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## ***Tanyproctus (Tanyproctus) arher* (Coleoptera: Scarabaeidae: Melolonthinae: Tanyproctini), a new species from the Socotra Island, Yemen**

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### **Abstract**

*Tanyproctus (Tanyproctus) arher* Bezděk, Sehnał & Král, new species, is described from Socotra Island (Yemen), based on external morphology including male genitalia.

**Key words:** Coleoptera, Scarabaeoidea, Scarabaeidae, Melolonthinae, Tanyproctini, *Tanyproctus*, taxonomy, new species, Socotra, Yemen

### **Introduction**

Socotra is the largest island of the archipelago of the same name. It is situated in the northwest part of the Indian Ocean, closer to east Africa than to its place of origin – southern parts of Yemen and Oman. This island is of the east Gondwanan origin, like Seychelles and Madagascar (*e.g.*, Krause *et al.* 2006). Due to its geological history, geographical isolation, and climatic conditions, Socotra holds a remarkably diverse biota of high level of endemism. For example, Batelka (2012) listed 39 endemic insect genera and subgenera from the Socotra island.

Members of the melolonthine tribe Tanyproctini (formerly Pachydemini, see Bouchard *et al.* (2011) for details) of the Socotra island have been revised quite recently (Král *et al.* 2012). Up to date, eight species belonging to three genera are known from the Socotra island: *Canudemema homhil* Král, Sehnał & Bezděk, 2012; *C. socotrae* Lacroix, 1994; *Socotraproctus haghier* Král, Sehnał & Bezděk, 2012; *Tanyproctus (Tanyproctus) canui* Lacroix, 1999; *T. (T.) keithi* Král, Sehnał & Bezděk, 2012; *T. (T.) lacroixi* Král, Sehnał & Bezděk, 2012; *T. (T.) puncticeps* (Waterhouse, 1881); and *T. (T.) wraniki* Král, Sehnał & Bezděk 2012. All these species are considered endemic taxa of Socotra.

When the revision of Socotran Tanyproctini (Král *et al.* 2012) was already in press, we received specimens representing a new species collected in eastern part of the island. The purpose of this paper is to describe this additional new species.

### **Material and methods**

Specimens were examined with an Olympus SZ61 stereomicroscope and measurements were taken with an ocular grid. The photographs were taken using a Canon MP-E 65mm/2.8 1-5x macro-lens on bellows attached to a Canon EOS 550D camera. Partially focused images of each specimen were stacked using Helicon Focus 3.20.2 Pro software. Specimens of the newly described species are provided with one printed red label: “*Tanyproctus (Tanyproctus) / arher* sp. nov., / HOLOTYPUS [or PARATYPUS], ♂ / Aleš Bezděk, Richard Sehnał / & David Král det. 2013”. Exact label data are cited for the material examined. Separate labels are indicated by double slash

“//”, lines within each label are separated by a slash “/”. Our remarks and additional comments are placed in square brackets.

The following acronyms identify the collections housing the material examined (curators names are in parenthesis):

IBUR – Institut für Biowissenschaften, Lehrstuhl der Allgemeine und Spezielle Zoologie,  
Universität Rostock, Rostock, Germany (Ragnar Kinzelbach);

NMPC – Národní muzeum, Praha, Czech Republic (Jiří Hájek);

ZFMK – Zoologisches Forschungsmuseum Alexander Koenig, Bonn, Germany (Dirk Ahrens).

## Taxonomy

### *Tanyproctus (Tanyproctus) arher* Bezděk, Sehnal & Král, new species

(Figs 1, 2, 5, 6, 9)

**Type locality.** Yemen, Socotra Island, Hala [= Haalla] area, Arher, 12°33.0'N, 54°27.6'E, 5 m a.s.l., freshwater spring in sand dune.

**Type material. Yemen (Socotra Isl.):** Holotype ♂ (NMPC): “Yemen, SOCOTRA Island / Hala area, ARHER / freshwater spring in sand dune / 9–10.+15-vi-2012 / 12°33.0'N, 54°27.6'E, 5 m // SOCOTRA expedition 2012 / J. Bezděk, J. Hájek, V. Hula, / P. Kment, I. Malenovský, / J. Niedobová & L. Purchart leg. [printed label]”. Paratype ♂ [pinned specimen, left middle leg preserved in pure alcohol] (ZFMK): same data as holotype.

**Description of holotype** (♂). Body length 8.5 mm. Body elongate; surface dark brown to black coloured, appendages and sutural elytral interval somewhat lighter; shiny; macrosetation pale (Fig. 1).

**Head.** Labrum small, bilobed; lobes round, coarsely, irregularly punctate. Outline of clypeus almost trapezoidal, with distinctly upturned margin; clypeus remarkably depressed along margin and excavated centrally; anterior margin shallowly emarginate, anterior angles round, sides broadly arcuate (Fig. 2). Genae narrow, round. Frontoclypeal suture feebly arcuate, considerably impressed. Eyes relatively large, distinctly exceeding genae externally in dorsal aspect (Fig. 2); distance between eyes in ventral aspect extended remarkably diameter of eye. Punctuation of clypeus coarse and dense, almost evenly distributed but impunctate centrally; punctures separated by approximately their diameter, each puncture bearing short, semierect macroseta. Vertex rather rugopunctate; punctures separated by less than their diameter to confluent, each puncture bearing very short, erect macroseta; macrosetation becoming shorter posteriad. Antennae with 10 antennomeres; antennomere 2 short, approximately as long as wide; antennomeres 3–5 elongate. Club pentamerous, straight, shorter than antennal shaft (antennomeres 1–5 combined). Antennomeres 1–5 with sparse, long macrosetae, club with sparse, short macrosetae. Terminal maxillar palpomeres elongate, rounded apically, absent from depression, approximately of same length as palpomeres 2 and 3 combined.

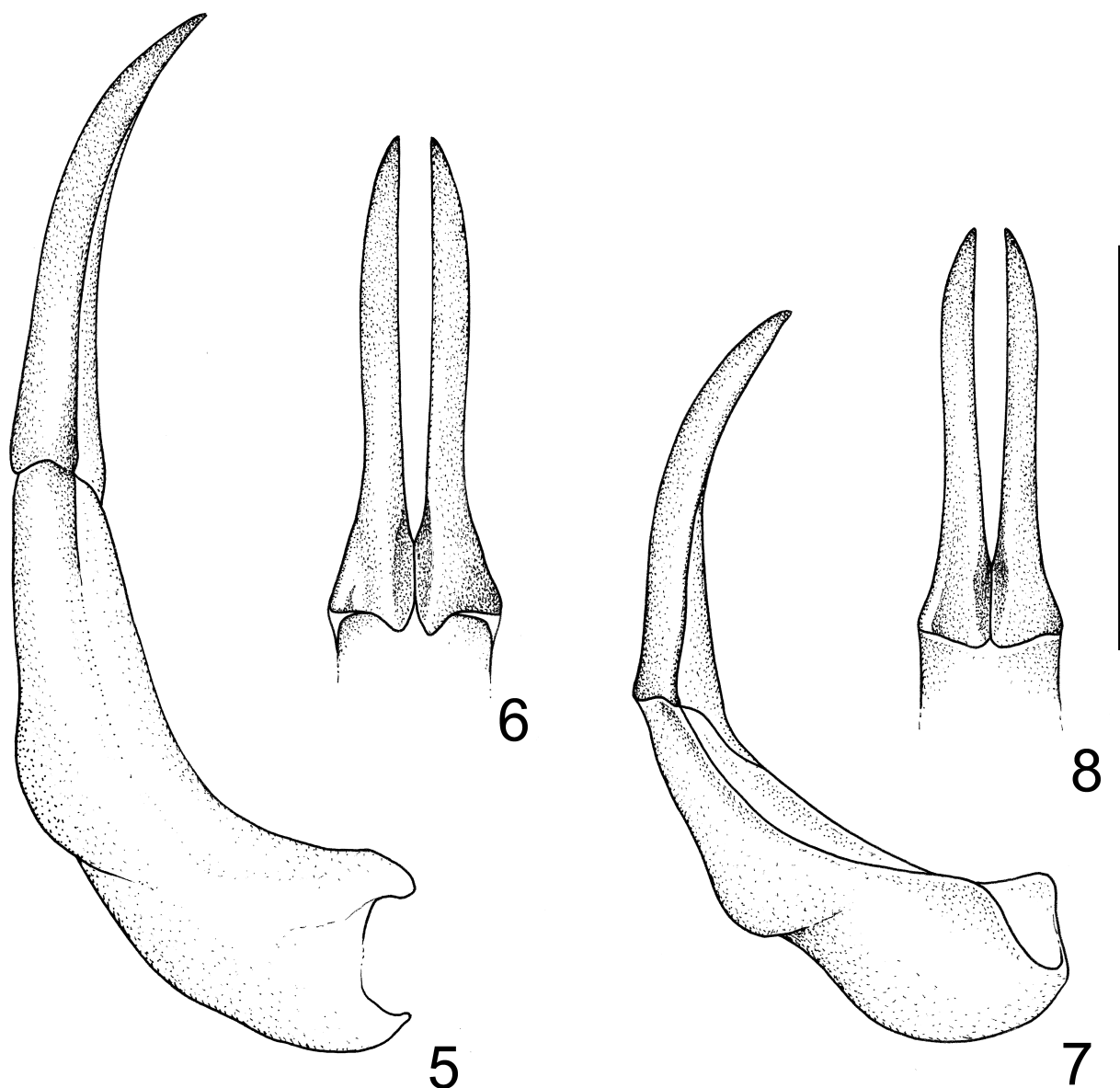
**Pronotum** moderately convex, transversal, broadest just anterior to middle except broad basal interruption all around border; anterior bead flat, narrow, distinctly widened medially. Punctures irregular; each puncture bearing long, erect macroseta; macrosetae becoming regularly shorter medially. Lateral margin considerably coarsely crenate, with row of long macrosetae; basal margin with row of finely and irregularly distributed punctures bearing long, recumbent macrosetae in posterior angles and short macrosetae medially. Anterior angles prominent, projecting over anterior margin, acute-angled, with round apex; sides in approximately anterior half almost straight, divergent posteriad to very broadly obtuse posterior angles; posterior margin broadly round. Surface glabrous and finely, coarsely, slightly irregularly punctate, punctures separated by 2–4 their diameters, area along medial longitudinal line smooth.

**Scutellum** approximately as wide as long, triangulate, sides broadly arcuate, apex acute, surface with several punctures basally and laterally.

**Elytra** convex, slightly dilated posteriad, sutural angle rounded; striae excepting sutural stria missing or only very feebly indicated; distinctly microsculptured with disc feebly transversally wrinkled; punctuation coarse, dense, almost regular; punctures separated by 1–2 their diameters. Sutural interval slightly convex; sutural stria with row of irregularly distributed punctures; lateral margin distinctly bordered with row of long, erect setae.



**FIGURES 1–4.** 1–2: *Tanyproctus (Tanyproctus) arher* Bezděk, Sehnal & Král, new species, holotype, 8.5 mm: 1. habitus; 2. head; 3–4: *T. (T.) wraniki* Král, Sehnal & Bezděk, 2012, holotype (Socotra, Diksam plateau, IBUR), 6.8 mm: 3. habitus; 4. head. Not in scale.



**FIGURES 5–8.** 5–6: *Tanyproctus (Tanyproctus) arher* Bezděk, Sehnal & Král, new species, holotype: 5. aedeagus in lateral aspect; 6. parameres in dorsal aspect; 7–8: *T. (T.) wraniki* Král, Sehnal & Bezděk, 2012, holotype (Socotra, Diksam plateau, IBUR): 7. aedeagus in lateral aspect; 8. parameres in dorsal aspect. Scale bar = 1.0 mm.

*Macropterous.*

*Legs.* Femora moderately shiny; metafemora with entire surface sparsely, almost regularly punctate; punctures bearing long, recumbent macrosetae. Protibia tridentate; basal tooth considerably weak; terminal calcar long, sharp, slightly curved externally, acute apically, inserted against emargination between basal and medial teeth. Mesotibia and metatibia slightly expanded apicad, with two setiferous transversal carinae. Mesotibial terminal calcars equal in length, flattened, acute apically. Metatibial terminal calcars equal in length, considerably flattened, acute apically. Protarsomeres 2–4 considerably dilated, protarsomere 2 with length-width ratio: 1:2. Mesotarsomeres 2–4 remarkably more slightly dilated than those of protibiae; protarsomeres and mesotarsomeres 1–4 with shortly and densely macrosetaceous pads ventrally; metatarsomeres covered with long sparse macrosetae ventrally. Claws bifid.

*Ventral surface* of thorax with dense, long, recumbent macrosetation.

*Propygidium* microsculptured, coarsely, sparsely, irregularly punctate; pygidium finely microsculptured; border complete; surface coarsely and irregularly punctate.

*Ventrites* almost bare, remarkably coarsely and irregularly punctate.



**FIGURE 9.** Type locality of *Tanyproctus (Tanyproctus) arher* Bezděk, Sehnal & Král, new species, Socotra, Haalla area, Arher, June 2012 (photograph by J. Hájek).

*Male genitalia* (Figs 5–6). Aedeagus symmetrical; parameres slender, relatively long, only slightly shorter than phallobase, distal part not dilated in dorsal aspect.

**Female.** Unknown.

**Variability.** The only known paratype slightly differs in size (total body length: 8.4 mm) and with lighter coloured elytra.

**Differential diagnosis.** *Tanyproctus (T.) arher* is morphologically very similar to the other endemic Socotran *Tanyproctus* species (Král *et al.* 2012). In the key to males of Socotran Tanyproctini (Král *et al.* 2012: 180), *T. (T.) arher* will key to the couplet with *T. (T.) wraniki*. For differentiation from this species see the complex of diagnostic characters in Table 1.

**TABLE 1.** Differential characters of *Tanyproctus (T.) arher* Bezděk, Sehnal & Král, new species and *T. (T.) wraniki* Král, Sehnal & Bezděk, 2012

species / character	<i>Tanyproctus arher</i>	<i>Tanyproctus wraniki</i>
shape of clypeus	trapezoidal, longer (Fig. 2)	trapezoidal, shorter (Fig. 4)
sculpture of clypeus	excavate and impunctate centrally (Fig. 2)	depressed and punctate centrally (Fig. 4)
size of eyes	relatively large, considerably prominent laterad in dorsal aspect (Fig. 2)	relatively small, only weakly prominent externally in dorsal aspect (Fig. 4)
metafemora	entire surface sparsely, almost regularly punctate	punctuation coarser, somewhat irregular, restricted approximately to marginal areas, impunctate centrally
shape of protarsomeres 2–4	considerably dilated, protarsomere 2 with length–width ratio: 1:2	dilated, protarsomere 2 with length–width ratio: 1.0:3.7
shape of parameres	as in Figs 5–6	as in Figs 7–8
body size	8.4–8.5 mm	6.8 mm (holotype)
distribution	E Socotra (Haalla coastal area)	C Socotra (Diksam plateau)

**Etymology.** Derived from area of origin of the new species, the Arher freshwater spring, Socotra (Yemen); noun in apposition.

**Collecting circumstances.** Both specimens were captured at light at about 6 p.m. (J. Hájek, personal communication).

**Geographical distribution.** Endemic species to the Socotra Island; both so far known specimens originates from the coastal area of Haalla (E Socotra), for details see Bezděk *et al.* (2012).

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