

Linzer biol. Beitr.	42/2	1063-1071	19.12.2010
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Two new species of *Tetartopeus* from Turkey (Coleoptera: Staphylinidae: Paederinae)

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A b s t r a c t: *Tetartopeus unguis* nov.sp. and *T. vomer* nov.sp. (both from Kastamonu, northern Turkey) are described, illustrated, and compared with similar and geographically close congeners. The sexual characters of *T. paeneinsularum* BORDONI are illustrated. A key to the *Tetartopeus* species of Turkey is provided.

K e y w o r d s: Coleoptera, Staphylinidae, Paederinae, *Tetartopeus*, Palearctic region, Turkey, taxonomy, new species, key to species.

Introduction

According to SMETANA (2004), *Tetartopeus* CZWALINA 1888 is represented in the Palearctic region by 27 species. In the meantime, however, five additional species have been described and one species has been moved to the genus, so that it currently comprises 33 species (ANLAŞ 2009; ASSING 2004, 2009b, in press; FELDMANN 2010).

The presence of six species in Turkey has been confirmed, four of them exclusive, i.e., known only from Turkish territory (*T. adanensis* ASSING 2004, *T. czwalinai* (JAKOBSON 1909), *T. tezcani* ANLAŞ, *T. inexcisus* ASSING 2009), and two of them more widespread (*T. persicus* COIFFAIT 1972 and *T. styliifer* (REITTER 1909)) (ANLAŞ 2009; ASSING 2009b). COIFFAIT (1982) reports *T. rufonitidus* (REITTER 1909) (as *T. confusus* COIFFAIT 1972) from "Asie Mineure", but this record probably refers to the similar *T. paeneinsularum* BORDONI 1982, which is known also from southern Greece (ASSING 2008), whereas *T. rufonitidus* is apparently absent from the Balkans. Similarly, the record of *T. scutellaris* (NORDMANN 1837) from Adana by HORION (1965) is most likely based on a misidentification and probably refers to *T. adanensis*.

Tetartopeus species are generally found in wet or moist habitats (swamps, bogs, lake shores, river banks, etc.). Some of the species known from Turkey are apparently very rare. Two species, *T. czwalinai* and *T. inexcisus*, are known only from their respective lecto- and holotypes, respectively. The same is true also of the two species described in the present paper, whose holotypes were collected during a field trip to northern Turkey in spring 2010. This, as well as the observation that the holotypes of three of these species were found in temporarily very wet or partly flooded (from melting snow) localities in early spring suggests that at least some of the red-winged species may live in a cryptic subterranean habitat.

Material, methods, and measurements

The material referred to in this study is deposited in the author's collection.

The morphological studies were carried out using a Stemi SV 11 microscope (Zeiss Germany) and a Jenalab compound microscope (Carl Zeiss Jena). A digital camera (Nikon Coolpix 995) was used for the photographs.

Head length was measured from the anterior margin of the frons to the posterior margin of the head, elytral length from the apex of the scutellum to the posterior margin of the elytra, body length from the apex of the mandibles to the posterior margin of the abdominal tergite VIII, and aedeagus length from the apex of the ventral process to the base of the aedeagal capsule.

Descriptions of new species

Tetartopeus unguis nov.sp. (Figs 1-5, 13-15)

Type material: Holotype ♂: "TR [1] - Kastamonu, 45 km NW Kastamonu, 41°42'05"N, 33°28'17"E, 1090 m, calcareous slope, 22.III.2010, V. Assing / Holotypus ♂ *Tetartopeus unguis* sp. n., det. V. Assing 2010".

Etymology: The specific epithet (Latin: claw) is a noun in apposition and refers to the shape of the apex of the ventral process of the aedeagus.

Description: Body length 6.9 mm. Habitus as in Fig. 1. Coloration: head, pronotum, and abdomen black; elytra reddish, with the anterior margins and the scutellar portion narrowly infuscate; legs reddish-yellow; antennae brown, with antennomeres I-II reddish-yellow.

Head 1.1 times as long as wide (Fig. 2); postocular portion smoothly convex, posterior angles obsolete; punctation moderately coarse, irregularly spaced, in median dorsal portion sparse, in lateral portions somewhat denser; dorsal surface without microsculpture, lateral portions with shallow traces of microsculpture. Eyes relatively small (Fig. 13), little more than 1/3 as long as postocular region from posterior margin of eye to neck in dorsal view. Antenna slender, 2.15 mm long; antennomere IV almost 3 times as long as wide; X more than 1.5 times as long as wide (Fig. 3).

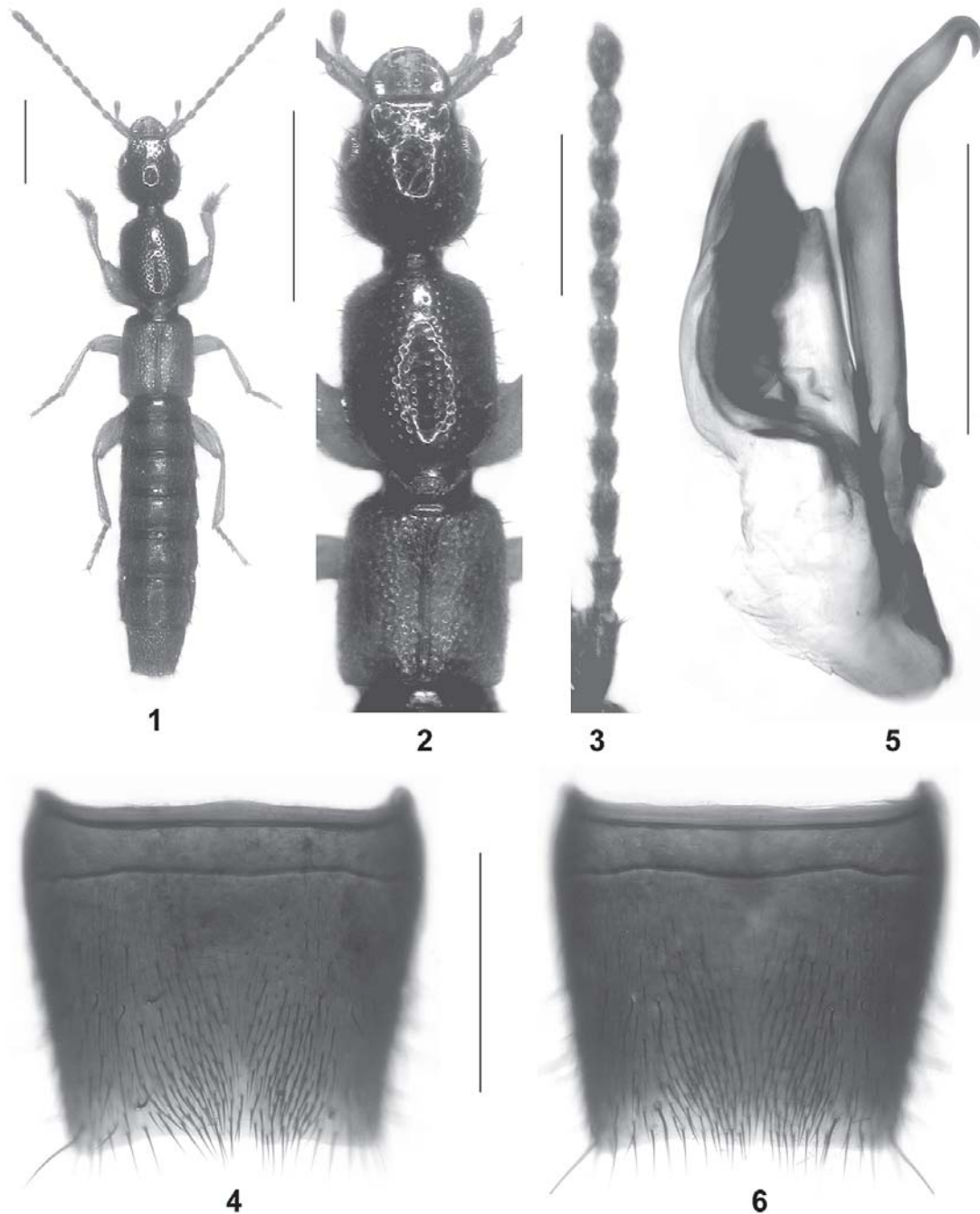
Pronotum 1.28 times as long as wide and approximately 1.05 times as wide as head; punctation similar to that of head, but slightly denser; interstices shiny and without microsculpture, on average approximately as wide as diameter of punctures; midline rather narrowly impunctate (Fig. 2).

Elytra relatively short, 0.75 times as long and 1.15 times as wide as pronotum (Fig. 2), width 0.92 mm; punctation rather dense, much shallower and less defined than that of pronotum; interstices without distinct microsculpture. Hind wings present, but possibly of reduced length.

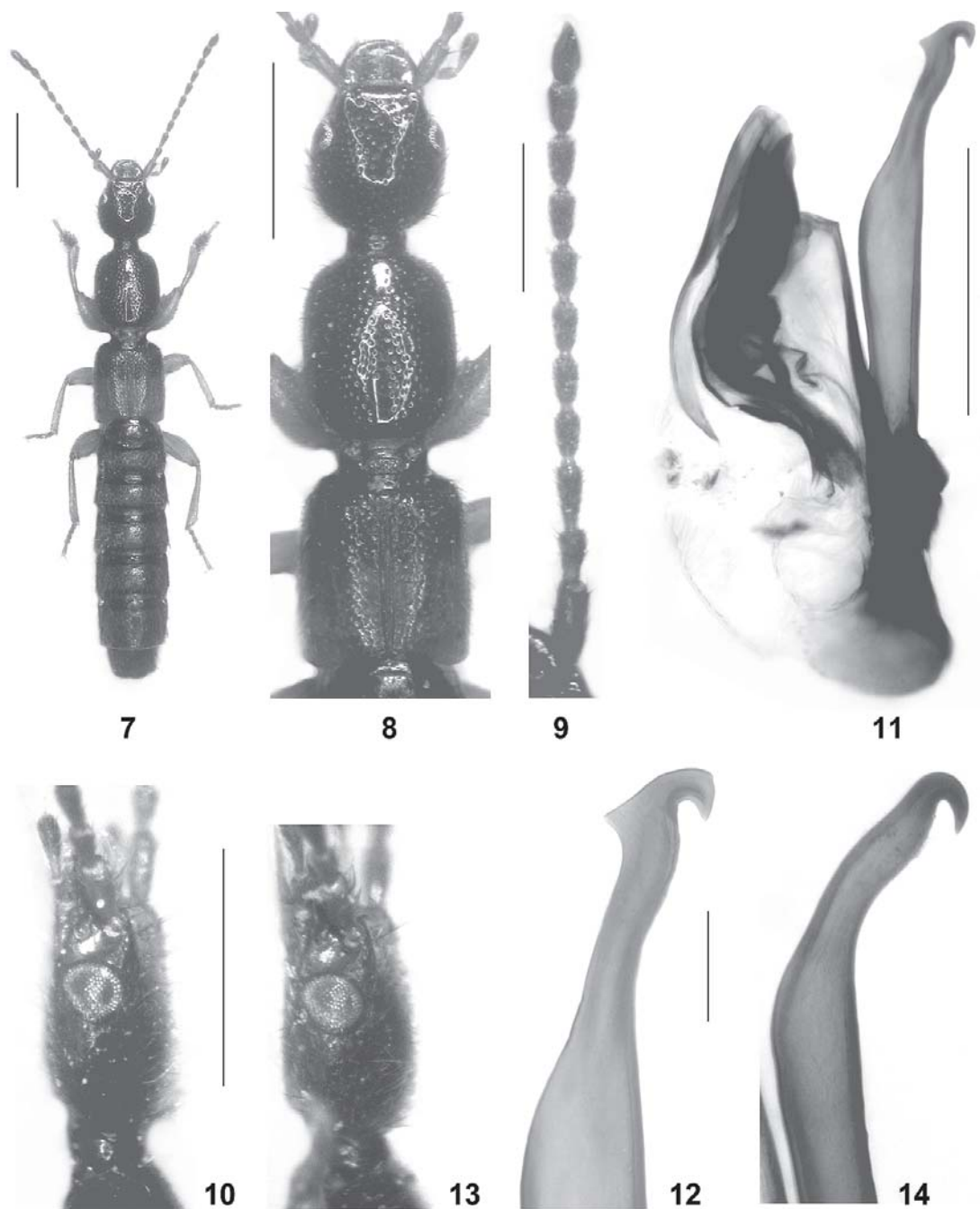
Abdomen approximately as wide as elytra; punctation very fine and very dense; interstices with distinct fine microsculpture; posterior margin of tergite VII with palisade fringe.

♂: posterior margin of tergite VIII convexly produced in the middle; posterior margin of

sternite VIII in posterior 2/3 of median portion with cluster of numerous black setae on either side of middle, posterior margin with very small incision in the middle (Fig. 4); aedeagus 1.2 mm long, with apically hooked ventral process of distinctive shape in lateral view (Figs 5, 14).



Figs 1-6: *Tetartopeus unguis* nov.sp. (1-5) and *T. vomer* nov.sp. (6): (1) habitus; (2) forebody; (3) antenna; (4, 6) male sternite VIII; (5) aedeagus in lateral view. Scale bars: 1-2: 1.0 mm; 3-6: 0.5 mm.



Figs 7-14: *Tetartopeus vomer* nov.sp. (7-12) and *T. unguis* nov.sp. (13-14): (7) habitus; (8) fore-body; (9) antenna; (10, 13) head in lateral view; (11) aedeagus in lateral view; (12, 14) apex of ventral process of aedeagus in lateral view. Scale bars: 7-8, 10, 13: 1.0 mm; 9, 11: 0.5 mm; 12, 14: 0.1 mm.

♀: unknown.

Comparative notes: *Tetartopeus unguis* is distinguished from all its congeners by the distinctive shape of the ventral process of the aedeagus. It is additionally separated from other species recorded from northern Turkey as follows:

from *T. stylifer* by the different coloration (*T. stylifer*: segments VIII-X of abdomen

reddish), the smaller eyes (*T. stylifer*: eyes approximately half as long as postocular region), and the sparser punctation of the head;

from *T. inexcisus* by the different coloration (*T. inexcisus*: elytra anteriorly extensively black, blackish portion almost reaching middle of elytra), the much shorter and more slender elytra (*T. inexcisus*: elytra more than 0.8 times as long and approximately 1.2 times as wide as pronotum, width approximately 1.05 mm), the sparser punctation of the head, and the slightly coarser punctation of the elytra;

from *T. czwalinai* by the different coloration (*T. czwalinai*: elytra anteriorly more extensively infuscate), the less slender antennae (*T. czwalinai*: preapical antennomeres at least twice as long as broad), and the distinctly shorter and more slender elytra.

For illustrations of the compared species see ANLAŞ (2009) and ASSING (2004, 2009a, 2009b).

Distribution and bionomics: The type locality is situated to the northwest of Kastamonu, Kastamonu province, northern Turkey. The holotype was collected from under a stone in partly flooded calcareous arable land at an altitude of 1090 m. The type locality is illustrated in Fig. 15



Fig. 15: Type locality of *Tetartopeus unguis* nov.sp. (photo: Paul Wunderle).

***Tetartopeus vomer* nov.sp.** (Figs 7-12)

Type material: Holotype ♂: "TR [5] - Kastamonu, 48 km SW Kastamonu, S Araç, 41°08'13"N, 33°18'52"E, 1490 m, 24.III.2010, V. Assing / Holotypus ♂ *Tetartopeus vomer* sp.n., det. V. Assing 2010".

Etymology: The specific epithet (Latin: claw) is a noun in apposition and refers to the shape of the apex of the ventral process of the aedeagus.

D e s c r i p t i o n : Body length 7.2 mm. Habitus as in Fig. 7. Coloration: head, pronotum, and abdomen black; elytra distinctly bicoloured, with the anterior 2/5 black and the posterior 3/5 reddish; legs reddish-yellow; antennae brown, with antennomeres I-II and X-XI reddish.

Head 1.1 times as long as wide (Fig. 8); postocular portion smoothly convex, posterior angles obsolete; punctation moderately coarse, irregularly spaced, in median dorsal portion sparser than in lateral portions; median dorsal surface without microsculpture, lateral and posterior portions with shallow microsculpture. Eyes relatively small (Fig. 10), little more than 1/3 as long as postocular region from posterior margin of eye to neck in dorsal view. Antenna slender, 2.25 mm long; antennomere IV almost 3 times as long as wide; X almost twice as long as wide (Fig. 9).

Pronotum 1.23 times as long as wide and approximately 1.13 times as wide as head; punctation similar to that of head, but denser; interstices shiny and without microsculpture, on average narrower than diameter of punctures; midline rather narrowly impunctate (Fig. 8).

Elytra relatively short, 0.73 times as long and 1.12 times as wide as pronotum (Fig. 8), width 0.98 mm; punctation rather dense and well-defined, somewhat shallower than that of pronotum; interstices without distinct microsculpture. Hind wings present, but possibly of reduced length.

Abdomen approximately as wide as elytra; punctation very fine and very dense; interstices with distinct fine microsculpture; posterior margin of tergite VII with palisade fringe.

♂: posterior margin of tergite VIII weakly produced in the middle; posterior margin of sternite VIII in posterior 2/3 of median portion with cluster of numerous black setae on either side of middle, posterior margin with very small incision in the middle (Fig. 6); aedeagus 1.3 mm long, ventral process apically hooked and of distinctive shape in lateral view (Figs 11-12).

♀: unknown.

C o m p a r a t i v e n o t e s : The ventral process of the aedeagus is of somewhat similar shape as that of *T. inexcisus*, but differs in being more slender in basal half, subapically distinctly bent, and apically curved in lateral view (*T. inexcisus*: ventral process stouter and straight, subapically more abruptly narrowed, apically obliquely truncate). In addition, the posterior male sternite VIII of *T. inexcisus* is slightly more concave and lacks the median incision. Externally, *T. vomer* is distinguished from *T. inexcisus* by shorter and more slender elytra (*T. inexcisus*: 0.8 times as long and approximately 1.2 times as wide as pronotum; width 1.05 mm). From other congeners, *T. vomer* is readily distinguished by the shape of the ventral process of the aedeagus and from other species recorded from northern Turkey additionally as follows:

from *T. unguis* by the different coloration of the elytra, the denser punctation of the head and pronotum, and by the broader and less oblong pronotum;

from *T. stylifer* by the different coloration (*T. stylifer*: segments VIII-X of abdomen reddish) and the smaller eyes (*T. stylifer*: eyes approximately half as long as postocular region);

from *T. czwalinai* by the different coloration (*T. czwalinai*: elytra anteriorly less extensively infuscate) and the distinctly shorter and more slender elytra.

For illustrations of the compared species see ANLAŞ (2009) and ASSING (2004, 2009a, 2009b).

C o m m e n t : Despite the rather similar shapes of the aedeagi of *T. vomer* and *T. inexcisus*, they are hypothesized to represent different species. Firstly, additional differences were found (see above). Secondly, interspecific variation of the shape of the ventral process is often weakly pronounced in the genus, for instance in *T. terminatus* (GRAVENHORST 1802), *T. rufonitidus* (REITTER 1909), *T. quadratus* (PAYKULL 1789), and *T. paeneinsularum* BORDONI 1982. Finally, the shape of the ventral process is usually constant and subject to very little intraspecific variation (exception: *T. adanensis*). Nevertheless, more material would be needed to confirm the status of *T. vomer* and *T. inexcisus*.

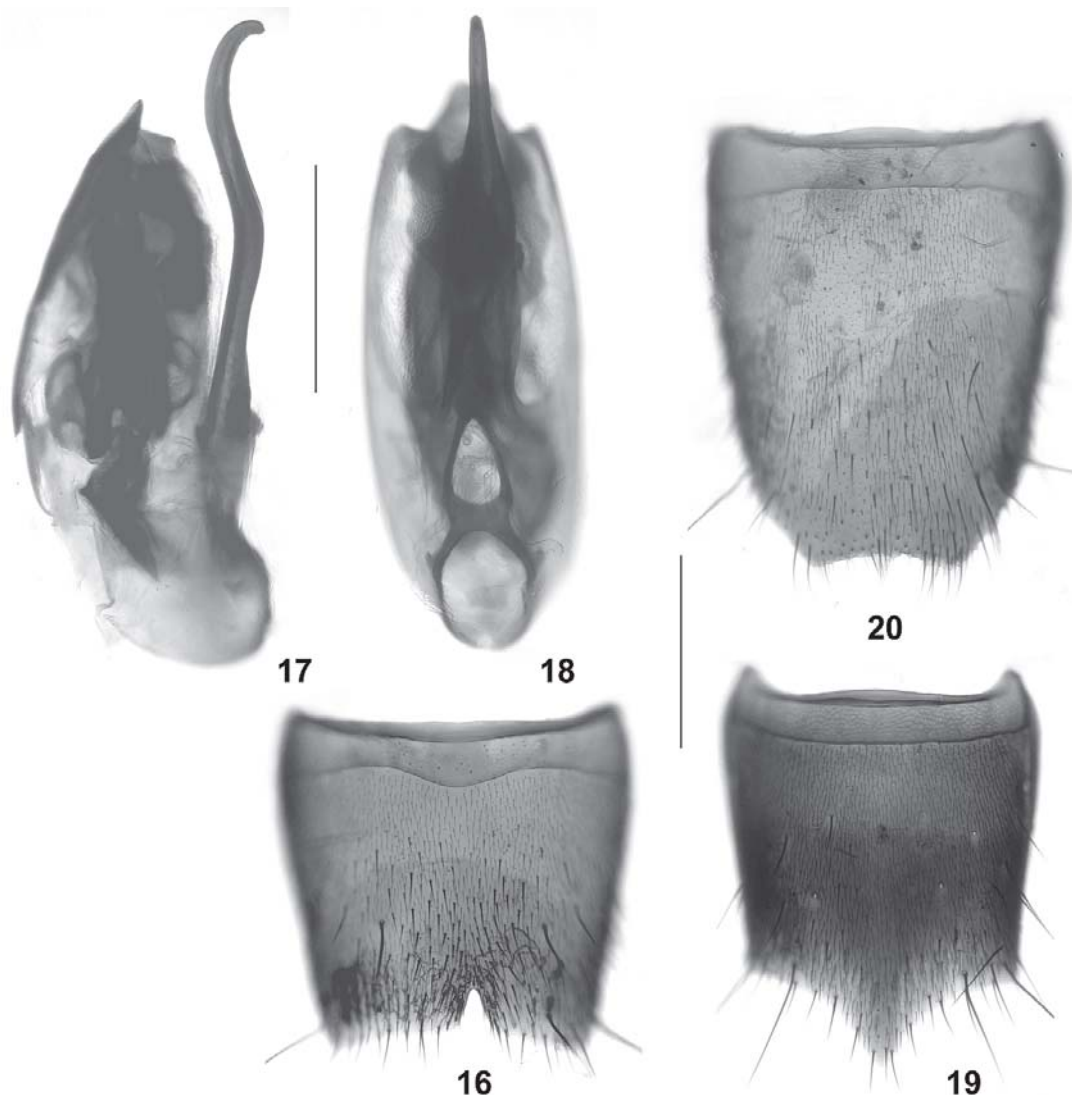
D i s t r i b u t i o n a n d b i o n o m i c s : The type locality is situated to the southwest of Kastamonu, Kastamonu province, northern Turkey. The holotype was collected from under a stone at the margin of a pasture near a stream at an altitude of 1490 m.

Key to the *Tetartopeus* species of Turkey

The references to illustrations in the literature are abbreviated as follows: AN09 = ANLAŞ (2009); AS04 = ASSING (2004); AS08 = ASSING (2008); AS09a = ASSING (2009a); AS09b = ASSING (2009b).

1. Elytra blackish, postero-lateral angles usually with more or less distinct yellowish spot. ♂: posterior margin of tergite VIII rather deeply incised in the middle (Fig. 16); aedeagus as in Figs 17-18. ♀: posterior margin of tergite VIII strongly produced in the middle (Fig. 19); sternite VIII elongated, posterior margin concave in the middle (Fig. 20). Presence in Turkey likely, but not confirmed [*T. paeneinsularum* BORDONI]
 - Elytra reddish, anteriorly usually more or less extensively blackish. ♂: posterior margin of sternite VIII at most with small median incision (e.g., Figs 4, 6); aedeagus of completely different morphology. ♀: posterior margin of tergite VIII not strongly produced; sternite VIII of different shape 2
2. Apex of abdomen (segments VIII-X) reddish 3
 - Abdomen uniformly blackish; apex at most indistinctly paler 6
3. Ventral process of aedeagus apically spear-shaped, very acute, and dorsally with acute process (AS04: Figs 43, 48) 4
 - Ventral process of different shape 5
4. Apex of ventral process of aedeagus very long and acute, more oblique (AS04: Figs 47-48). Widespread: Iran, Iraq, Georgia, Ukraine, southern Russia; Turkey: Erzurum and Tunceli provinces *T. stylifer* (REITTER)
 - Apex of ventral process of aedeagus shorter, almost forming angle of 90° with longitudinal axis of ventral process (AS04: Figs 41-45). Central southern Turkey: Adana, Osmaniye, Gaziantep *T. adanensis* ASSING
5. Ventral process aedeagus sickle-shaped, apically without dorsal process (AS08: Fig. 39). Widespread: Iran, Iraq; Turkey: Şanlıurfa *T. persicus* COIFFAIT
 - Ventral process of aedeagus not sickle-shaped, apically with fine dorsal process (AN09: Figs 11-13). Central southern Turkey: Adıyaman *T. tezceni* ANLAŞ
6. Elytra anteriorly very narrowly infusate. Ventral process of aedeagus apically hook-shaped (Figs 5, 14). Turkey: Kastamonu *T. unguis* nov.sp.
 - Elytra anteriorly broadly blackish. Ventral process of aedeagus of different shape 7

- 7. Ventral process of aedeagus apically without small dorsal process (AS09a: 129-131). Turkey: Izmir *T. czwalinai* (JAKOBSON)
- Ventral process of aedeagus apically with small dorsal process8
- 8. Elytra shorter, approximately 0.75 times as long as pronotum (Fig. 8). ♂: posterior margin of sternite VIII with small median incision (Fig. 6); ventral process of aedeagus basally more slender, subapically bent and apically rounded in lateral view (Figs 11-12). Turkey: Kastamonu..... *T. vomer* nov.sp.
- Elytra longer, more than 0.8 times as long as pronotum (AS09b: Fig. 25). ♂: posterior margin of sternite VIII without median incision (AS09b: Fig. 26); ventral process of aedeagus basally stouter, straight and apically obliquely truncate (As09b: Figs 26-27). Turkey: Kastamonu..... *T. inexcisus* ASSING



Figs 16-20: *Tetartopeus paeneinsularum* BORDONI from Greece: (16) male sternite VIII; (17-18) aedeagus in lateral and in ventral view; (19) female tergite VIII; (20) female sternite VIII. Scale bars: 0.5 mm.

Acknowledgements

I am indebted to Benedikt Feldmann, Münster, for proof-reading the manuscript.

Zusammenfassung

Tetartopeus unguis nov.sp. und *T. vomer* nov.sp. (beide aus Kastamonu, Nordtürkei) werden beschrieben, abgebildet und mit anderen aus der Nordtürkei nachgewiesenen *Tetartopeus*-Arten verglichen. Die Geschlechtsmerkmale von *T. paeneinsularum* BORDONI werden abgebildet. Eine Bestimmungstabelle der türkischen *Tetartopeus*-Arten wird erstellt.

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Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Linzer biologische Beiträge](#)

Jahr/Year: 2010

Band/Volume: [0042_2](#)

Autor(en)/Author(s): Assing Volker

Artikel/Article: [Two new species of Tetartoepus from Turkey \(Coleoptera: Staphylinidae: Paederinae\) 1063-1071](#)