 Ohopoho 13 km N, 7.2.1975, E-Y:625, singled, leg. Endrödy-Younga; 3 Ohopoho, 44 km NW, 7.2.1975, E-Y:628, ground traps, leg. Endrödy-Younga, 2 Ohopoho 104 km SSE, 5.2.1975, E-Y:619, ground traps, leg. Endrödy-Younga; 4 Okahandja, 18 Okahandja, Casper; 4 Okakarara, Hereroland, 15.I.1989, I. Kavendjii, 2 Okarukondovi farm, 4.7.1978, E-Y:1459, ground traps, leg. Endrödy-Younga, 1 Okau, 12–16 Nov. 1970; 1 Okau, Skel. cst. Park, 22 Jan., S. Brain; 1 Okenyanya, 1 Okokatuwo, Kaokoveld 12 V 1991; 3 Omahehe, X.1904, Trotha, 3 Omaruru, Volkmann; 1 Omaruru Dam; 1 Omatako 2 km W, 8.I.–1.II.1991, E. Marais; 1 Omuramba; 2 Ondangwa, Ovambo; 1 Ondongantje; 4 Onesi, Ovamboland, 14–31.VII. 1989, E. Marais, 4 Opuwo E, Kaokoland, 11.2.1975; 1 Oshikango; 1 Osire North, 3 Otjikondo; 1 Otjikonjo farm; 1 Otjitambi; 2 Otjiwarongo; 2 Otjosondu-Kub, Casper; 1 Plateau Lüderitz, 4–5 March 1972; 1 Portsmut, 2 Quickborn farm; 1 Riverside 135, 23–26 Oct. 1971, 1 Rooibank; 2 Sandfontein, 2 Sandverhaar 80, Bethanien, 21–22 October 1976, Louw, Penrith; 4 Sandverhaar 80, Bethanien, 21–22 October 1976, S. Louw, M-L. Penrith; 2 Sandwich Bay; 2 Sarusas, Kaokoveld, 5 Oct. 1968; 5 Sesfontein,

Damaraland, 11–14.III.1990, C. S. Roberts; 80 Sesfontein, 12 km WSW, 1.2.1975, E-Y:597, ground traps, leg. Endrödy-Younga, 12 Sesfontein basin, 3.2.1975, E-Y:613, ground traps, leg. Endrödy-Younga, 1 Sesriem 137, Maltahöhe, 5–8 April 1972; 2 Solitaire 412, Windhoek, 27–29 May 1975, R. E. Griffin, 3 Sossusvlei, 12–13 Sept. 1971, 1 Spitzkuppe; 11 Swakopmund; 3 Swakopmund, G. L. Lindt; 16 Swakopmund, 1917, 1 Swakopmund, 11–14 May 1972, 2 Swakopmund, 2.1978, v. Tonder; 2 Swartbaas West 276, Keetmanshoop, 19–22 April 1972; 1 Swart Nossob R, Gobabis, 24 May 1973; 30 Thomasberg; 3 Topa Bay; 3 Tsondabvlei, 1 Tsumkwe; 1 Tsumkwe, Grootfontein; 3 Ugab mouth 30 km, 18–26.VII.1990; 3 Unjab Delta, Skeleton Coast Park, 18–26.VII.1990, C. S. Roberts; 1 Unjab-Hoanib; 2 Unjab River mouth, Outjo, 6–8 Nov. 1968; 1 Uis, 50 km W, 30.1.1975, E-Y:593, singled, leg. Endrödy-Younga; 2 Us Pass, 10 km from Park; 2 Vlakwater 9, Gobabis, 7 Sept. 1972; 3 Walfischbaai, 3 Walfish-Bay; 1 Walvis Bay, 8.4.1981, S. Braine; 1 Warmquelle; 1 Welverdiend 328, 8–13 Oct. 1972, 10 Windhoek; 3 Windhoek, 1 11.1972, Oberprieler; 10 Windhoek, Kolbitz; 54 Wissenfels farm; 3 Witsput's; 21 Wolfsnes, W Etosha Nat. Park, 24.III.–10.V.1988, E. Griffin.

South Africa: 3 Acornhoek; 44 Bloemhof, 12.3.1983, Ferguson, 23 Brandkaross, 1 Buffels River Valley; 1 Christiana; 1 Christiana, 30 km S; Deelkraal; 1 Elands River, Middelburg; 2 Ellisras; 10 Groblershoop, 4.1985, Moolman; 4 Grootderm farm; 1 Grootdraai; 1 Grootmis, 4.10.1972, H. D. Brown; 1 Hoedspruit; 1 Koedoes Riv; 1 Kosi Bay; 13 Letaba; 1 Leydenburg distr.; Leydsdorp; 1 Louis Trichard; 2 Louis Trichard, 4.1968; 2 Mata Mata; 1 Matlala; 3 Messina; 20 Middelburg, De Jager; 1 Mmabolela; 1 Murraysburg, 11 1917; 1 Naboomspruit, 16 km NE; 4 Ndumu; Ndumu Game Res., 7.9.1984, Oberprieler; 18 Nylsvley; 11 Nylsvley Nat. Res., 3 1978, Ferreira, 5 Pafuri; 1 Paradoks, 1 Pienaars River, 2 Pietersburg, 1 Pietersburg, 35 km E; 1 Pinel, 5 km Bark, 15.12.1948, Oberprieler; 4 Plat Riv; 11 Pokkiespram; 2 Port Nolloth; 4 Pretoria; 6 Punda Maria, 3.2.1994, E-Y:2996, ground traps, leg. Endrödy-Younga; 2 Punda Maria sands, 3.2.1994, E-Y:2974, leg. Endrödy-Younga; 1 Punda Maria sands, 19.11.1994, E-Y:3055, leg. Endrödy-Younga; 1 Riemvasmaak, 10.5.1995, De Jager; 1 Rooibank; 1 Rooidam farm, 21.9.1994, E-Y:3028, ground traps, leg. Endrödy-Younga; 4 Scrutton farm; 10 Shilouvane, H. A. Junod, 1906–07; 1 Soutpan, Zoutp. distr., 1 Strandfontein, Namaqualand, 13–14 March 1973; 1 Strijdom Tunnel, 4.1973, Bouwer; 1 Strydomtunnel, 1 Teafontein; 3 Twee Rivieren, 1 Umbeluzi; 1 Upington, 6.1984, Hartwig; 1 Vivo; Vosterhoop, 10.4.1997, Veldtman; 1 Warmbad,

26.4.1997, Carpenter; 6 Warmbath; 4 Waterberg dist.

Lesotho. Mamathes.

Malawi: 1 Monkeybay.

Mozambique: Amont da Tambara Pais Doungoube, P Lesne; 2 Bas Sangadzé, Pindirri P Lesne 1929; 2 Chemba, 2 Chemba, J Surcouf, 1928; 1 Chigubo; 17 Delagoa Bay; 1 Forêt d'Inhacoro. J. Surcouf 1929, 1 Guija, 3 Haut Hamapaza Foret, S. de Maringue; 3 Inhacoro; 4 Jofane, Save River; 31 L. Marques; 1 Limpopo River; 1 Manique Nique; 2 Maputo; 1 Marracuepe; 4 Masleni; 2 Matola; 1 Moamba, 4 Mucève, P Henrique; 4 Nova Chupanga; 1 Pungwe River; 1 Reg. de Chemba Candalira, P. Lesne, 1928, 4 Ricatla, 39 Ricatla, Junod, Salone, 2 Vallée du Pungone Guengere; 28 Vila Luisa; 5 Zavora.

Zimbabwe: 1 Devuli River; 1 Fort Victoria, 10 Lundi & Sabi River Junct.; 2 Matopos, 1 Monge (?); 1 Monze, 1 Nuanetsi; 1 Salisbury; 2 Sawmills; 3 Syringa; 2 Turk Mine.

Zambia. 1 Kafue River

Democratic Republic of the Congo: Bambesa; Lake Tanganyika; 1 Ubemba, R.P. Guilleme 1902.

Tanzania: 2 Daressalam.

Angola: 1 Coroca River; 1 Espinheira, 27.2.1967, Hamilton; 5 Pastoril do Sul, Mocamedes, 8–10.May 1974, 8 Porto Alexandre, 14 Reg. De Huila, 1 Reg. d'Humbe, Tiypelongo, P M Mallet, 1907;

?*Country*: 1 Gobt., 9.10.1906, F Sainer, 1 Meshitash

KEY TO THE SUBSPECIES OF *GONOPUS* (*GONOPUS*) *TIBIALIS*

- 1(2) Complete ninth granular line on the pseudopleuron covered by lateral margins of elytra. Inner base of profemur moderately excavated, without a granule on broadest part. Only base of first costa not granulate. Length 12.5–22.0 mm (Kalahari sandy regions)
..... *G. (G.) t. kalaharicus* subspec. nov.
- 2(1) Pseudopleuron smooth or with few scattered granules.
- 3(8) All elytral costae more or less convex, not flattened.
- 4(5) Sixth costa sharply elevated and smooth up to apical declivity. Inner three costa evenly and moderately convex. Fourth and fifth costae smooth at base, not sharply crested. Sixth costa sharply crested and smooth. Protibia at base moderately emarginate, without a granule at broadest part. Length 15–20 mm (southwestern Cape)

G. (G.) t. carinatus subspec. nov.

- 5(4) Sixth costa not elevated, not smooth. Costae not granulate only in centre of disc.
- 6(7) Disc of pronotum smooth, lateral margins thin and sharp. Protibia moderately emarginate, without a granule. Prosternal apophysis thick at apex. Length 16,5–21,5 mm (northern Skeleton Coast, Namibia)
 *G. (G.) t. skeletonensis* subsp. nov.
- 7(6) Pronotum finely punctate and often wrinkled, lateral margins more elevated. Protibia deeply emarginate, with a granule at broader spot in males. Prosternal apophysis sharply pointed at apex. Length 13–23 mm (throughout southern Africa). *G. (G.) t. tibialis* (Fabricius)
- 8(3) First costa of elytron flattened, obviously deeper-lying than any other costa.
- 9(10) Disc of pronotum smooth but, except at centre, well spaced, not large but with deep, round punctures. Protibia emarginate, with a granule. Prosternal apophysis broad, densely wrinkled. Second elytral costa elevated, smooth, third and fourth with elongate elevations; rest granular. Length 13–21 mm (Namib Desert)
 *G. (G.) t. punctatus* subsp. nov.
- 10(9) Disc of pronotum finely punctate, but elytral structure different.
- 11(12) First elytral costa deeply flat, second and fourth sharply elevated in anterior half, fifth and sixth with elongate elevations, seventh and eighth costae granulate; third costa also lower than second and fourth costae. Anterior tibia at inner base emarginate in males, with a granule at broadest point. Length 16,5–21,5 mm (southern Namib Desert)
 *G. (G.) t. alternatus* subsp. nov.
- 12(11) First elytral costa flat, but the rest similarly elevated. From third costa and at apical declivity of elytra, granulate. Protibia emarginate but without a granule in males. Length 14,5–24,0 mm (Namib Desert, Namaqualand and Western Cape)
 *G. (G.) t. capensis* subsp. nov.

***Gonopus (G.) tibialis kalaharicus* subsp. nov.**, Figs 18, 41, 42

DIAGNOSIS. A ninth granular and complete line occurs on pseudopleuron, almost reaching humeral area. This is the only subspecies with this character, although other species or subspecies

might have a few scattered granules on pseudopleuron. Elytra entirely granular, only anterior half of first costa smooth. Pronotum with a fine, median, longitudinal impression, disc finely punctate or finely wrinkled. Protibia in males deeply emarginate.

Length 12,5–22,0 mm, breadth pronotum 5,8–11,0 mm, elytra 8–13 mm.

DISTRIBUTION. Kalahari area of Botswana, South Africa and Namibia.

MATERIAL EXAMINED. 202 TMSA, 6 ZMHB, 3 NCIP, 1 SAMC, 1 SMNH, 4 UP, 18 SMWN, 2 DEI

Type material: *holotype*: 'Bechuanaland, Tsane Pan, Marshall Expedition, IX–XI.1961' (TMSA); *paratypes*: *Namibia*: 1 ♂ Caprivi, Katima Molilo, x.1970, A. Strydom, Dr L. Schulze, insectary no. 1074; 1 Aroab, 51 km S, 11 April 1980, V. B. Whitehead; 1 Auob-Nossob Junct., April 1933, G. van Son; 1 Auob, SW Kalahari, IV.1933, G. van Son, 1 Auob, SW Kalahari, IV.1933, van Son, 12 Chulon farm, Kalahari, Namib Ost, 30.5.1982, E-Y:1932, ground traps 36 days, leg. Penrith; 9 Chulon farm, W Kalahari, 5.7.1982, E-Y:1933, ground traps 41 days, leg. Penrith; 12 Chulon farm, W Kalahari, Namib Ost, 14.8.1982, E-Y:1934, ground traps 45 days, leg. Penrith, 11 Chulon farm, W Kalahari, 28.9.1982, E-Y:1935, ground traps 52 days, leg. Penrith; 5 Duineveld nr. Stampriet, XI.1953, leg. E. Patzelt; 1 Duineveld, IX.1957, leg. C. Koch; 8 Duineveld, Elephants River, Kalahari, 21–24.II.1957, Transv. Mus. Exped., 1 Gibeon West, May 1975, E. Dupisani, A. Otto; 9 Gobabis, 7 Sept. 1972; 3 Vaalbank 319, Gobabis, 19–22 May 1973; 2 Kalahari Gemsbok Park, Gobabis, December 1968, leg. v. d. Merwe, Burger; 4 Koes, Keetmanshoop, 2–3 June 1972; 1 Koes, 20 km NE, Keetmans Dist., VII.1978, E. Holm; 1 Koes 50 km NE, July 1978, C. Sharp; 1 Kubub, D.S.W.A.; 1 Maltahöhe SW, 10 I.1990, E. Marais, 2 Molopo, SW Kalahari, 14.4.1986, leg. E. Holm; 1 Onze Rust 192, Rehoboth, 16–18 May 1973; 1 Ovamboland, Andoni; 1 Rietfontein, 27.VII.1951, B. Lundholm, 1 Rietmond, 1 Stampriet, 27.9.1952, Twee Rivieren 30 m N, D. Brown. Marshall Kalahari Expedition, IX–XI.1961, 4 Vlakwater; 2 Welverdiend 328, Keetmanshoop, 8–13 Oct.1972; 1 Wildheim Ost 384, Keetmanshoop, 29 June – 2 July 1976, Louw, Penrith.

South Africa: 3 Kalahari Pk., Mata Mata, ii.1957, Koch, Dr L. Schulze, insectary no. 2; 3 Ariamsvlei SE, 8.4.1989, Beyers; 1 Bloemhof, 12.III.1983, Ferguson, 1 Commissie 649, Cape, 30 Aug. 1981, Penrith, 1 Dickbaardskolk, Kalahari Park, 5.II.1987, D. P. Keetch; 1 Gemsbok Nat. Park, Twee Rivieren, 4.V.1961, 1 Gemsbok Park, E. le R., 1963; 1 Ghai Pan, Kalahari, 31.3.1994, leg. R. Müller; 1 Kalahari Desert; 8 Kalahari, 17.5.1965, G. Goode Insectary

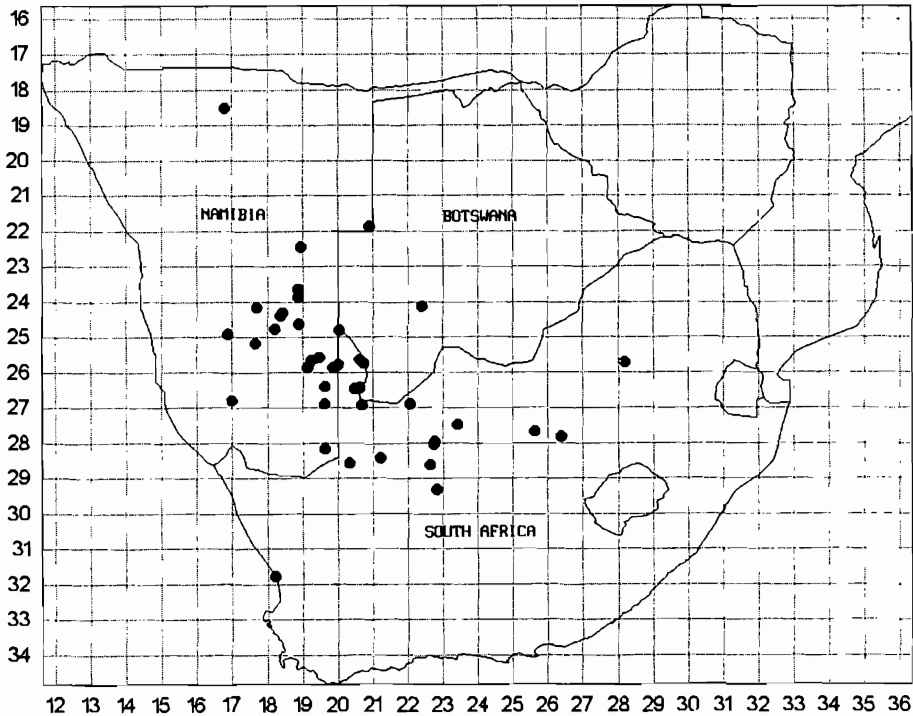


Fig. 18

Distribution of *Gonopus (Gonopus) tibialis kalaharicus*.

No.562, 1 Kubus; 1 Kuruman, 71 m NW, V.1969, leg. Schulze, R. Jones; 1 Kuruman River, 8.V.1948, C. Koch; 1 Mata Mata, V.1956, C. Koch; 1 Mata Mata, V.1957, C. Koch; 1 Mata Mata, V.1956, Kalahari Gemsbok Park Expedition; 35 Mata Mata, II.1957 C. Koch, Insectary No. 156, L. Schulze; 1 Niekerkhoog, VIII.1950, C. Koch; 5 Niekerkhoog, Griqualand W, IX.1951, Koch, v. Son; 1 Niekerk's Hope, Griqualand West, 13.VIII.1950, C. Koch, van Son; 1 Olifantshoek, 2 km SW, 25.III.1973, A. L. V. Davis, 2 Obobogorop, 120 m NW Upington; 3 Ontmoeting 169 m, W Kurumann, 9.II.1959, H. D. Brown; 1 Pretoria, L. S.; 2 SE 2520Da, 20.II.1976, leg. C. H. Scholtz; 1 Riemvasmaak, 4.II.1987, D. P. Keetch; 2 Sheep Gate Road btw. Upington and Sishen, 20.4.1964, leg. Copley; 2 Btw. Sishen Upington Sheep Gate, 18.4.1964, leg. Copley; 1 South Africa/S.W.A., July 1950, G. R. Roux; 1 Strandfontein, nr. Olifants River mouth, 13.XI.1949, C. Koch, 3 Twee Rivieren, V.1956, Kalahari Gemsbok Park Expedition; 2 Twee Rivieren, 17-20.II.1957; 5 Twee Rivieren, II.1958, G. van Son; 1 Twee Rivieren, X.1957, C. Koch; 2 Twee Rivieren, II.1957, C. Koch, 1 Twee Rivieren, I.1967, leg. W. D. Haacke; 1 Twee Rivieren, Kalahari Gemsbok Park, 4-6.1995, leg. Göllner; 1 Unin End, Kalahari Park, 4.II.1987, D. P. Keetch; 1 Upington, IV.1933, H.

Lang; 1 Upington, Orange River, 23.XI.1950, No.60 Swedish South Africa Expedition 1950-1951, Brinck Rudebeck; 1 v. Zyl's Rust, 15 April 1933, G. van Son, 2 Van Zyl's Rust, Kuruman Distr., 11.1957, leg. C. Koch; 1 Wesselsbron, 4.10.1984, T. W. Drinkwater; 1 Sandberg, 18.9.1943; 1 Witsand, 26.8.1990, Gussmann.

Botswana: 7 Damara bis Ngami See, Fleck.

***Gonopus (G.) tibialis carinatus* subsp. nov.**, Figs 19, 43, 53

DIAGNOSIS. Elytral costae one to three slightly convex to flat. Sixth costa sharply elevated and only granulate behind middle. Fifth costa less elevated and only granular in apical declivity. Protibia deeply emarginate but without a notch in males. Disc of pronotum smooth and only finely punctate.

Length 15-20 mm; breadth of pronotum 7,5-9,2 mm, elytra 8,8-12,5 mm.

DISTRIBUTION. Southwestern Cape.

MATERIAL EXAMINED. 51 TMSA, 1 ZMHB.

Type material: holotype: 'Klippe Rugt farm, 27.10.1983, E-Y:2026, veget. dunes, night, leg.

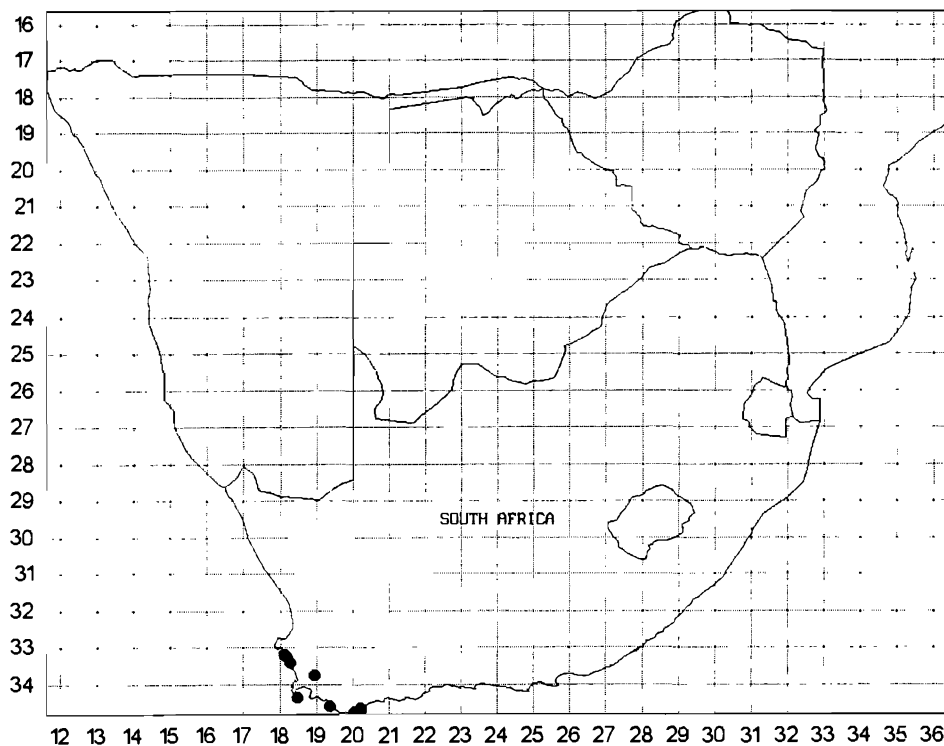


Fig. 19

Distribution of *Gonopus (Gonopus) tibialis carinatus*.

Endrödy-Younga' (TMSA); *paratypes*. South Africa: 1 Arniston, 29.8.1983, E-Y:1995, ground traps 59 days with meat bait, leg. Endrödy-Younga; 10 Arniston, 26.10.1983, E-Y:2023, coastal dunes, night, leg. Endrödy-Younga; 1 Cap. B. Spei, De Vylder; 1 Cape Town, 63 km N, 30.8.1983, E-Y:2001, ground traps 63 days with meat bait, leg. Endrödy-Younga; 2 Gansbaai, 23.2.1981, E-Y:1745, veget. sand, night, leg. Endrödy-Younga; 1 Gansbaai, 23.2.1981, E-Y:1746, ground traps 6 days, leg. Endrödy-Younga; 1 Geelbek forestry, 25.8.1975, E-Y:1975, ground traps 70 days with banana bait, leg. Endrödy-Younga; 1 Klippe Rugt farm, 28.8.1983, E-Y:1993, ground traps with banana bait, leg. Endrödy, Penrith, 1 Klippe Rugt farm, 28.8.1983, E-Y:1993, ground traps with faeces bait, leg. Endrödy, Penrith, 22 Klippe Rugt farm, 27.10.1983, E-Y:2026, vegetation dunes, night, leg. Endrödy-Younga; 2 Klippe Rugt farm, 28.10.1983, E-Y:2033, dunes, night, leg. Endrödy-Younga; 1 Paardeberg, Paarl, 4.6.1975, H. Geertsema; 2 Still Bay, 9–12.XI.1940, G.van Son, 1 Struisbaai, 28.8.1983, E-Y:1989, ground traps with meat bait, leg. Endrödy-Younga; 3 Yzerfontein, 25.8.1978, E-Y:1978, ground traps 70 days with banana bait, leg. Endrödy, Penrith.

***Gonopus (G.) tibialis skeletonensis* subsp. nov.**, Figs 20, 44, 54

DIAGNOSIS. Pronotum smooth, with extremely fine, uniform punctation. Lateral margins thin, not elevated, disc without impressions. Head much more strongly punctate, clypeus broadly emarginate. Protibia deeply emarginate in male, with a tiny notch where broadest; female slightly less emarginate. Apex of prosternal apophysis broader than in other subspecies. Elytral costae uniformly flattened in first half of length, costae four to eight granulate, one to three more convex and granulate at apical declivity.

Length 15–21 mm; breadth pronotum 7.5–10.0 mm, elytra 8.8–12.0 mm.

DISTRIBUTION Only along the Skeleton Coast, Namibia and Angola

MATERIAL EXAMINED. 67 TMSA, 7 SMWN.

Type material: *holotype* ♂ [dissected]: 'Sesriem dunes, 5.5.1972, Prozesky' (TMSA); *paratypes*: Namibia: 1 Hoarusb, 8 Oct. 1968; 1 Khumib, 15 km from mouth, 21.1.1981; 5 ♂, 4 ♀ coastal area btw. Koichab-Unjab Rivers, west side main dune system, 7 Moeweabaai, 13.1.1980; 1 Moeweabaai, 4 km

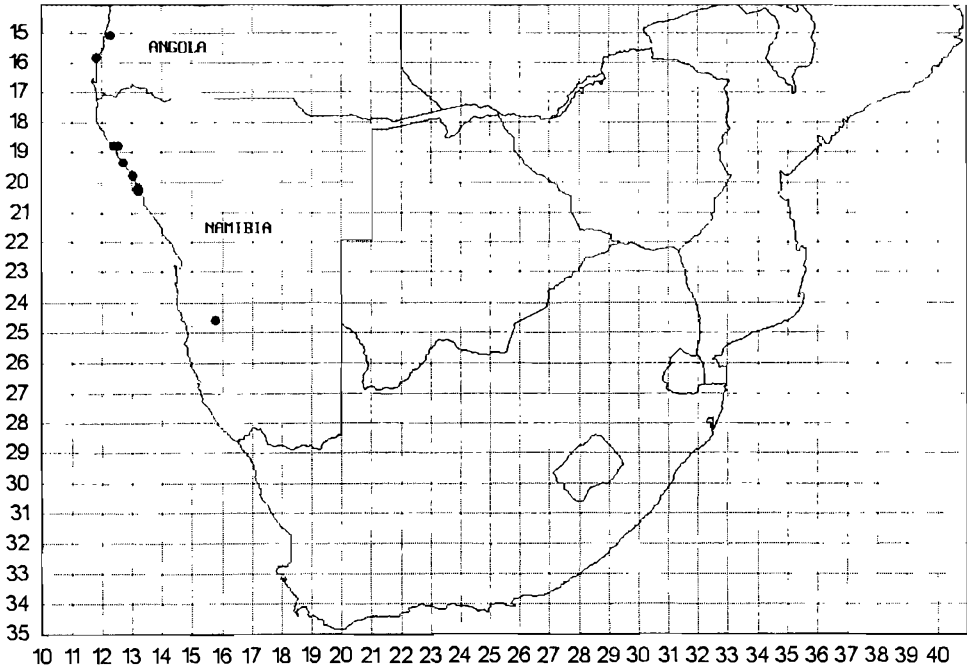


Fig. 20

Distribution of *Gonopus (Gonopus) tibialis skeletonensis*.

E, 20.i.1981; 2 Möwebaai, 11–15.8.1973; 1 N Namib, 6.6.1965, leg. F. Gaerdes; 1 Rocky Point, VI.1951, C. Koch; 1 Sarusas East, 5,5 m inland, 11.VI.1951, Swedish exp., Brinck, Rudebeck; 1♂, 1 Sarusas, X.1965, W. D. Haacke; 1 Sarusas, 6 October 1968; 1 Topa Bay, XI.1967, N. J. Coetzee; 1♀ Betw. Unjab and Hoanib, W side of main dune system, XI.1967, W. J. Hamilton; 6 between Unjab-Hoanib Rivers, XI.1967, Hamilton; 9 Unjab, 5 m from mouth, X.1965, W. D. Haacke; 3 59 km S Unjab delta, 18–26.VI.1990, C. S. Roberts; 2 Unjab dunes W, 26.8.1982, E-Y:1929, dunes & hummocks, night, leg. Endrödy-Younga; 10 Unjab mouth, 12.1.1980; 1 Unjab River, XI.1968, R. F. Lawrence; 2 Unjab River, 3–5 m from mouth; 7 Unjab River, 2 km S, XI.1967, Hamilton; 2 Unjab River S side, 6 m from mouth.

Angola: 1 Porto Alexandre; 1 Rio Giraul, Moçamedes.

***Gonopus (G.) tibialis punctatus* subsp. nov.**, Figs 21, 45, 55

DIAGNOSIS. Disc of pronotum smooth, but along all margins (laterally about one third) deeply punctate. Middle of disc mostly impunctate. Margins narrow and flat, only from mid-length shallow and narrowly furcate at inner side of margin. First costa of elytra flat, convex and granulate only

posteriorly. Costae two and three crested anteriorly, granular posteriorly. Costae four to eight granular along entire length. Prosternum together with apophysis roughly wrinkled. Protibia deeply emarginate in males, with small notch at broadest part. Female without notch.

Length 13–21 mm, breadth pronotum 5,5–9,0 mm, elytra 7,5–12,0 mm.

DISTRIBUTION. Central Namib Desert.

MATERIAL EXAMINED. 185 TMSA, 3 NCIP, 5 SMNH, 22 SMWN

Type material: holotype ♂: 'Maltahöhe Gt. Namaqualand, 21.VII.1937, Fitzsimons' (TMSA); *paratypes*: *Namibia*: 1 Arasab Mount. Gt Namaqualand, V.1953, C. Koch; 1 Aus, September 1996; 1 Awasib Mnt, 13.5.1969, H. D. Brown; 2 Conception Bay, Old mining camp, Lüderitz, 1–5 March 1976; 4 Excelsior, Maltahöhe, 11–13 November 1971, 1 Far east dunes, 22–23 October 1985, C. S. Crawford; 1 Ganab flats, 18.11.1974, E-Y:479, ground traps, 65 days faeces bait, leg. Endrödy-Younga; 1 Gobabeb; 1 Gobabeb, 498 m (probable locality); 3 Gorrasis 99, Lüderitz, Feb–Mar 1974, Christian, 3 Gorrasis, Maltahöhe, IV.1975, V. Allard; 1 Haalenberg, Gt. Namaqualand, 23.IX.1950, Koch & van Son; 7 Helmeringhausen, VII.1978, E. Holm; 4 SW Helmeringhausen, VII.1978, E. Holm; 2

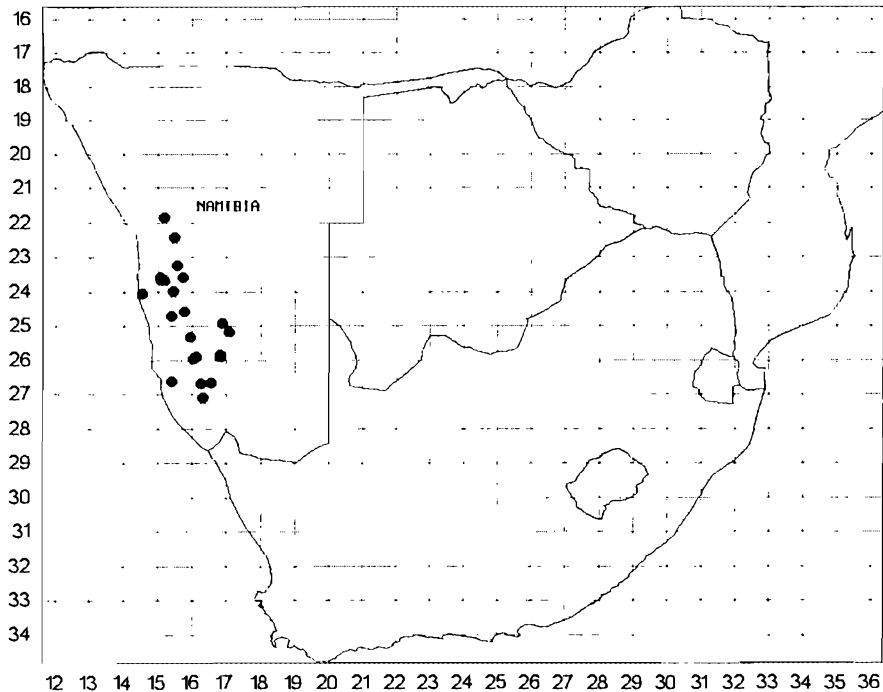


Fig. 21

Distribution of *Gonopus (Gonopus) tibialis punctatus*.

Helmeringhausen 15 km S, 10.4.1977, J. Boomker; 1 Homeb, 12 km NE Gobabeb; 1 Homeb, 12 m NE Gobabeb, 13 March 1967, 1 Homeb, 2 m upstream Kuiseb W bank, X.1967, W. J. Hamilton; 6 Kanaan 104, Lüderitz, 6–7 October 1972; 107 Kanaan Farm, 7.5.1977, E-Y:1323, singled on dunes, leg. S. Mothlasedi; 2 Kanaan Farm, 7.5.1977, E-Y:1323, singled on dunes, S. Mothlasedi, 1 Namib, leg. F. Eberlanz; 1 Namib Park, SE corner, 26.11.1974, E-Y:497, ground traps, 105 days banana bait, leg. Endrödy-Younga, 1 Namib Park SE corner, 11.6.1975, E-Y:847, ground traps, leg. Endrödy-Younga; 1 Namtib dunes, 2.8.1981, E-Y:1818, night veget dunes, leg. Endrödy-Younga; 1 Namtib dunes, 2.8.1981, E-Y:1817, day, sand lat., leg. Endrödy-Younga; 1 Natab Game Reserve No. 3, V 1969, L. Vári; 2 Neisip 34, Bethanie, 19–21 October 1970; 1 between Oropemba and Rocky Point; 1 Schakalskuppe, Lüderitz district, 7–9.VIII.1990; 1 Sesriem, X.1957, C. Koch; 3 Sesriem 137, Maltahöhe, 18–20 January 1972; 1 Sessriem dunes, 5.5.1972, Prozesky; 1 Sossusvlei, 1.VII.1954, E. Scherz; 6 Sossusvlei, X.1957, C. Koch; 1 Sossusvlei, X 1965, W. D. Haacke; 1 Sossusvlei, 14.VII.1975; 31 Sossusvlei, 10.4.1977, J. Boomker; 4 Sossusvlei, IV.1979, E. Holm, 7 Sossusvlei, VII.1982, E. Holm; 1 Spitzkoppe, 8.1977; 1 Tsauchab Riv., 30 m W Sesriem, X.1957, C. Koch; 1

Tsondab vlei, 12.1.1975, E-Y:538, on light, leg. Endrödy-Younga, 1 Zwiebelfläche, 19.3.99.

***Gonopus (G.) tibialis alternatus* subsp. nov.**, Figs 22, 46, 56

DIAGNOSIS. First elytral costa flat, third shallowly crested with short interruptions. Second and fourth rather highly and smoothly crested in anterior half. Fifth to eighth costae granulate over entire length, first to fourth only at apical declivity. Disc of pronotum with a faint longitudinal depression, punctuation scattered and variable in size. Prosternal apophysis roughly wrinkled. Protibia deeply emarginate in both sexes, but notched only in males.

Length 16.5–21.5 mm, breadth pronotum 8–10 mm, elytra 10–12 mm.

DISTRIBUTION. Southern Namib Desert, Little Namaqualand (Richtersveld), on either side of the Orange River and Eastern Cape

MATERIAL EXAMINED. 40 TMSA, 1 ZMHB, 10 SAMC, 13 SMWN, 2 SMNH, 1 UP

Type material: *holotype* ♀: 'Bogentfels, XI.1962, W. D. Haacke' (TMSA); *paratypes*: *Namibia*: 1 Aurusberg, 22.4.1988, R. Oberprieler; 1

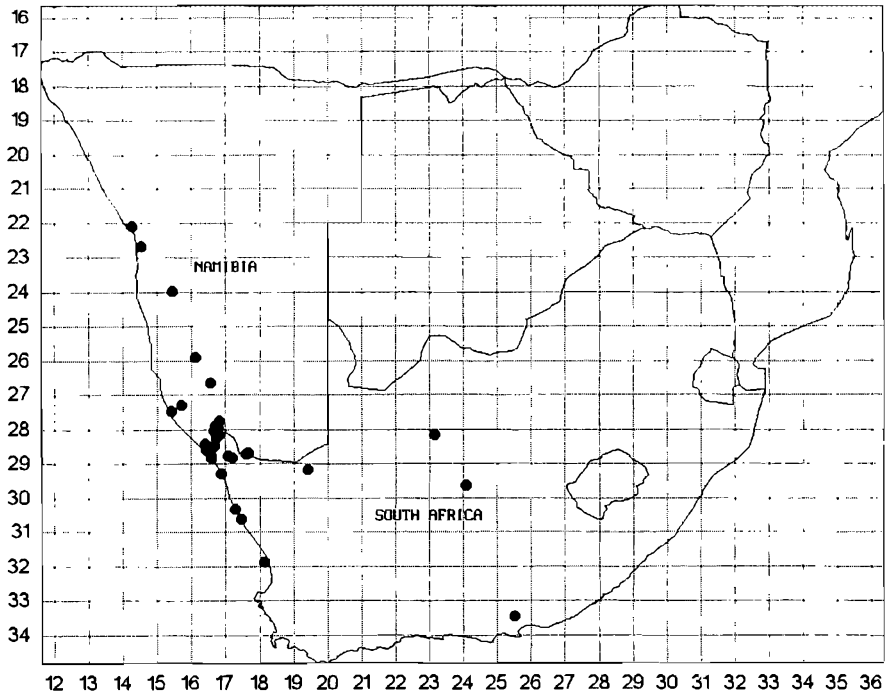


Fig. 22

Distribution of *Gonopus (Gonopus) tibialis alternatus*.

Boegoeberg-Suid, 28.IX.1988, E. Marais J. Irish; 3 Daberas dunes, Gt. Namaqualand, V.1953, C. Koch; 1 Driekop 500 No. 78, 30.VIII.1996, leg. J. du G. Harrison; 1 Henties baai, 2.1978, v. Tonder; 1 Kanaan, 15–21.10.1976, S. Louw, Penrith; 1 Klinghardt Mountain, 21.8.1989, E-Y:2658, hummocks, night, Endrödy, Klimaszew.; 1 Klinghardt Mountains, April 1977, J. Boomker; 1 Noordoeewer, 24.XI.1975, dunes night, Whitehead; 1 Obib, Gt. Namaqualand, V.1953, C. Koch; 1 Obib, 23.XI.1980; 1 between Obib-Daberas dunes, Gt. Namaqualand, V.1953, C. Koch; 4 Obib dunes, 19.9.1973; 1 Obib dunes, 17.9.1973, E-Y:116, singled, dune, night, leg. Endrödy-Younga; 2 Obib dunes, 9. IX.1980, Whitehead; 1 Obib Mt camp, 19.9.1973, E-Y:123, leg. Endrödy-Younga; 1 Oranjemund, 25–27.2.1972; 1 Oranjemund, VII.1979, Irish; 1 Oranjemund, 27.7.1981, E-Y:1802, day, on dunes, leg. Endrödy-Younga; 1 Oranjemund, 28.7.1981, E-Y:1806, coast, hummocks, day, leg. Endrödy-Younga; 1 Oranjemund, 28.7.1981, E-Y:1807, night, hummocks, leg. Endrödy-Younga; 1 Oranjemund 10 km N, VII.1978, E. Holm; 1 Oranjemund, 20 m. NES, 19.XI.1962, W. First, H. D. Brown; 4 Oranjemund, 10 km S, VII.1978, leg. E. Holm; 1 Orpembe-Rocky Point, VI.1951, Koch; 1 Rosh Pinah, 13.VIII.1990, C. Roberts, E. Marais; 1 Rosh Pinah 2 km ESE, 9–20.VIII.1990, E.

Marais, C. Roberts; 2 Roterkamm, 25–30.VI.1989, C. S. Roberts; 1 Roter Kamm, 24.4.1988, R. Oberprieler; 2 Schakalsberg, Gt. Namaqualand, V.1953, C. Koch; 1 Swakopmund; 1 Tsondabvlei, 25.VIII.1989, J. Irish, E. Marais; 1 Vioolsdrift, 13.IX.1950, C. Koch, G. van Son, 1 Wildeperdrant, 10.10.1991, Oberprieler;

South Africa: 3 Brandkaross, V.1953, C. Koch; 1 Cap, II.96, Wm; 1 Doringbaai, 15.IX.1983; 1 Hondeklipbay, 16.10.1986, leg. C. R. Owen; 1 Hopetown, 29.9.1930; 1 Klipfontein, C. L. L. Bide, 1911; 2 Namaqualand; 1 Pofadder, Bushmanland; 3 Port Nolloth; 1 Port Nolloth, C. L. Bide, Aug. 1911, 2 Port Nolloth, Lightfoot; 1 Port Nolloth, Nov. 90, 1 Rietfontein coast, 2.9.1976, E-Y:1204, ground traps, 43 days faeces bait, leg. Endrödy-Younga; 1 Stinkfontein, 4 km SSW, 8.9.1976, E-Y:1237, ground traps, banana bait, leg. Endrödy-Younga, 2 Tc. Alee Mts., Richtersveld, II.1953, C. Koch.

***Gonopus (G.) tibialis capensis* subsp. nov.,**
Figs 23, 47

DIAGNOSIS. Only the first elytral costa flat and depressed. Granulation of elevated costae two to four consisting of elongate granules. Only costae five to eight roundly granulate, same as all costae on apical declivity. Punctuation of pronotum variable

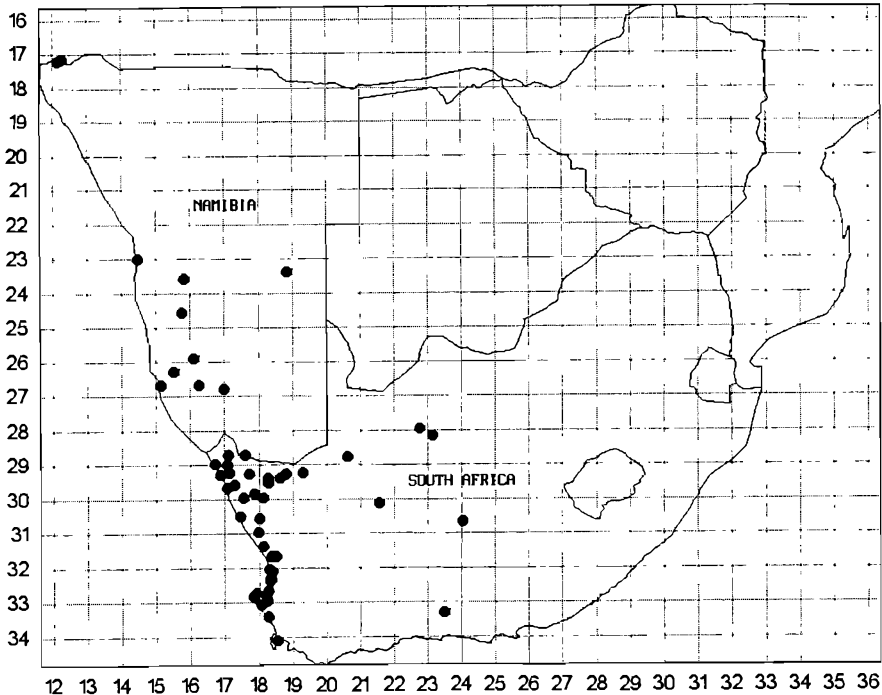


Fig. 23

Distribution of *Gonopus (Gonopus) tibialis capensis*.

between specimens, from very fine to distinct. Protibiae distinctly emarginate, without distinct notches in males.

Length 14,5–24,0 mm; breadth pronotum 7–11 mm, elytra 9,5–14,0 mm.

DISTRIBUTION. From the Namib Desert to the Cape area.

MATERIAL EXAMINED. 186 TMSA, 27 SAMC, 4 ZMHB, 2 NCIP, 4 SMWN.

Type material: holotype ♂: 'Grootmist, coast, 20.XI.1948, Koch, van Son' (TMSA); *paratypes:* *South Africa:* 1 Albany, September 1947; 1 Anenus, C. L. L. Biden, 1911; 1 Bookram farm, 30.8.1981, E-Y:1868, ground traps, 59 days with faeces bait, leg. Endrödy-Younga; 1 Bookram farm, 30.8.1981, E-Y:1868, ground traps, 59 days with meat bait, leg. Endrödy-Younga; 13 Brackfontein farm, 23.8.1983, E-Y:1968, sandy ground grid, leg. Endrödy-Younga; 1 Breekierie farm, 5.5.1985, E-Y:2214, ground traps, 2 days, leg. Penrith; 2 Buffels River valley, 31.8.1976, E-Y:1195, prospect trenches, leg. Endrödy-Younga; 1 Buffels River valley, 3.10.1976, E-Y:1252, singled, leg. Endrödy-Younga; 2 Bushman, Alston; 2 Cape Columbine, 22.8.1983, E-Y:1964, ground traps with banana bait, leg. Endrödy-Younga, 1 Cape Columbine, 22.8.1983,

E-Y:1964, ground traps with meat bait, leg. Endrödy-Younga; 1 Cape Town, 38 km N, 30.8.1983, E-Y:2002, ground traps with banana bait, Endrödy, Penrith; 1 De Aar, XII.1932, Geo. French.; 1 Dikborne Houp, Lainsburg Div; 8 Duiker Island, 22.8.1983, E-Y:1962, ground traps with banana bait, leg. Endrödy-Younga; 5 Duiker Island, 22.8.1983, E-Y:1962, ground traps with faeces bait, leg. Endrödy-Younga; 3 Duiker Island, 22.8.1983, E-Y:1962, ground traps with meat bait, leg. Endrödy-Younga; 2 Duiker Island, 22.8.1983, E-Y:1962, ground traps, 73 days banana bait, leg. Endrödy-Younga; 2 Duiker Island, 22.8.1983, E-Y:1962, ground traps, 73 days faeces bait, leg. Endrödy-Younga; 1 Du Toitsbaai, 27 X.1978, Whitehead; 1 Elands Bay, 8 XI.1948, Koch, van Son; 1 Gelykswerf, Richtersveld, X.1955, C. Koch; 1 Gembok vlakte farm, 28.10.1977, E-Y:1399, singled on dunes, leg. Endrödy-Younga; 1 Holgat, 2.II.1953, C. Koch; 1 Klipfontein, C. L. L. Biden, 1911; 1 Kotzerus, 23.8.1979, E-Y:1582, ground traps, 62 days with faeces bait, leg. Endrödy-Younga, 1 Lamberts Bay, Nov.1956; 1 Langebaan, 4 km NE, 24.8.1983, E-Y:1971, ground traps, meat bait, leg. Endrödy-Younga; 3 Langebaanweg, 24.8.1983, E-Y:1970, ground traps with meat bait, leg. Endrödy-Younga; 1 Lekkersing; 3 Bushmanland, G. Alston; 1 Nabeis Farm, 30 m E of Kakamas,

17.XII.1948, Koch, van Son; 3 Namaqualand, C. L. L. Biden, 1911; 1 Noordoewer; 2 Nortier farm, 25.8.1981, E-Y:1845, ground traps with faeces bait, leg. Endrödy-Younga, 6 Nortier farm, 25.8.1981, E-Y: 1845, ground traps with meat bait, leg. Endrödy-Younga; 6 Nortier farm, 25.8.1981, E-Y: 1845, ground traps with banana bait, leg. Endrödy-Younga; 1 Nuwedam farm, 30.8.1981, E-Y:1865, ground traps, 60 days banana bait, leg. Endrödy-Younga; 1 Olifantshoek, 20 km S; 4 Oograbies, 30.VIII.1950, C. Koch, van Son; 3 Papendorp dunes, 22.8.1981, ground traps, 64 days banana bait, leg. Endrödy-Younga; 4 Papendorp dunes, 21.8.1981, E-Y:1826, night, red dunes, leg. Endrödy-Younga; 1 Pofadder, Bushmanland; 3 Pofadder, 15 km SW, III.1978, leg. E. Holm; 3 Pofadder, 10 km W, 29.8.1976, E-Y:1182, ground traps with banana bait, leg. Endrödy-Younga; 2 Pofadder, 10 km W, 29.8.1976, E-Y:1182, ground traps with meat bait, leg. Endrödy-Younga; 2 Pofadder, 10 km W, 29.8.1976, E-Y:1182, ground traps with faeces bait, leg. Endrödy-Younga; 2 Pofadder, 100 km W, 9.9.1976, E-Y:1247, ground traps 24 days banana bait, leg. Endrödy-Younga, 1 Pofadder, 10 km W, 9.9.1976, E-Y:1247, ground traps, 24 days banana bait, leg. Endrödy-Younga, 1 Pofadder, 100 km W, 9.9.1976, E-Y:1247, ground traps, 24 days meat bait, leg. Endrödy-Younga; 2 Pofadder, 100 km, W 9.9.1976, E-Y:1247, ground traps, 24 days faeces bait, leg. Endrödy-Younga; 2 Pofadder, 80 km W, 25.8.1977, E-Y:1330, ground traps, 62 days meat bait, leg. Endrödy-Younga, 1 Pofadder, 100 km W, 25.8.1977, E-Y:1331, ground traps with faeces bait, leg. Endrödy-Younga, 1 Pofadder, 100 km W, 25.8.1977, E-Y:1331, ground traps with meat bait, leg. Endrödy-Younga, 3 Pofadder, 10 km W, 25.10.1977, E-Y:1329, ground traps, meat bait, leg. Endrödy-Younga; 1 Pofadder, 10 km W, 25.10.1977, E-Y:1329, ground traps, banana bait, leg. Endrödy-Younga; 15 Port Nolloth; 3 Port Nolloth, C. L. Biden, 1911; 2 Port Nolloth, 27.12.1962, J. Visser; 2 Port Nolloth, 11–12 March 1973, 1 Port Nolloth, 29.15S 16.52, E VII.1978, leg. E. Holm; 1 Rooinek, Lainsberg district, S. Afr., 5 Seweputs farm, 23.8.1981, E-Y:1835, ground traps with faeces bait, leg. Endrödy-Younga; 1 Seweputs farm, 23.8.1981, E-Y:1835, ground traps with meat bait, leg. Endrödy-Younga; 1 Seweputs farm, 23.8.1981, E-Y:1835, ground traps with banana bait, leg. Endrödy-Younga; 2 Seweputs farm, 25.10.1981, E-Y:1897 vegetation dunes, night, leg. Endrödy-Younga; 1 Springbok, 50 km E, 25.8.1977, E-Y:1332, ground traps, 62 days banana bait, leg. Endrödy-Younga, 1 Springbok-Mesklip, 30.8.1976,

E-Y:1185, ground traps, banana bait, leg. Endrödy-Younga; 3 Springbok-Mesklip, 30.8.1976, E-Y:1186, from under stones, leg. Endrödy-Younga, 1 Strandfontein, Olifants River mouth, 13.XI.1949, C. Koch; 2 Steinkopf, 13.XII.1948, Koch, van Son, 2 Tc Aleë Mts, Richtersveld, II.1953, C. Koch, 1 Uniondale district; 1 Upper Holgat, 7.9.1976, E-Y:1232, ground traps with meat bait, leg. Endrödy-Younga; 1 Velddrif, 3 km E, 31.8.1981, E-Y:1870, ground traps, 59 days with banana bait, leg. Endrödy-Younga; 1 Verlorevele farm, 28.8.1981, E-Y:1856, ground traps, 60 days meat bait, leg. Endrödy-Younga; 1 Vredendal, 20 km W, 19.8.1983, E-Y:1948, ground traps, 76 days meat bait, leg. Endrödy-Younga; 1 Wiidepaarde Hoek, 28.8.1977, E-Y:1351, ground traps, 60 days banana bait, leg. Endrödy-Younga; 1 Willowmore, Dr Brauns.

Namibia: 1 Aus, Arasab River Rek.vlakte, 28.4.1996, A. Rasa; 1 Garies, 14.XI.1948, Koch, van Son; 2 Great Karasberge Farm, Noachabeb, 26.4.1972, L. & O. Prozesky; 6 Grootmist, coast, 20.XI.1948, Koch, van Son; 1 Kalkfeld, January 1948, S. Kretschmar; 1 Kamberg, 12 km E, 21.I.1980; 1 Kanaan 104, 15–1 October 1976, Louw, Penrith, 1 Koa valley, 25 km W Agaries, 28.IV.1975, Breytenbach, Tinley; 1 Koichab, VII.1982, leg. E. Holm, 1 Kubub 15 m S, V.1953, C. Koch; 3 Kunene River, W Hartmg [Hartmannberge], 12.2.1984, E-Y:2065, dunes and hummocks, night, Penrith, Müller; 1 Kunene River W Hartmbg [Hartmannberge], 13.2.1984, E-Y:2071, ground traps, 54 days faeces bait, Penrith Müller; 1 Kunene River, W. Hartmbg, 13.2.1984, E-Y:2067, ground traps, 54 days banana bait, Penrith, Müller; 1 Lüderitz, 09; 2 Violdsdrift; 2 Walvis Bay, May 1888; 1 Marienfluss, 4–8 km S. Otjimbingwa, 21–22 Nov. 1970, 1 between Rooi Lepel-Daberas dunes, V.1953, C. Koch, 1 Sesriem; 1 Swakopmund, Damaraland, XII.1951, G. Hobohm, 1 between Unjab-Hoanib Rivers, XI.1967, Hamilton, 1 Unjab River, 5 m from mouth, X.1965, W. D. Haacke.

Angola: 8 Coroca River, 8 m S, N. Espinheira, XII.1968, W. J. Hamilton

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24



25



26



27



Figs 24–27

24: *Stenogonopus plumosus*, Vredendal, 16 mm. 25: *S. rautenbachi* spec. nov., Klaver, 14 mm. 26: *Gonopus puncticollis*, Upington, 16 mm. 27: *G. edentatus*, Farm Bethanis, 16.5 mm.

28



29



30



31



Figs 28-31

28: *Gonopus pliciventris*, Gobabeb, 21 mm. 29: *G. hirtipes*, Tsao, 23 mm. 30: *G. bellamyi* spec. nov., Wallekraal, 17 mm.
 31: *G. transvaalensis*, Waterval River pass, 22 mm.

24



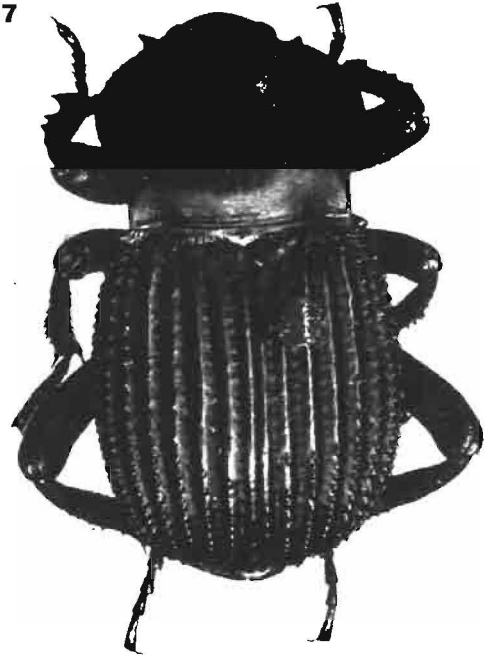
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26



27



Figs 24–27

24: *Stenogonopus plumosus*, Vredendal, 16 mm. 25: *S. rautenbachi* spec. nov., Klaver, 14 mm. 26: *Gonopus puncticollis*, Upington, 16 mm. 27: *G. edentatus*, Farm Bethanis, 16.5 mm.

32



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34



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Figs 32-35

32: *Gonopus amplipennis*, Okahandja, 22 mm. 33: *G. deflexus*, Abercorn, 20 mm. 34: *G. conpachysoma*, Nortier farm, 22 mm.
35: *G. prosternalis*, Zavora, 21 mm.

36



37



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Figs 36–39

36: *Gonopus mozambiquensis* spec. nov., Zavora, 21 mm. 37: *G. mozambiquensis muelleriae* subspec. nov., Kosibaai, 22 mm.
 38: *G. deplanatus*, Twee Rivieren, 18 mm. 39: *G. angusticostis*, Walvis Bay, 19 mm.

40



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42



43



Figs 40–43

40: *Gonopus tibialis tibialis*. Ohopoho, 21 mm. 41: *G. tibialis kalaharicus* subsp. nov., Upington, 18 m. 42: same subspecies, with ninth granulous line on pseudopleuron. 43: *G. tibialis carinatus* subsp. nov., Klipperugt farm, 18.5 mm.

44



45



46



47



Figs 44–47

44: *Gonopus tibialis skeletonensis* subsp. nov., Koichab, 18 mm. 45: *G. tibialis punctatus* subsp. nov., Farm Kanaan, 20 mm. 46: *G. tibialis alternatus* spec. nov., Stinkfontein, 18 mm. 47: *G. tibialis capensis* subsp. nov., Hoekbaai, 21 mm.

48



49



Figs 48, 49

48: Papendorp at Olifant River mouth, southwestern Cape. Rocky area with blown sand. Ruth Müller and Matthews Mathabate setting ground-traps. Habitat of *Stenogonopus plumosus* and *Gonopus conpachysoma*. 49: Rooidam farm in the same area, sandy vegetated dunes. Habitat of *Stenogonopus rautenbachi*.

50



51



Figs 50, 51

50: Bethanis farm, sandblown rocky flat in Namibia, Damaraland. Habitat of *Gonopus edentatus* and *G. deplanatus*. 51: Nortier farm, Namibia, near Lüderitz, mostly sandy. Habitat of *Gonopus conpachysoma*.

52



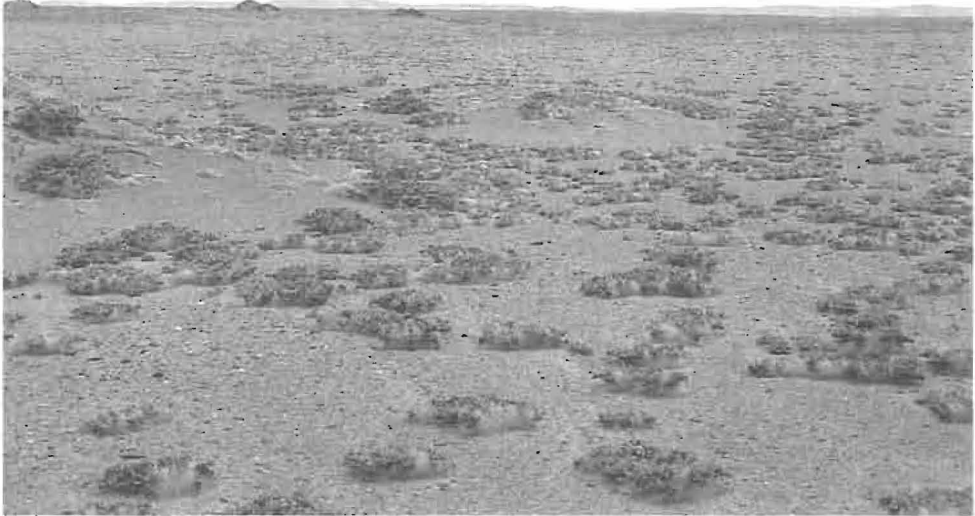
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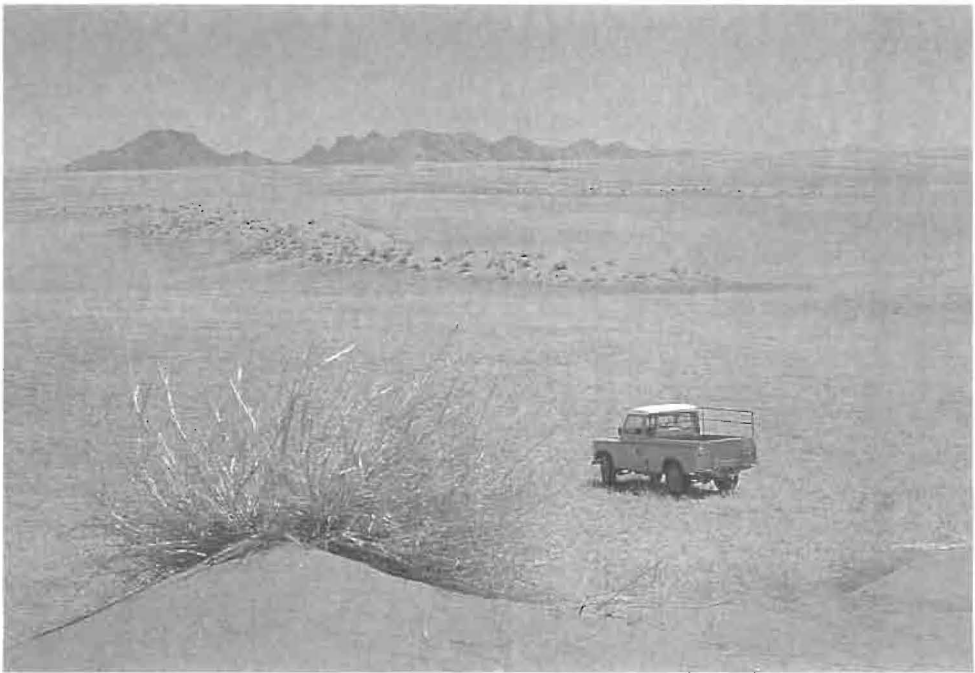
Figs 52, 53

52: Kuiseb River bed at Gobabeb, central Namibia, trees shading sandy river-bed. Habitat of *Gonopus tibialis tibialis*. 53: Arniston coast, south of Cape Town, vegetated sand dunes. Habitat of *Gonopus tibialis carinatus*.

54



55



Figs 54, 55

54: Unjab flat, sandy-gravelly coastal area, northern Namibian Skeleton Coast. Habitat of *Gonopus tibialis skeletonensis*. **55:** Namib park, southeast corner, Sandy area with some grass. Habitat of *Gonopus tibialis punctatus*.

56



57



Figs 56, 57

56: Obib Mountain and sandy flats, southern Namibia. Habitat of *Gonopus tibialis alternatus*. **57:** East of Potadder, Northern Cape Province, sandblown stony area. Habitat of *Gonopus deplanatus*.

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GAZETTEER

Localities in Angola (ANG), Botswana (BOT), the Democratic Republic of the Congo (DRC), Lesotho (LES), Malawi (MWI), Mozambique (MOC), Namibia (NAM), Tanzania (TAN), Zambia (ZAM), and Zimbabwe (ZIM) are indicated by the acronyms in brackets. In cases where quarter-degree squares grid references were given on specimen labels, the centre points of the respective squares were calculated to plot the record on the distribution maps. Some localities (indicated by a *) were traced by Dr J. Ferrer using Veiga Ferreira (1996) and de Vylder (1998) after completion of the manuscript. They therefore could not be added to the distribution maps

A			
Abachaus (NAM)	19.47S - 16.44E		
Abercorn = Mbala (ZAM)	8.50S - 31.24E		
Acornhoek	24.34S - 31.02E		
Alexander 989, Grootfontein (NAM)	SE 19 18 Cd		
Algoa Bay	33.50S - 25.50E		
Alma, Nylstroom	24.29S - 28.04E		
Amani (TAN)	05.09S - 38.36E		
Amatola Scott farm	22.56S - 29.23E		
Ambuella, Cubango (BOT)	19.00S - 22.30E		
Amont da Tambara, Pays Doungoube (MOZ)	Not traced		
Andoni (NAM)	18.31S - 16.47E		
Angoniland S-O Nyassa (MWI/MOC)	Not traced		
Anigab (NAM)	Not traced		
Arasab Mt (NAM)	27.05S - 16.19E		
Ariamsvlei	SE 2819 Bb		
Arnhem farm (NAM)	22.42S - 18.08E		
Arnhem Cave (NAM)	22.42S - 18.07E		
Arniston dunes	34.39S - 20.13E		
Arniston inland	34.39S - 20.13E		
Arób, Keetmanshoop (NAM)	SE 26 19 Dc		
Augrabies	28.35S - 20.21E		
Auob, Kalahari	26.26S - 20.38E		
Auob River, 35 km up (NAM)	c. 26.27S - 20.38E		
Aurusberg (NAM)	27.32S - 16.11E		
Aus (NAM)	26.40S - 16.15E		
Aus-Kubub (NAM)	26.41S - 16.15E		
Avis Dam Windhoek (NAM)		SE 22 17 Ca	
Awasi Mt (NAM)		22.25S - 15.29E	
B			
Bagani, Andara (NAM)		18.07S - 21.37E	
Bambesa (DRC)		03.25N - 25.43E	
Banga Neck, N Tonga coast		27.00S - 32.51E	
Barby 26, Bethanie (NAM)		SE 2516 Dc	
Bas Sangadzé (MOC)		Not traced	
Beaufort West		32.20S - 22.35E	
Beira (MOZ)		19.50S - 34.55E	
Bergsig farm, Omaruru (NAM)		21.40S - 15.35E	
Berseba (NAM)		26.00S - 17.46E	
Bethanien (NAM)		26.32S - 17.08E	
Bethanis (NAM)		20.45S - 14.19E	
Bethanis Farm (NAM)		20.25S - 14.24E	
Birchenough (ZIM)		32.20S - 19.58E	
Bismarckburg = Kasanga (TAN)		08.28S - 31.09E	
Black Rock, Tongaland		27.08S - 32.49E	
Bloemhof 27		39.00S - 25.37E	
Blouberg 600ft		23.05S - 29.00E	
Bloubergstrand		33.48S - 18.27E	
Blutkuppe (NAM)		22.51S - 15.23E	
Boegoeburg S (NAM)		28.46S - 16.35E	
Bogenfels (NAM)		27.27S - 15.24E	
Bookram farm		32.39S - 18.17E	
Bothaville		26.24S - 26.37E	
Brakfontein farm		32.56S - 18.15E	
Brakkloof farm, Albany		33.13S - 26.18E	
Brak River mouth		31.06S - 17.44E	
Brandberg plateau		c. 21.07S - 14.33E	
Brandberg		c. 21.07S - 14.33E	
Brandberg/Uis, Omaruru (NAM)		SE 21 14 Bb	
Brandkaross		28.28S - 16.40E	
Breekkerie farm		30.07S - 21.33E	
Buffalo Base (NAM)		18.08S - 21.41E	
Buffels River valley		29.35S - 17.17E	
Bulawayo (ZIM)		20.19S - 28.38E	
Bunya Cape, Kavango (NAM)		17.50S - 18.23E	
Bushman Pits (BOT)		20.10S - 24.20E	
Bushman Pits (BOT)		17.50S - 25.50E	

Bushmanland (NAM)	19.22S - 19.36E	Etosha Pan (NAM)	SE 18 15 Ca
Byneslaagte 274, Vredendal District	31.47S - 18.22E	Etosha, Namutoni Gate (NAM)	18.48S - 17.02E
		Excelsior, Maltahöhe (NAM)	SE 25 16 Ac
C		F	
Caconda (ANG)	13.43S - 15.03E	Finkenstein 71, Windhoek (NAM)	22.36S - 17.21E
Cape Town, 63 km N	33.24S - 18.16E	Fish River, Ai-Ais (NAM)	27.56S - 17.27E
Cape Flats Nature Reserve	c.34.02S - 18.37E	*Fito = Mufico (ANG)	16.48S - 14.54E
Cape Fria (NAM)	18.26S - 12.00E	Forêt d'Inhacoro = Inhacora (MOC)	16.28S - 34.14E
Cape Town	33.56S - 18.28E	Fort Victoria = Masvingo (ZIM)	20.05S - 30.50E
Cape Columbine	32.49S - 17.51E	Francistown (NAM)	22.03S - 27.16E
Cape Cross (NAM)	21.46S - 13.55E	Fraserburg	SE31 21 Dc
Cape Cross (NAM)	21.47S - 13.56E	Frischgewagt farm (NAM)	22.34S - 17.53E
Caraculo (ANG)	SE 15 12 Ba	*Fwambo [old for 'Belgian Congo']	
Carlowa's Cave, Angra Fria SE (NAM)	SE 18 12 Aa		
Catuane (MOC)	26.48S - 32.18E	G	
*Chapudi	22.55S - 29.34E	Gaborone (BOT)	24.30S - 26.00E
Chausib farm (NAM)	23.40S - 16.05E	Gaius 6, Karasburg (NAM)	SE 27 17 Da
Chemba (MOC)	17.09S - 34.53E	Gam road, northern vet. fence (NAM)	20.31S - 20.12E
Chigubo (MOC)	22.50S - 33.31E	Gamkaberg	33.44S - 21.57E
Chikwarakwara (ZIM)	28.07S - 17.26E	Ganab flats (NAM)	23.14S - 15.34E
Christiana	27.54S - 25.13E	Ganab, NE range (NAM)	23.08S - 15.36E
Christiana 30	28.10S - 25.13E	Ganab water (NAM)	23.06S - 15.32E
Chujab-Hoanib (NAM)	19.45S - 13.02E	Gansbaai	34.35S - 19.21E
Chulon farm (NAM)	24.10S - 17.42E	Garib-Ost 275, Windhoek district (NAM)	23.07S - 17.38E
Chwaha River, 3 km NE (NAM)	17.58S - 22.28E	Garies	30.34S - 18.00E
Clanwilliam	32.11S - 18.53E	Gaubrot (NAM)	SE 19 17 Bd
Claratal 18, Windhoek (NAM)	SE 22 16 Dd	Gautscha Pan = Gautsha Pan (NAM)	19.47S - 20.39E
Coa valley, Agaries, 25 km W	26.05S - 29.08E	Geelbek Forestry	33.12S - 18.08E
Colesberg	33.43S - 25.06E	Geelhout Bush farm	24.22S - 27.33E
Colorado on Glynberg 326 (NAM)	SE 22 16 Bc	Gelukkie, Okavogel (NAM)	18.03S - 21.27E
Commissie 649, Cape	28.01S - 22.44E	Gelykswerf, Richtersveld	c. 28.25S - 17.08E
Conception Bay, Old Mining Camp (NM)	24.01S - 14.33E	Gemsboksvlakte farm	30.30S - 17.29E
Cradock	32.10S - 25.38E	Gemsbok Pan (BOT)	21.40S - 21.40E
Cuito Cuanavale	15.11S - 19.11E	Ghai Pan = Gai Pan (BOT)	SE 24 22 Ab
Curoca River (ANG)	15.43S - 11.55E	Ghanzi (BOT)	21.30S - 21.50E
		Ghanzi Maun (BOT)	21.10S - 22.18E
D		Ghaub 47, Tsumeb (NAM)	SE 19 77 Bc
Daberas dunes (NAM)	28.13S - 16.45E	Gibeon West (NAM)	25.10S - 17.41E
Damara Pan (BOT)	22.20S - 22.20E	Giribesvlakte, Kaokoveld (NAM)	SE 19 13 Ab
Dar es Salaam (TAN)	06.48S - 30.15E	Glynberg 326, Windhoek (NAM)	SE 22 16 Bc
Darling	33.23S - 18.23E	Gobabeb dunes (NAM)	23.24S - 15.27E
De Aar	30.39S - 24.01E	Gobabeb riverbed (NAM)	23.34S - 15.03E
De Boom 273, Skerpklip, Vredendal District	31.45S - 18.21E	Gobabeb (NAM)	23.34S - 15.03E
De Waal (NAM)	23.23S - 18.51E	Gobabis (NAM)	22.27S - 18.58E
Deelkraal	32.35S - 26.40E	Gobt	Not traced
Delagoa Bay (MOC)	25.59S - 32.37E	Gomodimo (BOT)	22.40S - 23.50E
Dernbergsdraai farm	30.47S - 17.43E	Good Hope 397, Gobabis (NAM)	SE 22 19 Ab
Devuli River (ZIM)	Not traced	Gorrasis, Maltahöhe (NAM)	25.19S - 15.56E
Dickbaardskolk, Kalahari Park	25.45S - 20.44E	Gove, 5 km S, Kavango (NAM)	18.24S - 19.18E
Dickdorn farm (NAM)	24.49S - 17.42E	Grahamstad	33.19S - 26.32E
Dikweya, 5 km NE (NAM)	17.41S - 18.32E	Groblersdal	25.10S - 29.45E
Djab farm, Kuiseb (NAM)	23.16S - 16.15E	Groblershoop	28.55S - 21.59E
Doornfontein farm	32.48S - 18.18E	Groen River mouth	30.52S - 17.35E
Doringbaai	SE 31 18 Cc	Groot Derm	28.31S - 16.39E
Douglas	29.04S - 23.47E	Groolderm farm	28.31S - 16.37E
Driekop, Namaqualand	30.36S - 17.27E	Grootdraai	SE 24 29 Bd
Du Toitsbaai	SE 31 18 Ac	Grootdriif farm	32.24S - 18.27E
Duiker Island	32.43S - 17.56E	Grootfontein (NAM)	19.35S - 18.07E
Duineveld	24.36S - 18.54E	Grootfontein-Otavi (NAM)	19.38S - 17.21E
Dunbrody	33.27S - 25.32E	Grootmis	29.39S - 17.05E
Dwarskersbos, 10 km N	32.07S - 19.52E	Grootmis, 20 km E	29.39S - 17.50E
		Grootmis coast	29.39S - 17.05E
E		Gross Barmen (NAM)	22.05S - 16.60E
Echo Caves	24.17S - 30.32E	Guija (MOC)	24.32S - 33.00E
Edimba, Ovambo (NAM)	17.28S - 16.23E	Guiseb 180 (NAM)	20(?) .48S - 16.14E
Eiseb & Otjinoko River confluence (NAM)	20.40S - 20.09E		
Eiseb River, W of Theronsvallei (NAM)	20.36S - 20.27E	H	
Elands Bay	32.18S - 18.21E	Haakdooring, Ztbp. [Zoutpansberg]	24.48S - 28.50E
Elands Bay forestry	32.18S - 18.21E	Haalenberg, 10 km W (NAM)	26.38S - 15.25E
Elise Erasmus Kloof 158, Vredendal District	31.24S - 18.02E	Halfway Hotel (ZIM)	27.20S - 18.45E
Elliras	23.25S - 27.45E	Haris 367, Windhoek (NAM)	SE 22 16 Dd
Enyana, Ovambo (NAM)	17.37S - 17.25E	Haut Hamapaza, Forêt S. de Maringue (MOC)	Not traced
Espinheira (ANG)	16.47S - 12.20E		

Haut Lealui (ZAM)	15.12S - 22.59E	Klaver	31.47S - 18.37E
Heidelberg	26.31S - 28.21E	Klein Dobe (NAM)	19.26S - 20.33E
Heigums (NAM)	27.01S - 16.59E	Kleinhausen (NAM)	Not traced
Hellskloof	28.47S - 17.29E	Klinghardt Mountain (NAM)	27.18S - 15.42E
Helmeringhausen (NAM)	25.50S - 16.50E	Klipfontein	29.13S - 17.40E
Helmeringhausen, 15 km S (NAM)	25.53S - 16.49E	Kliphout Kop	32.17S - 18.24E
Hentiesbaai (NAM)	22.05S - 14.17E	Klipperugt farm	34.42S - 20.12E
Hentiesbaai (NAM)	22.07S - 14.16E	Krystna	34.02S - 23.03E
Hereroland (NAM)	SE 20 17 Da	Koedoes River	23.34S - 30.09E
Hereroland East, 2 km S vet. fence (NAM)	20.33S - 20.59E	Koes (NAM)	25.56S - 19.08E
Heusis	Not traced	Koes, 20 km NE, Keetmans District, (NAM)	25.42S - 19.19E
Hoanib, 35 km from mouth (NAM)	19.25S - 13.15E	Koichab (NAM)	26.18S - 15.33E
*Hobatere, Kamanjab District (NAM)	19.07S - 15.54E	Koichab-Unjab (NAM)	20.16S - 13.13E
Hoedspruit	25.32S - 27.21E	Kommandokraal farm W	31.29S - 18.11E
Hoekbaai, 2 km ENE	31.11S - 17.47E	Kommandokraal	31.30S - 18.12E
Hoffnung 66, Windhoek (NAM)	Se 2217 Ac	Kongola, 49 km W (NAM)	17.53S - 22.53E
Hohenheim farm (NAM)	23.20S - 16.20E	Kos 28, Windhoek (NAM)	23.16S - 16.08E
Holgat	28.58S - 16.43E	Kosibaai	26.50S - 32.45E
Homeb (NAM)	23.39S - 15.10E	Kotzesrus	30.57S - 17.50E
Hondeklip Bay	30.19S - 17.16E	Kransberg	24.25S - 27.31E
Hoogland 132, Matlahöhe (NAM)	SE 24 15 Cd	Krone 721, Damaraland (NAM)	SE 20 13 Db
Hopfield	33.04S - 18.21E	Krugersdrif	28.53S - 25.57E
Hopetown	29.37S - 24.05E	Kubi Pan, 120 km N Ghanzi (BOT)	21.00S - 22.35E
Hopetown, 100 km W	29.39S - 24.05E	Kuboos	28.25S - 17.05E
Hotazel, 50 km NW	26.48S - 22.53E	Kubub (NAM)	26.47S - 16.59E
Huab River mouth (NAM)	20.55S - 13.28E	Kuibis (NAM)	26.41S - 16.52E
I		Kuke Pan = Khutse Pan (BOT)	23.20S - 24.20E
Ignsi (ZIM)	19.40S - 28.05E	Kunene River (NAM)	17.12S - 12.10E
Inharrime (MOC)	24.25S - 35.01E	Kuru, 3 km W, Bushmanland (NAM)	19.56S - 20.38E
Insiza (ZIM)	29.12S - 19.55E	Kuruman, 120 km NW	c. 26.45S - 22.52E
Inyanga (ZIM)	18.16S - 32.45E	Kuruman	27.27S - 23.26E
*Iringa, D. Ost Afrika (TAN)	07.48S - 35.39E	Kwando River, Caprivi (NAM)	c. 17.25S - 22.54E
Iron Crown	24.00S - 29.58E	Kwando River, W Caprivi Park (NAM)	17.46S - 23.20E
Isabis 19, Windhoek (NAM)	22.58S - 16.46E	Kwando River, Caprivi (NAM)	17.45S - 23.18E
Island Point, 4 km S	30.56S - 17.38E	L	
J		Lake Sibaya	c. 27.18S - 32.38E
Jofane, Save River (MOC)	21.18S - 34.18E	Lake Ngami (BOT)	c. 27.30S - 22.31E
K		Lamberts Bay	32.05S - 18.24E
Kabulabula (NAM)	17.50S - 24.58E	Langebaan, 4 km NE	33.03S - 18.04E
Kai-Kai = Xai-Xai (BOT)	19.50S - 21.10E	Langebaanweg	29.57S - 18.08E
Kai-Kai, 24 km SE (BOT)	20.10S - 21.20E	Langer Heinrich Mountain (NAM)	22.47S - 15.20E
Kakamas	28.46S - 20.37E	Langjan Nature Reserve	22.52S - 29.14E
Kalidona (NAM)	21.17S - 18.04E	Lankundu	Not traced
Kalidona 277, Okahandja	21.17S - 18.04E	Lealui (ZAM)	15.12S - 22.59E
Kalkfontein, 6 km E	22.04S - 20.56E	Leeubron (NAM)	19.04S - 15.49E
Kamanayab (NAM)	19.38S - 14.51E	Lehututu (BOT)	23.40S - 21.40E
Kamberg, 12 km E (NAM)	23.33S - 15.50E	Leipoldville, Eland's Bay	32.18S - 18.21E
Kamomonde-Oos 86, Omaruru (NAM)	21.34S - 16.03E	Leipzig, Blouberg	23.10S - 28.53E
Kanaan farm (NAM)	25.53S - 16.07E	Lekkering	28.59S - 17.06E
Kang, 35 km S (BOT)	23.50S - 22.52E	Letaba	23.51S - 31.35E
Kaotwe (BOT)	22.40S - 23.10E	Leydsdorp	24.00S - 30.31E
Karakuwisa (NAM)	18.57S - 19.43E	Liankundu	Not traced
Karamba farm (NAM)	21.50S - 18.48E	Lichtenburg	26.10S - 26.10E
Karasburg, Warmbad (NAM)	SE 28 18 Ba	Lichtenstein (NAM)	22.46S - 16.58E
Karibib (NAM)	21.57S - 15.52E	Lorelei Mine, 2 km ESE, Lüderitz (NAM)	28.04S - 16.43E
Kasane (BOT)	c. 17.40S - 25.10E	Lorenço Marques = Maputo (MOC)	25.58S - 32.35E
Katima Mulilo (NAM)	17.29S - 24.17E	Louis Trichard	23.02S - 29.56E
Kaudom River (BOT)	18.29S - 20.56E	Lüderitz (NAM)	26.40S - 15.09E
Kavango, Mahango (BOT)	18.44S - 21.43E	Lundi-Save junction (ZIM)	21.18S - 32.24E
Kavango-Kaudora (BOT)	18.31S - 20.43E	M	
Keetmanshoop (NAM)	26.34S - 18.07E	Mababe Flats (BOT)	19.00S - 24.10E
*Keimoos	28.41S - 20.59E	Mabelepudi (BOT)	20.56S - 22.25E
Kenmaar	Not traced	Maboane, 37 km NW (BOT)	24.00S - 24.15E
Khabus 146, Keetmanshoop district (NAM)	26.18S - 18.13E	Mahalapye (BOT)	23.10S - 26.10E
Khonke Pan = Konkwe Pan [or Kakwe Pan] (BOT)	Ambiguous	Makond. Hochland = Makondi Plat. (TAN)	c. 10.34S - 38.59E
Khorixas (NAM)	20.21S - 14.57E	Mallow	Not traced
Khumib, Skeleton coast (NAM)	18.46S - 12.33E	Maltahöhe SW (NAM)	24.53S - 16.53E
Khutse (BOT)	23.19S - 24.35E	Mamathe (LES)	29.08S - 27.50E
Khutse Game Reserve (BOT)	23.50S - 24.15E	Mambwe (TAN)	Not traced
Kimberley	28.44S - 24.46E	Mamili National Park (NAM)	18.22S - 23.43E
		Manalume	Not traced

Mangetti Forest (NAM)	18 46S - 17 45E	Nokaneng (BOT)	19.40S - 22 10E
Manique Nique (MOC)	Not traced	Noko (TAN)	Not traced
Manziasubila Mulapo, E Caprivi (NAM)	17.51S - 23.27E	Noordoewer (NAM)	28.40S - 17.40E
Marientluss (NAM)	17.08S - 12.17E	Nossob	26.55S - 20 00E
Marracuepe (MOC)	25.44S - 32.40E	Nortier farm	32.03S - 18.19E
Masetleng (BOT)	23.40S - 20.50E	*Nova Chupanga = Manica (MOZ)	18.56S - 32.54E
Mashari, 8 km E, Kavango (NAM)	17.53S - 20 16E	Nuanetsi	21.55S - 31.30E
Massaringam (BOT)	Not traced	Nuanetsi 150 km (ZIM)	21.55S - 31 30E
Mata Mata	25.47S - 20.00E	Numabis Pan (NAM)	25.31S - 15.35E
Matlala	25.04S - 29.08E	Nurugas (?Narugas) (NAM)	Ambiguous
Matola (MOC)	25.35S - 32.30E	Nuwadam farm	32.22S - 18.10E
Matopos (ZIM)	20.37S - 28.30E	Nyamandhlovu (ZIM)	19.40S - 28 15E
Maun, 20 km N (BOT)	19.09S - 23.25E	Nylsvley	24.40S - 28.42E
Maun (BOT)	19.59S - 23.25E	Nylsvley Nature Reserve	24.39S - 28.42E
Maxwee lag, Okav (BOT)	19.30S - 23.20E		
Meiringspoort	33.25S - 22 33E	O	
Mentz 65, Gobabis (NAM)	23.07S - 17 45E	Obib dunes (NAM)	28.10S - 16.48E
Meshtash	Not traced	Obib Mountain Camp (NAM)	28.02S - 16.40E
Messina	22.21S - 30.03E	Odila River (NAM)	17.29S - 16.51E
Middeburg	31 3S - 25.0E	Ohopoho (NAM)	18.04S - 13.55E
Mier, Inkbospan	27.02S - 20.31E	Ohopoho, 122 km SSE (NAM)	18.55S - 14.21E
Mikindani (TAN)	10.17S - 40.07E	Ohopoho, 13 km N (NAM)	17.57S - 13.50E
Mmabolela	22.40S - 28.15E	Ohopoho, 44 km NW (NAM)	17.48S - 13.42E
Moamba (MOC)	25.36S - 32.14E	Ohopoho, 10.4 km SSE (NAM)	18.45S - 14 20E
Moewebaai (NAM)	19.20S - 12.43E	Ohrgstad	24.44S - 30.34E
Mogue	Not traced	Ohrgstad-Pilgrimsrest	24.50S - 30 35E
*Mokopani = between Eersterus and Werda	SE 25 23 Ac	Okahandja (NAM)	21 59S - 16 52E
*Mokopi = Mokopani	Not traced	Okahandja (NAM)	21 58S - 16.56E
Mokopong (BOT)	25.21S - 23.00E	Okakarara, Hereroland (NAM)	SE 20 17 Da
Molepolole (BOT)	24.26S - 25.26E	Okanyanya (NAM)	20.49S - 15.20E
Molopo River near Witdraai (BOT)	25.26S - 20.24E	Okarukondovi farm (NAM)	21.35S - 18.10E
Molopo River	26.55S - 20.42E	Okau Skeleton Coast Park (NAM)	18.19S - 12.05E
Monkey Bay (MAL)	14.00S - 34.50E	Okau (NAM)	SE 18 12 Aa
Montagu	22.45S - 29.10E	Okokatluwo, Kaokoveld (NAM)	17.24S - 12.44E
Monze (ZAM)	16 16S - 27 28E	Olifantshoek	27.58S - 22.45E
Moorivier, Maitahöhe (NAM)	24.25S - 17 00E	Olifantsvlei farm	30.07S - 21.31E
Mookane (BOT)	23 40S - 26 40E	Omaheke (NAM)	c.18.40S - 14.25E
Moremi W. Reserve (BOT)	19 14S - 23 21E	*Omaramba (NAM) [between Omaruru and Okanancja]	Not traced
Mothate Pan (BOT)	SE 23 24 Dc	Omaruru	21 25S - 15.56E
Möwebaai/lower Hoanib River SE (NAM)	SE 19 12 Bc/d	Omatako, 2 km W (NAM)	19.16S - 19.18E
Mseleni (MOC)	Not traced	Omega, Caprivi (NAM)	18.05S - 21 12E
Muchena (MOC)	15 40S - 33.44E	Onamihongwa, Ovamboland (NAM)	17.36S - 17 02E
Mudumu National Park (NAM)	18 10S - 23.25E	Ondangwa, Ovamboland (NAM)	17.56S - 15.59E
Mukorob 14, Keetmanshoop district (NAM)	25 30S - 18 10E	Ondongantje (Omaruru) (NAM)	c.21.25S - 15.56E
Murraysburg	31.59S - 23.45E	Onduri Ovambo (NAM)	17.32S - 16 37E
?Mynfontein, Richmond	Not traced	Onesi, Ovamboland (NAM)	17.35S - 14.41E
N		Onghiwiya Ovambo (NAM)	17.34S - 16.49E
N. Nyassa See Ubena-Langenburg (TAN)	Not traced	Onze Rust 192, Rehoboth (NAM)	SE 2418 Ad
N-Nyassa See Langenburg Ukinga Buanyiri-Poroto Hochplateau (TAN)	Not traced	Oograbies	29.13S - 17.08E
Naboomspruit, 16 km NE	24.25S - 28.46E	Ookiep, Namaqualand	29.36S - 17.53E
Nakabungo (BOT)	c.17.40S - 24.45E	Opuwo, E Kaokoland (NAM)	18.03S - 13.56E
Namtip flats (NAM)	25.58S - 16.02E	Opze Rust, 192 Rehoboth (NAM)	SE 24 18 Ad
Namtip dunes (NAM)	25.58S - 16.02E	Orah, Gibeon (NAM)	25.07S - 17.44E
Nangweshi = Nangwe Pools (ZAM)	16.55S - 23.28E	Oranjemund (NAM)	28.33S - 16 31E
Nara	Not traced	Oranjemund (NAM)	28.35S - 16 26E
Nata, 20 km N (BOT)	20.00S - 26.15E	Orapa (BOT)	21.15S - 25 20E
Nata (BOT)	20.12S - 26.11E	Orupembe, Rocky P. (NAM)	18 30S - 12 30E
Natab, Kuiseb (NAM)	23.39S - 15.05E	Oshikango (NAM)	17.23S - 15.53E
Naukluft (NAM)	24.14S - 16.14E	Osire Nord (NAM)	SE 20 17 Cd
Naukluft Park (NAM)	23.34S - 15.03E	Otjikondo (NAM)	19.35S - 15 27E
Naukluft Park (NAM)	23 03S - 14 59E	Otjikonjo farm (NAM)	21 09S - 17 55E
Navachab 67, Karibib district (NAM)	SE 22 15 Ba	Otjiku 192 Otjivarongo district (NAM)	20.16S - 16.49E
Ndumu	26.53S - 32 16E	Otjimbingwe (NAM)	22.22S - 16.08E
Ndumu Game Reserve	26.54S - 32 15E	Otjimbingwe (NAM)	1915CC
Nelspruit	25 29S - 30 55E	Otjivarongo (NAM)	20.27S - 16.40E
Neuhof Kowas (NAM)	31.01S - 18.02E	Ovambo at:	17.36S - 17.53E
Ngami Lake (BOT)	20.25S - 22.40E		
Ngwatle Pan (BOT)	SE 23 21 Ca	P	
Niekerk's Hope	29.19S - 22.50E	Paardeberg, Paarl	33.44S - 18.58E
Niekerkshoop	29.25S - 22.50E	Pafuri	22.25S - 31 12E
Noachabeb 97, Keetmanshoop (NAM)	SE 27 18 Ad/Bc	Paleisheuvel	SE 32 18 Bc
		Papendorp dunes	31 38S - 18.12E

Paradoks	SE 25 31 Ca	Sarusas (NAM)	18.47S - 12.23E
Pastoril do Sul Mocamedes (ANG)	SE 15 12 Ba	Sawmills (ZIM)	19 30S - 28.00E
Pays des Mosctes = Mooketsi	23.25S - 30.03E	Schakalsberg, Great Namaqualand	28 14S - 16 40E
Philipstown	30.26S - 24.28E	Schuckmannsburg, 5 km W (NAM)	17.32S - 24.44E
Pietersburg	23.55S - 28.27E	Scrutton farm	22.21S - 30.21E
Pietersburg, 35 km E	23.55S - 29.46E	Sebungwe (ZIM)	17 54S - 17 54E
Pienaars River	25.08S - 28.15E	Seehheim (NAM)	26.15S - 17 48E
Pinel, 5 km Bark	28 35S - 24.32E	Segeretti, Bushmanland (NAM)	19 03S - 20.43E
Plat River	SE 25 28 Aa	Sehitwe, 48 km SW	SE 20 22 Bc
Plateau, Luderitz (NAM)	SE 26 16 Cb	Sekhuma S E	24.38S - 24.10E
Plateau 38/Aar16, Luderitz (NAM)	SE 26 16 Cb	Sekhuma 40 km SW (BOT)	24.36S - 24.09E
Pofadder	29.09S - 19.25E	Senanga (ZAM)	16.09S - 23.16E
Pofadder, 10 km W	29.22S - 18.17E	Sepoba (BOT)	18.40S - 22.10E
Pofadder, 15 km SW	29.13S - 19.18E	Serowe (BOT)	22.25S - 26.44E
Pofadder, 80 km W	29 15S - 18.48E	Sesfontein, Damaraland (NAM)	19.07S - 13.36E
Pofadder, 80 km W	29.15S - 18.48E	Sesfontein bassin (NAM)	19.09S - 13.32E
Pofadder, 30 km E	29.00S - 19.41E	Sesfontein 12 km WSW (NAM)	19 13S - 13.32E
Pofadder, 100 km W	29.22S - 18.27E	Sesheke (ZAM)	17 18S - 24.56E
Pokkiespram	28.05S - 17.17E	Sesriem dunes (NAM)	24.33S - 15.46E
Popa Falls (NAM)	18.07S - 21.33E	Severelela (BOT)	Not traced
Port Nolloth	29.17S - 16.53E	Seweputs farm	31.39S - 18 22E
Porto Henrique (MOC)	26.18S - 32.20E	Seweputs coast	31.39S - 18 17E
Porto Alexandre (ANG)	15.48S - 11.50E	Sextus = Mile Sixty Six (NAM)	21 47S - 13.56E
Portsmut (NAM)	23.09S - 16.24E	Shangombo (ZAM)	16.28S - 22.10E
Préska	29.40S - 22.45E	Shashi-Limpopo confluence (ZIM)	28.25S - 21.36E
Pretoria	25 43S - 28.11E	*Shilouane	24.02S - 30.16E
Punda Maria sands	22.38S - 30.59E	Shorobe (BOT)	19 46S - 23 40E
Pungwe River (MOC)	19 21S - 34.30E	Sihope Vill., Caprivi (NAM)	Not traced
Q		Sishen Upington	c.27.50S - 22.57E
Qeya River, 2 km SE (NAM)	17.54S - 22.50E	Smithfield	30.12S - 26.32E
Qonisha River, 1 km SW	17.56S - 22.37E	Solitaire 412, Windhoek (NAM)	SE 23 16 Dc
Quickborn farm (NAM)	21.08S - 17.07E	Somerses East	32 43S - 25.35E
R		Sossusvlei (NAM)	24 42S - 15.23E
Reg d'Humbe Tiypelongo (ANG)	16.50S - 14.50E	Soutpan dunes	31.18S - 17.52E
Regenstein 32, Windhoek (NAM)	SE 22 17 Ca	Spitskop, Lydenburg	25.10S - 30.49E
Ricatla, Richtersveld (NAM)	25.42S - 14.30E	Spitzkoppe (NAM)	21.49S - 15.10E
Richthofen 126 (NAM)	23.24S - 17.45E	Springbok, 65 km NW	29 15S - 17.30E
Riemvasmaak	28.34S - 20.20E	Springbok, 16 km E	29 40S - 18.05E
Rietfontein coast	28 48S - 16.35E	Springbok, 50 km E	29.31S - 18.18E
Rietfontein (NAM)	21.52S - 17.42E	Springbok-Mesklip	29.49S - 17.52E
Rietmond (NAM)	24.31S - 18.15E	Stampriet (NAM)	24.18S - 19.32E
Rietmond (NAM)	24.46S - 18.14E	Steinkopf	29.15S - 18.26E
Rikatla	21.52S - 20.53E	Steilloopbrug	23.26S - 28.33E
Rio Giraul, Moçamedes (ANG)	15.05S - 12.16E	Still Bay	34.23S - 21.24E
Riversdale	Not traced	Stinkfontein	28.49S - 17.13E
Riverside 135, SE (NAM)	SE 26 16 Ca	Stinkfontein, 4 km SSW	28 49S - 17.13E
Roedtan	24.46S - 29.06E	Strandfontein, Olifants River	31 45S - 18.14E
Rondabel farm	30.47S - 17.50E	Strijdom Tunnel	24.17S - 30.42E
Rooibank (NAM)	23.08S - 14.40E	Struisbaai	34.46S - 20.03E
Rooiberg	24.49S - 27.48E	Swakopmund, riverbed (NAM)	22.40S - 14.13E
Rooiboklaagte (NAM)	20.51S - 20.52E	Swakopmund (NAM)	22.40S - 14.33E
Roodam Farm	31.04S - 17.48E	Swart Nossob River, Gobabis (NAM)	SE 22 18 Bc
Rooikopeiland, 10 km S	SE 29 21 Cc	Swartbank	Not traced
Rooinek, Laingsburg	Not traced	Swartbas West 276, Keetmanshoop (NAM)	SE 26 19 Dc
Rosh Pinah (NAM)	27.54S - 16.42E	Swartkop dunes	30.07S - 21 05E
Roter Kamm (NAM)	27.46S - 16.18E	Swartzerand = Schwarzrand (NAM)	SE 24 14 Aa
Rundu (NAM)	17.55S - 19.45E	Syringa (ZIM)	20.29S - 28.02E
Rundu, 18 km S Kavango (NAM)	18.02S - 19.38E	T	
Rustenbung	25.40S - 27.15E	Takatshwane, 60 km S (BOT)	23 00S - 21.45E
S		Tc. Alee Mt., Richtersveld (NAM)	Not traced
Salisbury = Harare (ZIM)	17 50S - 31.03E	Teafontein	33.14S - 26.15E
Salone	Not traced	Thabazimbi	24.35S - 27.25E
San Martinho (MOC)	25.20S - 33.12E	Thamalakane Okw (BOT)	c.20.00S - 23.32E
Sandberg	Not traced	Thinderevu Omuramba (NAM)	18.15S - 21.40E
Sandfontein (NAM)	22.18S - 19.53E	Thomasberg (NAM)	23 10S - 15.31E
Sandverhaar 80, Bethanien (NAM)	SE 26 17 Cd	Titiesbaai 560	31 06S - 17 44E
Sandwich Bay (NAM)	23.20S - 14.28E	Tondale	Not traced
Sandy River	Not traced	Tonkwani	Not traced
Sangwali, E Caprivi (NAM)	18.14S - 23.36E	Torra Bay (NAM)	20 17S - 13 16E
Santa Cruz	Not traced	Tsane Pan (BOT)	24.01S - 21.50E
		Tsau, 40 m SW, Ghanzi (BOT)	20.09S - 22.26E
		Tshane Pan = see Tsane Pan	

Tshipise	22.36S - 30.10E	Verlorevlei farm	32.19S - 18.22E
Tsodilo hills (BOT)	18.45S - 21.45E	Victoria West	31.24S - 23.07E
Tsondab vlei (NAM)	23.59S - 15.26E	Victoria Falls (ZIM)	17.55S - 25.51E
Tsotsoroga (BOT)	18.44S - 24.21E	Vila Luisa (MOC)	25.44S - 32.40E
Tsumkwe, Grootfontein (NAM)	SE 19 20 Cb	Violsdrift, 10 km N (NAM)	28.43S - 17.37E
Tsumkwe (NAM)	19.36S - 20.31E	Visrivier (NAM)	24.22S - 18.48E
Turk Mine (ZIM)	19.44S - 28.45E	Vivo	23.10S - 29.16E
Twee Rivieren	26.28S - 20.37E	Vlakwater 9, Gobabis (NAM)	SE 23 18 Db
Twee Rivieren, 50 km N	26.10S - 20.30E	Vogelfederberg	23.06S - 14.55E
Twee Rivieren, 48 km N	20.02S - 20.28E	Volmoed farm	26.03S - 22.40E
Twee Rivieren, 100 km SE	27.12S - 21.08E	Vostershooop	28.07S - 22.50E
Twyfelfontein (NAM)	20.31S - 14.20E	Vredendal, 20 km W	31.40S - 18.31E
		Vryburg	SE 22 29 Cb
U			
Ubena, D. Ost Afrika (TAN)	Not traced	W	
Ugab mouth 30 km S	21.26S - 13.47E	Wallfish Bay (NAM)	22.59S - 14.28E
Uhehe Iiringa Urgegengend., D. Ost Afrika (TAN)	Not traced	Wallekraal (NAM)	30.23S - 17.31E
Uhehe Iringa-Mgololo, D. Ost Afrika südlich (TAN)	Not traced	Wankie Nat. Res. (ZIM)	18.40S - 26.30E
Uhehe-Hochland, D. Ost Afrika (TAN)	Not traced	Warmbad, 5 km S, Karasburg district (NAM)	28.29S - 18.46E
Uheheland Kidugala (TAN)	Not traced	Warmbath	24.53S - 28.18E
Uis, 50 km W (NAM)	21.14S - 14.29E	Warmfontein 289, Keetmanshoop (NAM)	SE 27 19
Uitenhage	33.46S - 25.24E	Warmquelle (NAM)	19.10S - 13.16E
Uithou 366 (NAM)	22.52S - 19.46E	Waterberg Plateau	SE 20 17 Ad
Uitzicht, Zoutpansberg	24.18S - 28.07E	Waterberg	23.40S - 24.55E
Umbeluzi	26.00S - 32.30E	Waterpoort	25.54S - 29.37E
Unions End, Kalahari Park	24.48S - 20.02E	Waterval	c.30.12S - 26.32E
Unjab Delta, Skeleton Coast Park	20.15S - 13.13E	Watervalrivierpas	24.54S - 30.21E
Unjab Hoanib River (NAM)	20.16S - 13.13E	Weissenfels farm (NAM)	23.20S - 16.25E
Unjab mouth (NAM)	20.12S - 13.09E	Weiverdiend 328, Keetmanshoop (NAM)	SE 25 19 Dd
Unjab, 5m from mouth (NAM)	20.10S - 13.13E	Wesselsbron	27.48S - 26.23E
Unjab dunes (NAM)	20.10S - 13.13E	Wildeperdehoek	29.57S - 17.33E
Upangwa, D. Ost Afrika	Not traced	Wildeperdrant	28.46S - 17.05E
Upington	28.26S - 21.40E	Wildheim Ost 384, Keetmanshoop (NAM)	SE 26 19 Bc
Upington, 19 km E	28.26S - 21.40E	Willowmore	33.18S - 23.30E
Upington, 29 km E	28.26S - 21.40E	Windhoek (NAM)	22.34S - 17.06E
Upington, 39 km E	28.25S - 21.40E	Witbank	25.50S - 29.24E
Upington, 120 m NW Obogorop	28.26S - 21.14E	Witput's (NAM)	27.36S - 16.41E
Upper Hoigat	28.43S - 17.07E	Witsand	28.35S - 22.30E
Upupa falls (NAM)	18.10S - 21.35E	Witsand	SE 28 22 Ad
Us Pass, 10 km from Park (NAM)	23.03S - 15.40E	Wolfsnes, W Etosha Nat. Park (NAM)	19.03S - 15.52E
Usaramo (TAN)	Not traced		
V			
Vaal River, Diamond Fields	Not traced	Y	
Vaalbank 319, Gobabis (NAM)	SE 23 18 Dd	Yzerfontein, 8 km N	33.15S - 18.11E
Vaalwater	24.18S - 28.07E	Z	
Valencia farm	23.10S - 16.30E	Zavora (MOC)	24.25S - 35.10E
Vallee du Pompue	Not traced	Zebediela	24.18S - 29.16E
Van der Kloof Dam	29 24 Dd	Zeerust	Lo26/1-La.25/3
Vanwyksfontein farm	30.38S - 25.23E	Zeerust	25.33S - 26.05E
Van Zyl's Rust	26.52S - 22.04E	Zoutpan, Pretoria = Tswaing	25.24S - 28.06E
Vanzylsrus, 80 km E	26.52S - 22.52E	Zoutpan, Zoutpansberg	c.23.00S - 29.40E
Veldrif, 3 km E	32.46S - 18.14E	Zwartskraal farm	33.10S - 22.32E
		Zwiebellfläche (NAM)	25.10S - 17.05E

Postscript

During the time that this paper was written, Sebastian's health was rapidly declining due to the terminal illness that afflicted him, and when his ability to communicate vocally failed, there were still questions that needed some clarification. By the time the manuscript had been reviewed by Dr Julio Ferrer, Hagginge, Sweden, Sebastian's condition had deteriorated further, and so his colleagues assumed the responsibility for incorporating Dr Ferrer's suggestions. The production of the paper through the editorial process to page proof stage occurred after his death and after the return of much of the material that was borrowed from overseas institutions. Thus there are matters that remain unresolved, some of which are explained where appropriate. We appreciate your understanding that this final major contribution from such a formidable coleopterist lacks the overall lustre of his earlier work but, had he been able, no question would have remained unanswered that we unfortunately cannot ask him now.

Our sincere thanks are due to Dr Julio Ferrer for his unstinting advice and the amount of time he spent on this paper by his respected colleague and friend.

We also thank Dariusz Iwan of the Polish Academy of Science, Warsaw, for his generous assistance with some aspects of the manuscript.

The other contributions towards the completion of this paper come from within Sebastian's department. Ms Ruth Müller, Collections Manager, tirelessly typed in the vast amount of locality data to compile the gazetteer and assisted Sebastian with the photography of specimens. Dr Sibylle Gussmann, Curator, entered the locality data that produced the distribution maps and later read through the page proofs, spent many hours verifying type material and data, collated information submitted by Dr Ferrer and Dr Iwan, and managed to solve a number of questions that were unresolved at the time of Sebastian's death.

Without the efforts and contributions of the team of friends and colleagues, this paper would not have been completed to the extent that it is now. This effort, in itself, is a testimony to Sebastian from those of us who loved and respected him.

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