

TWO NEW SPECIES OF *TRIGONOPUS* MULSANT ET REY, 1853 FROM SOUTH AFRICA (COLEOPTERA: TENEBRIONIDAE: PLATYNOTINI)

DARIUSZ IWAN

Museum and Institute of Zoology, Polish Academy of Sciences, Wilcza 64, 00-679 Warszawa, Poland; e-mail: darek@robal.miiz.waw.pl

Abstract.— *Trigonopus bellamyi* sp. nov. and *T. natalensis* sp. nov. are described and illustrated. The species belong to the generic group trigonopoid Platynotina from South Africa. Key for species determination is provided.



Key words.— Coleoptera, Tenebrionidae, Platynotini, *Trigonopus*, new species, South Africa.

In my recent revision (Iwan 1997) of *Trigonopus* Mulsant et Rey, 1853 I preserved Koch's (1956) interpretation of this genus. *Trigonopus* is classified in the trigonopoid Platynotina, where it is closely related to *Amblychirus* Koch, *Bantodemus* Koch, *Melanopterus* Mulsant et Rey and *Selinopodus* Koch (broad male fore tibia with an apical concavity on the inner side, as in Figs 3–4, 15–16). The presence of flat tubercles on the elytra and epipleura distinguishes *Trigonopus* from above-mentioned genera (Fig. 2).

Further two new species of this genus have recently been discovered among the specimens sent by Dr. Charles L. Bellamy (Transvaal Museum of Natural History, Pretoria, Republic of South Africa) and in the Coleoptera collection of the Museum and Institute of Zoology Polish Academy of Sciences (Warsaw, Poland).

At present the genus *Trigonopus* includes 9 species, which occur only in Southern Africa (Lesotho and Republic of South Africa – SE part of Cape Province and Natal) (Fig. 31).

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TMNH – Transvaal Museum of Natural History, Pretoria, Republic of South Africa (C. L. Bellamy);

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METHODS AND ABBREVIATIONS

Means and ratios are based on all specimens listed under "Type(s)" (measures of the genitalia – 1 or 2 speci-

mens). Measurements were made as follows: width of lateral pronotal border – in the middle of lateral pronotal margin; width of anterior elytral margin – from humeral angle to scutellum; length of body – from anterior margin of labrum to elytral apex; width of body – maximum elytral width. The following abbreviations have been used in the descriptions:

- pl/pb – pronotal length/breadth ratio;
- el/eb – elytral length/breadth ratio;
- el/pl – length ratio elytra/pronotum;
- eb/pb – breadth ratio elytra/pronotum;
- pkp/st – breadth ratio anterior margin of elytra/scutellum;
- ftl/ftb – fore tibia length/breadth ratio;
- lbp/lap – length ratio basal/apical parts of aedeagal tegmen;
- c1/c2/c3/c4/c4-c3 – length ratios coxites1/coxites2/coxites3/coxites4/coxites4-coxites3;
- bc1/lc1 – coxites1 breadth/length ratio;
- lp/lc1 – length ratio paraproct/coxites 1;
- lmb/la – length ratio male body/aedeagus;
- lfb/lo – length ratio female body/ovipositor.

SYSTEMATICS

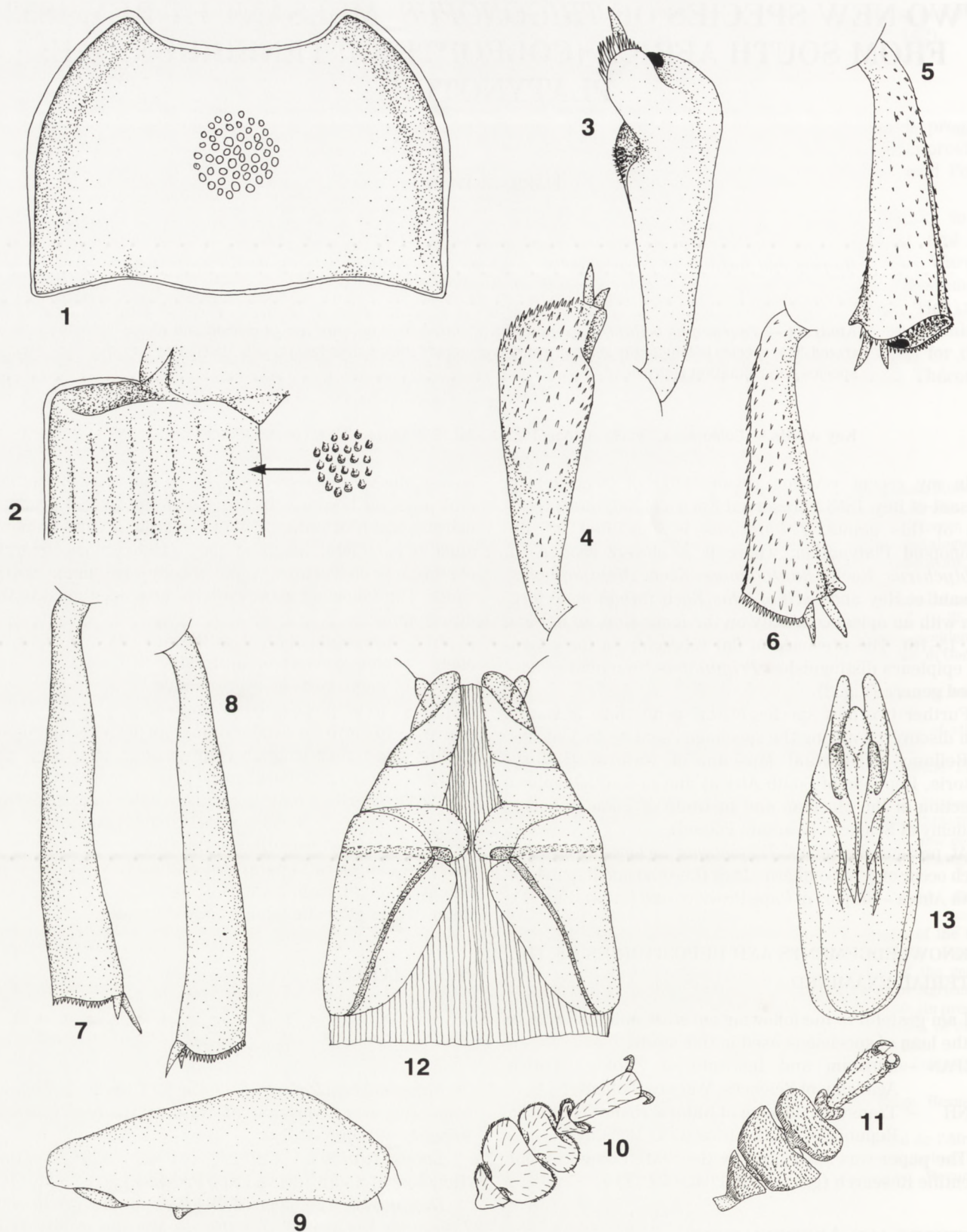
Trigonopus bellamyi sp. nov.

(Figs 1–13, 31)

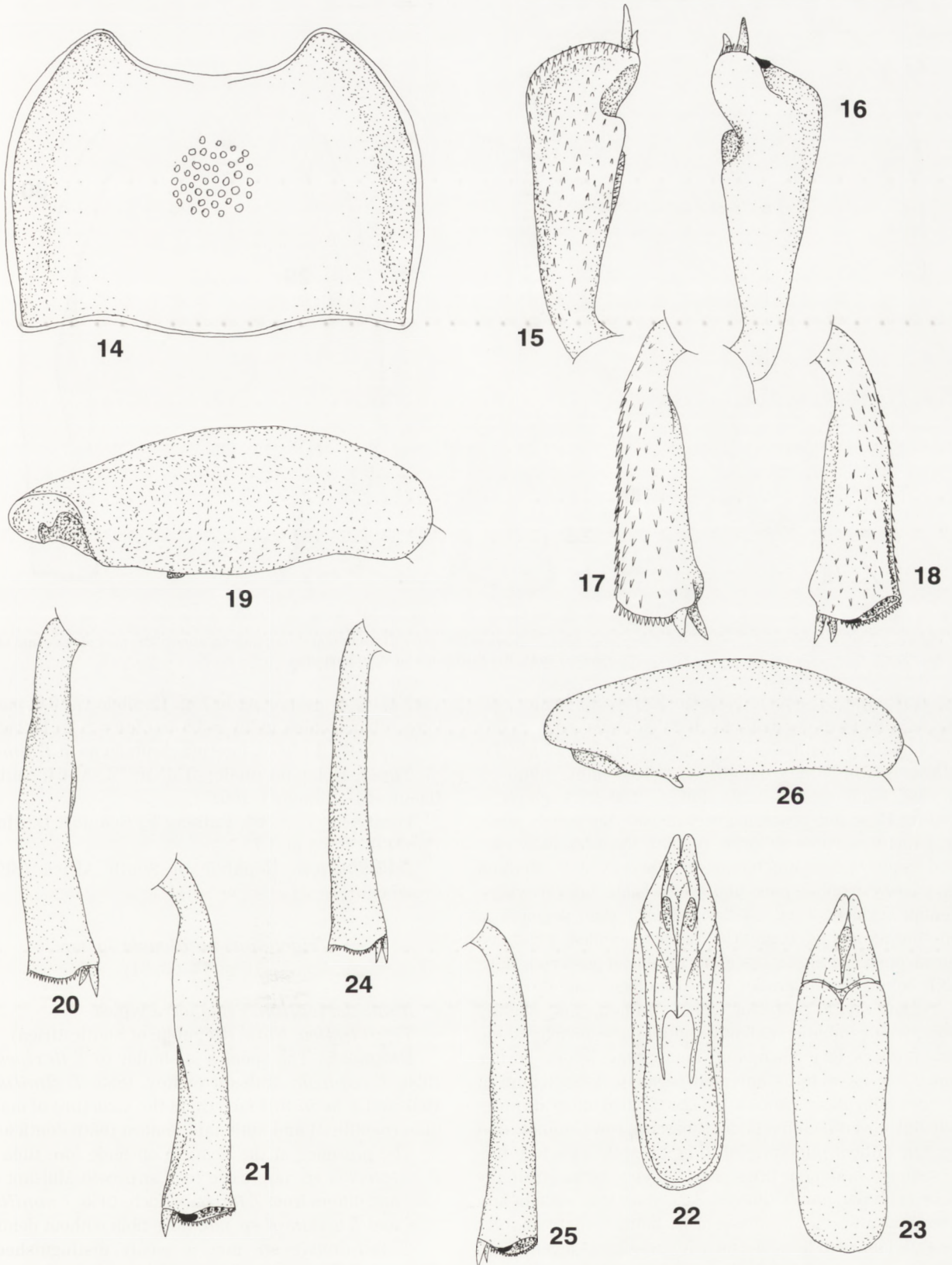
Name derivation. In honour of Dr Charles L. Bellamy from Transvaal Museum of Natural History, Pretoria, Republic of South Africa.

Locus typicus. Katbergpass near Fort Beaufort (Republic of South Africa, Cape Province).

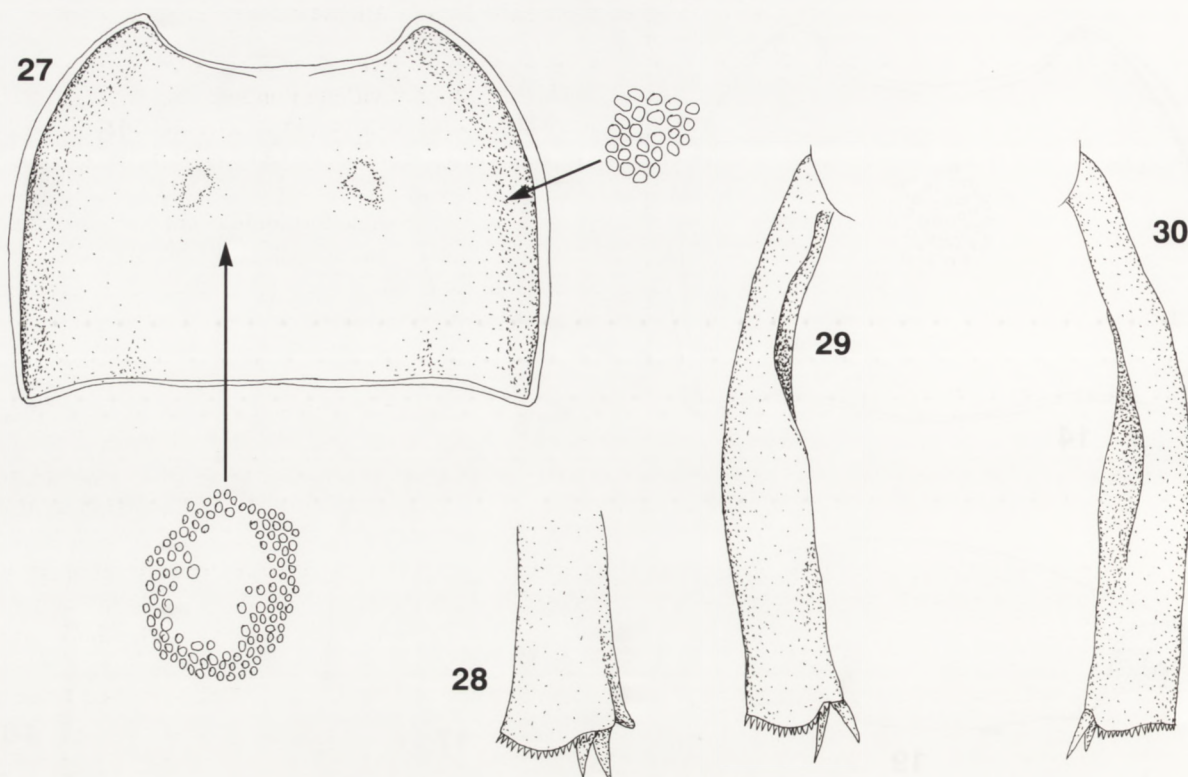
Diagnosis. The species belongs to the group with *T. flexipes* Koch, 1956, *T. capicola* Mulsant et Rey, 1853, *T. similis* Iwan, 1997 and *T. natalensis* sp. nov. by similar structure of male hind tibia and male mid femora (see diagnosis *T. natalensis*).



Figures 1–13. *Trigonopus bellamyi* sp. nov.: (1) pronotum; (2) anterior part of elytron (inset: tubercles); (3) dorsal and (4) ventral view of male fore tibia; (5) dorsal and (6) ventral view of male mid tibia; (7) dorsal and (8) ventral view of male hind tibia; (9) male mid femur; (10) dorsal and (11) ventral view of male fore tarsus; (12) ovipositor; (13) aedeagus.



Figures 14–26. *Trigonopus natalensis* sp. nov. (14–23), *T. capicola* (24–26): (14) pronotum; (15) ventral and (16) dorsal view of male fore tibia; (17) ventral and (18) dorsal view of male mid tibia; (19, 26) male mid femur; (20, 24) dorsal and (21, 25) ventral view of male hind tibia; (22) ventral and (23) dorsal view of aedeagus.



Figures 27–30. *Trigonopus similis* (27), *T. capicola* (28), *T. flexipes* (29–30): (27) pronotum (inset. puncturation); (28) part of male mid tibia; (29) dorsal and (30) ventral view of male hind tibia.

T. bellamyi sp. nov. is close to *T. similis* Iwan, 1997 (male fore tibia without denticle), but distinguished from this species by the puncturation of pronotum (cf. Figs 1 and 27).

Description. Body length 18.0–18.6 mm, pl/pb = 0.61–0.63, el/eb = 1.18–1.29, el/pl = 2.04–2.23, eb/pb = 1.07–1.09. Head and pronotum very densely but evenly punctate, punctures not very large, regular. Eyes laterally narrowed, between gena and tempus 1–2 facets visible. Mentum with narrow median part and well visible lateral wings. Antennal segment 3 ca. 2.4–2.6 × longer than segment 2. Pronotum as in Fig. 1; anterior angles rounded, produced anterad, posterior angles distinctly produced posterad; sides weakly rounded, subparallel at $\frac{2}{3}$ from base, slightly emarginated anterior to posterior angles; pronotal disc slightly convex, with wide and shallow longitudinal concavity along lateral borders; base bisinuate emarginate; lateral border about 0.7 × as wide as antennal segment 3. Scutellum of medium width, pkp/st ratio ca. 2.6–2.8. Elytral intervals practically flat, covered with distinct tubercles; rows shallow and irregular, without puncturation (Fig. 2). Male legs, fore tarsus strongly widened (Figs 10–11); fore tibia gradually widened to broad apex (fl/ftb ca. 3.2), inner side with an apical concavity which is pubescent at bottom, inner margin strongly widened at level of concavity, passing as a gentle arc towards apex and disappearing just before (Figs 3–4); mid tibia with sharp apical denticle (Figs 5–6); hind tibia slightly flattened on inside (Figs 7–8); mid femur with denticle (Fig. 9). Aedeagus as in Fig. 13, lmb/la ca. 6.9, lap/lbp/l =

1.0/2.3/0.5; ovipositor as in Fig. 12, lfb/lo ca. 6.6, paraproct longer than coxites, lp/lc1 = 3.8, bc1/lc1 = 2.1, c1/c2/c3/c4/c4-c3 = 1.0/0.9/1.4/1.3/0.4, internal genitalia as in *T. similis*.

Types. Holotype (male), TMNH: “Z. A. 64, Katberg F., Beaufort D.; Humus I. 1961”.

Paratypes: Z. A. 64, Katberg F., Beaufort D.; Humus I. 1961, (TMNH) 4 m, 1 f.

Distribution. Republic of South Africa (SE Cape Province) (Fig. 31).

***Trigonopus natalensis* sp. nov.**
(Figs 14–23, 31)

Name derivation. From terra typica.

Terra typica. Natal (Republic of South Africa).

Diagnosis. The species is similar to *T. flexipes* Koch, 1956, *T. capicola* Mulsant et Rey, 1853, *T. similis* Iwan, 1997 and *T. bellamyi* sp. nov. in the structure of male hind tibia (modified) and male mid femora (with denticle).

The presence of the denticle on male fore tibia places *T. natalensis* sp. nov. close to *T. capicola* Mulsant et Rey, 1853 and differs from *T. flexipes* Koch, 1956, *T. similis* Iwan, 1997 and *T. bellamyi* sp. nov. (fore tibia without denticle).

T. natalensis sp. nov. is easily distinguished from *T. capicola* Mulsant et Rey, 1853 by the structure of male mid and hind tibia (cf. Figs 17–18 and 28, 20–21 and 24–25).

Description. Body length 20.5.0 mm, pl/pb = 0.62, el/eb = 1.29, el/pl = 2.14, eb/pb = 1.03. Head and pronotum

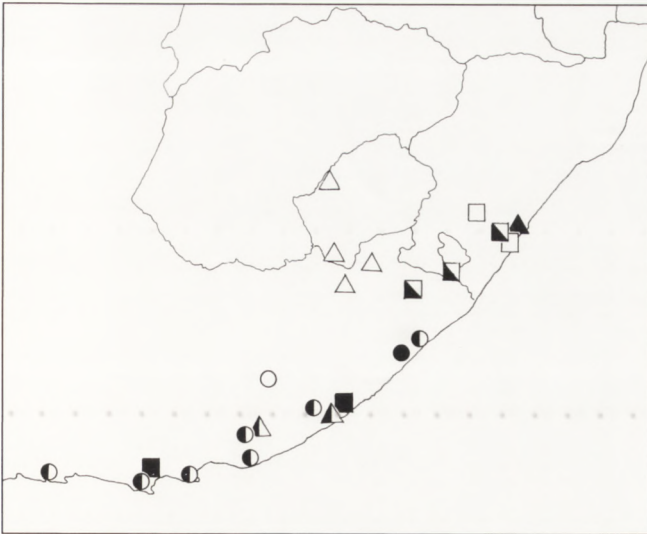


Figure 31. Distribution of *Trigonopus bellamyi* sp. nov. (open circle), *T. capicola* Mulsant et Rey, 1853 (solid/open circle), *T. cochraneeae* Iwan, 1997 (solid circle), *T. danielssoni* Iwan, 1997 (open triangle), *T. flexipes* Koch, 1956 (solid/open triangle), *T. natalensis* sp. nov. (solid triangle), *T. sigillatus* Iwan, 1997 (open square), *T. signus* Iwan, 1997 (solid/open square) and *T. similis* Iwan, 1997 (solid square).

densely but evenly punctate, punctures not very large, regular. Eyes laterally narrowed, between gena and tempus 3 facets visible. Mentum with narrow median part and well visible lateral wings. Antennal segment 3 ca. $2.5 \times$ longer than segment 2. Pronotum as in Fig. 14; anterior angles rounded, produced anterad, posterior angles slightly produced posterad; sides weakly rounded, emarginated just anterior to posterior angles; pronotum widest at $\frac{2}{3}$ length from base; pronotal disc slightly convex, with wide and shallow longitudinal concavity along lateral borders; base moderately bisinuate emarginate; lateral border as wide as antennal segment 3. Scutellum of medium width, pkp/st ratio ca. 2.6. Elytral intervals practically flat, covered with distinct tubercles; rows shallow and irregular, without punctuation. Legs, fore tarsus strongly widened as in *T. bellamyi*; fore tibia gradually widened to broad apex (fl/ftb = 2.8), inner side with an apical concavity which is pubescent at bottom, inner margin at forms right angle at level of concavity and disappears at ca. $\frac{1}{5}$ length before apex (Figs 15–16); mid tibia with blunt apical denticle (Figs 17–18); hind tibia flattened and slightly bent on inside (Figs 20–21); mid femur with denticle (Fig. 19). Aedeagus as in Figs 22–23, lmb/la ca. 6.8, lap/lbp/li = 1.0/2.8/0.5.

Types. Holotype (male), MIZPAN: "Natal; Muz. Zool. Polonicum, Warszawa 12/45".

Distribution. Republic of South Africa (Natal) (Fig. 31).

KEY FOR DETERMINATION OF *TRIGONOPUS*

1. Male mid femur with denticle (Fig. 26) 2
 - Male mid femur without denticle 6
2. Pronotal disc with two symmetrical, smooth, irregular patches *T. similis* Iwan, 1997
 - Pronotal disc with regular puncturation 3
3. Inner margin of male fore tibia simple (not forming denticle), reaching almost apex (Figs 7–8 and 29–30) ... 4
 - Inner margin of male fore tibia forms a denticle, disappearing just before apex 5
4. Male hind tibia slightly flattened on inside (Figs 7–8) *T. bellamyi* sp. nov.
 - Male hind tibia distinctly flattened and bent on inwards (Figs 29–30) *T. flexipes* Koch, 1956
5. Male mid tibia with blunt apical denticle; male hind tibia as in Figs 17–18 *T. natalensis* sp. nov.
 - Male mid tibia with sharp apical denticle; male hind tibia as in Figs 24–25 *T. capicola* Mulsant et Rey, 1853
6. Pronotal disc without patches; elytral intervals 1, 3, 5 and 7 clearly convex, forming longitudinal, smooth, shiny, irregular ribs, all tubercles covering their surface fused *T. danielssoni* Iwan, 1997
 - Pronotal disc with two symmetrical, smooth, irregular patches; elytral intervals 1, 3, 5 and 7 only slightly rounded, generally only in posterior part of elytra, always covered with distinct tubercles, which sometimes fuse in groups 7
7. Male fore tarsi very wide, segment 3 more than twice as wide as 4 (Figs 10–11) *T. sigillatus* Iwan, 1997
 - Male fore tarsi narrow, segment 3 ca. $1.5 \times$ as wide as 4 8
8. Inner margin of male fore tibia with deep, transverse pit and denticle; pronotum regularly punctate *T. cochraneeae* Iwan, 1997
 - Inner margin of male fore tibia with a longitudinal, shallow concavity, without denticle; pronotal punctures irregular, enlarged *T. signus* Iwan, 1997

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