

## **The New Genus *Taurohelops* Keskin and Nabozhenko (Coleoptera: Tenebrionidae) from Anatolia, Turkey**

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## THE NEW GENUS *TAUROHELOPS* KESKIN AND NABOZHENKO (COLEOPTERA: TENEBRIONIDAE) FROM ANATOLIA, TURKEY

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### ABSTRACT

The new tenebrionid genus *Taurohelops* Keskin and Nabozhenko, **new genus** (tribe Helopini), including two species from Central Taurus Mountains, Turkey, is described. The new genus belongs to the *Cylindrinotus* genus-group but differs from other genera of the tribe Helopini by structures of the male tibiae, abdominal ventrites 3–5, male aedeagus, and presence of coeloconic sensilla on the pronotum. One new combination is established: *Taurohelops incultus* (Allard, 1877), **new combination** (from *Odocnemis* Allard). One new species, *Taurohelops triplehorni* Keskin and Nabozhenko, **new species**, is described. A lectotype for *Helops lordiscelis* Reitter, 1900 is designated. Data on distribution, bionomics and morphology of the two species of *Taurohelops* are given.

Key Words: taxonomy, darkling beetles, Helopini, new genus, new species, Chuck Triplehorn

Anatolia is one of the centers of diversity of darkling beetles of the tribe Helopini. Twenty-two genera (from 40 Palearctic genera) are known from Anatolia. Three genera are endemic (Nabozhenko 2001; Nabozhenko and Keskin 2010; Keskin and Nabozhenko 2012), and many other genera (*Helops* Fabricius *sensu stricto*, *Probatiscus* Seidlitz, *Entomogonus* Solier, *Raiboscelis* Allard, *Odocnemis* Allard, *Armenoelops* Nabozhenko, *Nalassus* Mulsant) have very high species diversity in this territory. A new genus with two species collected in forests of *Cedrus libani* A. Rich. (Pinaceae) in the Central Taurus Mountains of Turkey is described herein.

### TAXONOMIC HISTORY

Allard (1877) described the species *incultus* based on one female from “Külele” (now Turkey, İçel Province, Gülekboğazı) and included this species in the genus *Stenomax* Allard, 1876 *sensu lato*. Later, Seidlitz (1896) included *Stenomax* as a subgenus of the genus *Helops* Fabricius, 1775 *sensu lato*. Seidlitz (1896) additionally indicated that *Helops incultus* (Allard) must be included in the subgenus *Odocnemis* Allard, 1876 of the genus *Helops* because of the presence of teeth on the inner side of the male tibiae. However, it was just

an assumption because Seidlitz did not actually study males of this species. Reitter (1900) described *Helops lordiscelis* from Central Taurus (Bulgar-Maaden), which was synonymized later with *H. incultus*, and included the species in the subgenus *Odocnemis* of the genus *Cylindrinotus* Faldermann, 1837 *sensu lato* (Reitter 1922). Reitter additionally noted that males of *H. incultus* have an unusual tibial structure. Nabozhenko (2008) included *H. incultus* in the genus *Odocnemis* based on the concept of separate genera *Nalassus*, *Cylindrinotus*, and *Odocnemis* (Nabozhenko 2001, 2006). This unusual species and a new similar species are included in a new genus defined by a complex of adult characters.

### MATERIAL AND METHODS

This study is based on the examination of adult beetles from the following institutions and private collection:

- |      |  |
|------|--|
| CN   | Private collection of M. V. Nabozhenko, Rostov-on-Don, Russia                          |
| DEI  | Senckenberg Deutsches Entomologisches Institut, Müncheberg, Germany (Stephan M. Blank) |
| HNHM | Hungarian Natural History Museum, Budapest, Hungary (Ottó Merkl)                       |

ZDEU Zoological Department of Ege University, Turkey  
 ZIN Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia

Scanning electron microscopy was done by Konstantin Dvadenko in the analytic laboratory of the Institute of Arid Zones of Southern Scientific Centre RAS (Rostov-on-Don, Russia) with the SEM EVO-40 XVP (LEO 1430VP). Terminology of male genital structures is given by Matthews and Bouchard (2008).

## TAXONOMY

### Subfamily Tenebrioninae Tribe Helopini Subtribe *Cylindrinotina*

#### *Taurohelops* Keskin and Nabozhenko, new genus

**Type Species.** *Stenomax incultus* Allard, 1877  
**Gender.** Masculine.

**Etymology.** The name *Taurohelops* derives from Taurus Mountains (Turkey) and the generic name *Helops*.

**Description.** Body length 13.5–16.2 mm. Body brown, with dull shine, slender, strongly elongate in male and more robust in female. Outer margin of head between frontoclypeus and gena with deep rectangular sinuation. Antennae strongly elongate in male (with 5 apical antennomeres extending beyond base of pronotum and reaching middle of elytra), moderately elongate in female (with 3 apical antennomeres extending beyond base of pronotum, reaching basal quarter of elytra). Pronotum subquadrate in male, weakly transverse in female, disc weakly convex. Surface of pronotum with rare coeloconic sensilla (Figs. 3, 5). Prothoracic hypomera with microwrinkles and distinct, sparse punctation. Hind wings absent. Elytra strongly elongate and subparallel in male, wider and not parallel-sided in female. Interstriae with large granules with coeloconic sensillae (Fig 2), striae with trichoid sensillae (Fig. 4). Interstria 8 keel-shaped and reaching apex of epipleuron (Fig. 1). Abdominal ventrites 3 and 4 with strongly elevated posterior margin. Membranes between ventrites 3–5 strongly widened. Abdominal ventrite 5 strongly convex, inwardly curved, with bisinuate margin, apex protruding. Male tibiae bent, without teeth on inner side. Pro- and metatibiae flattened and strongly pubescent on inner side. Tarsi not widened. Male genitalia: Aedeagus with long basal piece; ventral margins of basal piece merged, piece without membrane along entire length. Extensions of apical piece (alae) very short, merged. Apical piece movable, very short, flattened dorso-ventrally and curved upward, depressed dorsally. Median lobe with acute apex and baculi connected basally.

Gastral spicula with thick rods and pseudotrunk, moderately bent (lateral view), with sclerotized basal lobes. Inner sternite VIII modified, thickened (lateral view), with or without additional teeth. Female genital tubes: Spermatheca simple, without processes, long (to 12 mm), with very short basal duct, gland somewhat longer than spermatheca (Fig. 14).

**Diagnosis.** *Taurohelops* belongs to the *Cylindrinotus* genus-group (Nabozhenko 2005) of the subtribe *Cylindrinotina* with *Cylindrinotus*, *Stenomax*, *Odocnemis*, *Microdocnemis* Nabozhenko and Keskin, *Reitterohelops* Skopin, *Armenohelelops* Nabozhenko, and *Idahelops* Keskin and Nabozhenko. Representatives of these genera have a strongly sclerotized aedeagus with a dorsoventrally flattened or tube-shaped (*Stenomax*) apical piece and often spermatheca with small processes. Known larvae of this genus-group have a labrum with 10 marginal and 2 discal setae on the dorsal side (Nabozhenko and Gurgendzde 2006; Purchart and Nabozhenko 2012). *Taurohelops* differs from these genera by the following characters:

1. Male tibiae without teeth on inner side (also as in *Stenomax*, *Reitterohelops*, *Armenohelelops*, and *Idahelops*), but strongly bent, flattened, and densely pubescent on inner side of pro- and metatibiae; protibiae in *Taurohelops* strongly depressed on their inner side.

2. Abdominal ventrites 3 and 4 with strongly elevated posterior margin; membranes between ventrites 3–5 strongly widened; ventrite 5 strongly convex, inwardly curved, with bisinuate margin protruding at apex. These characters differentiate *Taurohelops* from all known genera of the tribe Helopini.

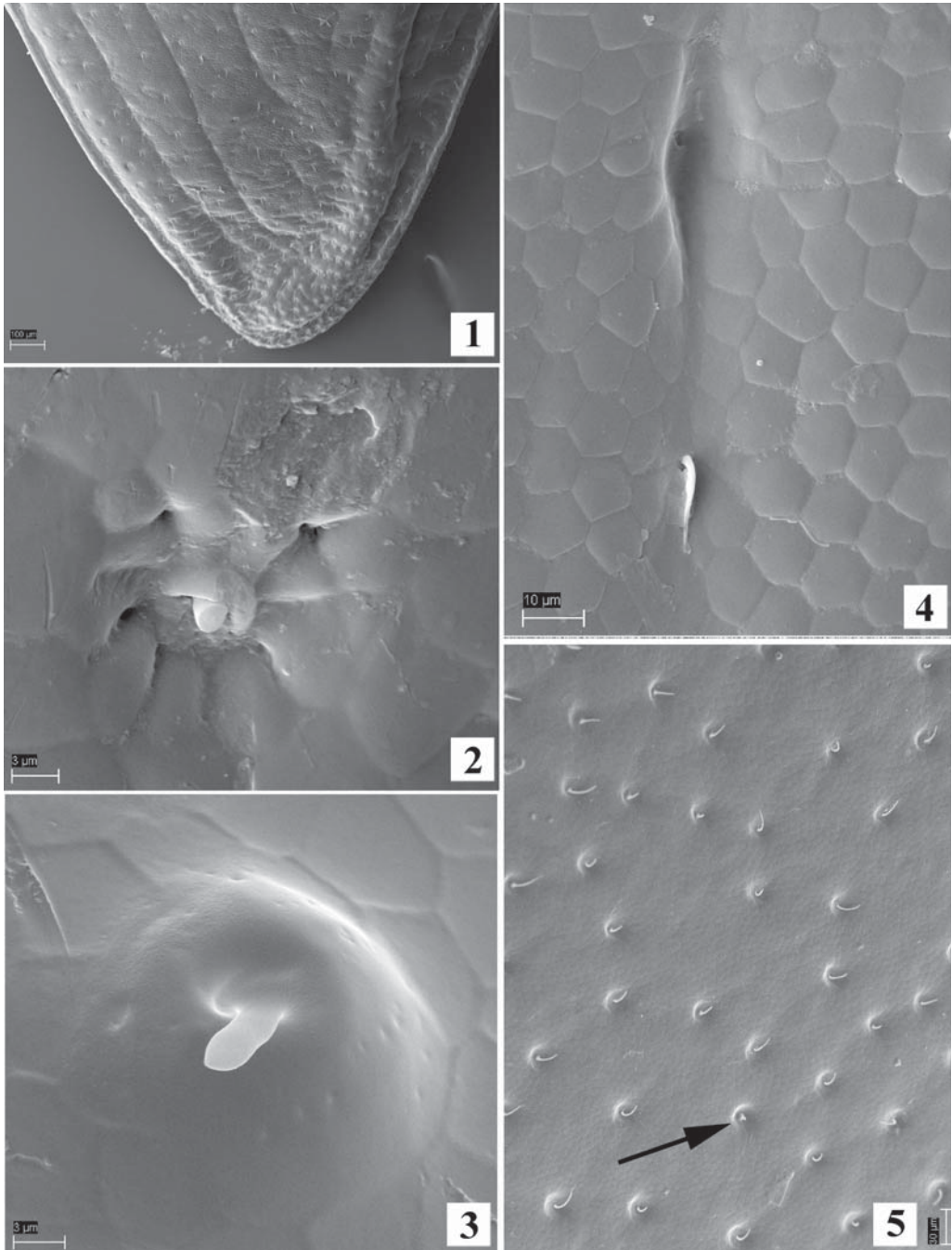
3. Aedeagus similar to that of *Armenohelelops* and *Idahelops*. Species of these two genera also have a long basal piece and short, upwardly curved apical piece, but in contrast to *Taurohelops*, males of these genera have long alae on the apical piece, not merged with the ventral margins of the basal piece and accordingly a complete membrane runs along the entire length of the piece;

4. Presence of coeloconic sensillae on pronotum, while other genera with only elytral coeloconic sensillae.

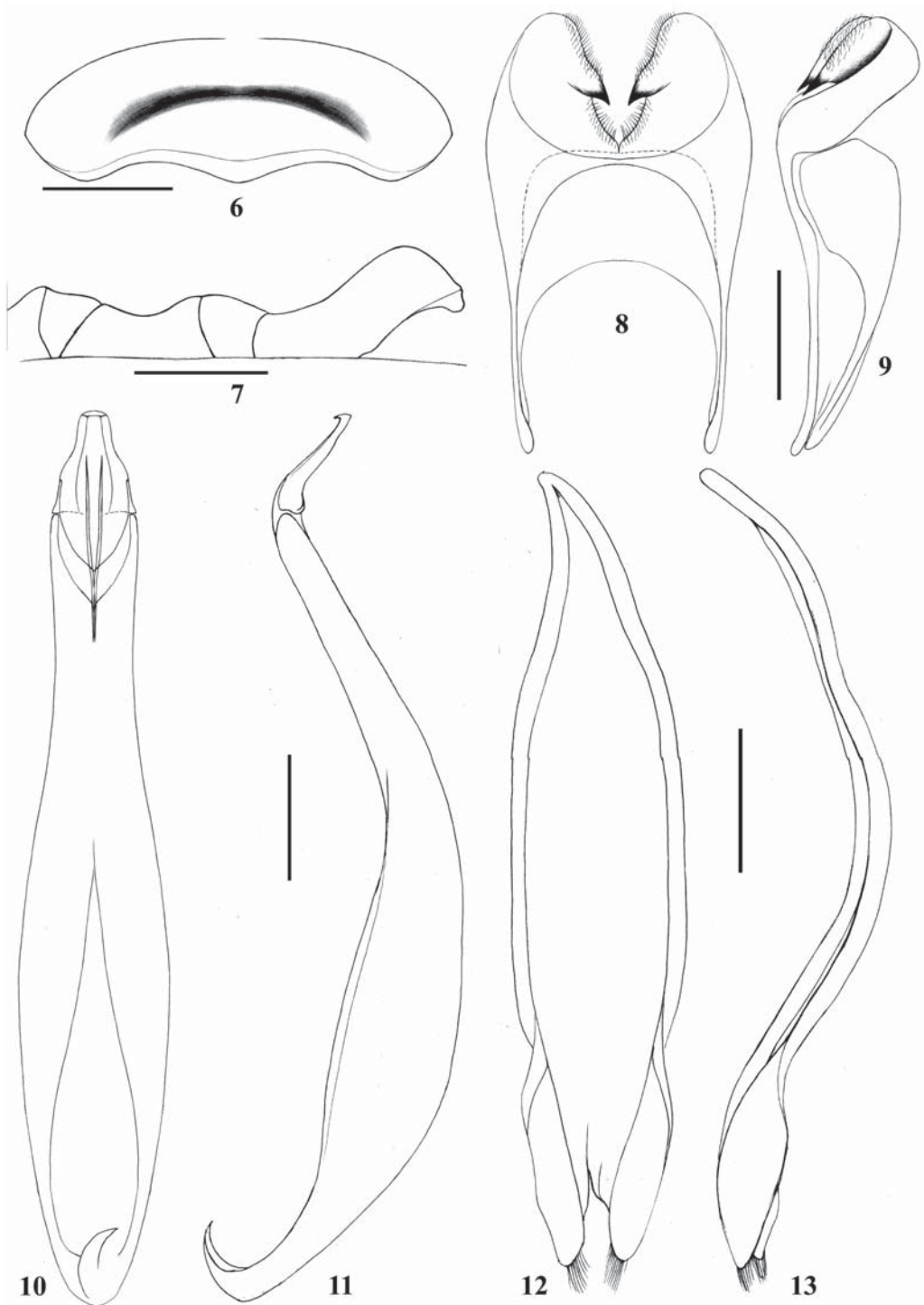
The combination of epipleural and elytral characters (keel-shaped interstria 8 reaching apex of epipleuron) in *Taurohelops* is similar to that seen in the *Odocnemis reticollis* species-group.

#### *Taurohelops incultus* (Allard, 1877), new combination (Figs. 1–14, 23–25)

*Stenomax incultus* Allard 1877: 132. Seidlitz 1896: 724, 728 (*Helops*); Reitter 1922: 136 (*Cylindrinotus*



**Figs. 1–5.** *Taurohelops incultus*. **1)** Apex of right elytron with convex interstriae 8; **2)** Coeloconic elytral sensillum; **3)** Coeloconic pronotal sensillum; **4)** Trichoid strial sensillum; **5)** Trichoid and coeloconic (arrow) sensillae on pronotum.



**Figs. 6–13.** *Taurohelops incultus*, male structures. **6)** Abdominal ventrite 5, posterior view; **7)** Abdominal ventrites 3–5, lateral view; **8)** Sternite VIII, ventral view; **9)** Sternite VIII, lateral view; **10)** Aedeagus, ventral view; **11)** Aedeagus, lateral view; **12)** Gastral spicula, ventral view; **13)** Gastral spicula, lateral view. Scale bars = 1 mm.

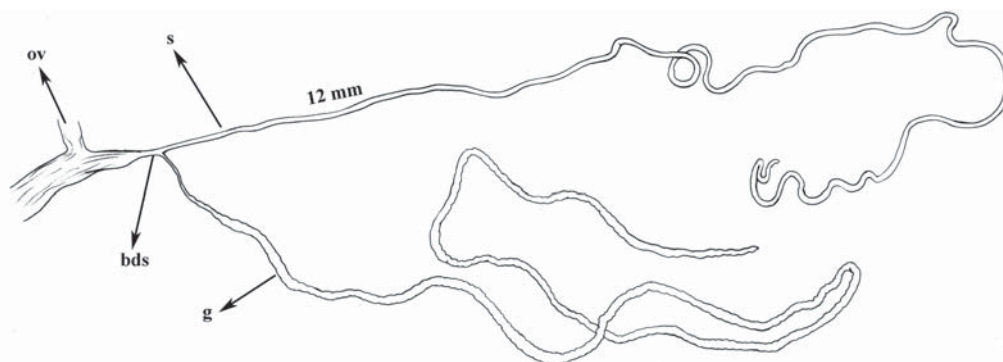


Fig. 14. *Taurohelops incultus*, female genital tubes. bds = basal duct of spermatheca; g = spermathecal gland; ov = oviduct; s = spermatheca.

(*Odocnemis*); Nabozhenko 2008: 37 (*Odocnemis*); Nabozhenko and Löbl 2008: 244 (*Odocnemis*). Holotype female at DEI labeled “*incultus*// Külek//coll. Kraatz//coll. DEI Müncheberg// Holotypus”.

*Helops lordiscelis* Reitter 1900: 157. Lectotype male (here designated) at HNHM labeled “Asia minor, Bulghar Magara, v. Bodemeyer//Coll. Reitter//Holotypus 1900, *Odocnemis lordiscelis* Reitter// *incultus* All, Coll Reitter”.

**Material Examined.** 58♂♂, 45♀♀ (ZIN, CN): Turkey, İçel Province, above Arslanköy, N 37°02'242" E 34°17'191", 1800 m, 16.iv.2007, on *Cedrus libani*, *Juniperus excelsa*, leg. M.V. Nabozhenko; 3♂♂, 1♀ (ZDEU, dry collection), 1♂, 6♀♀ (ZDEU, ethanol): same locality, 18.05.2009, leg. M.V. and S.V. Nabozhenko, B. Keskin; 2♂♂ (CN): Turkey, Karaman Province, Ayranci District, 10 km S Kiraman, 37°11'851"N 33°59'208"E, 1962 m, 19.iv.2008, leg. M.V. Nabozhenko; 2♂♂ (CN): Turkey, İçel Province, Güzeloluk, 1400 m, 16–18.v.2008, leg. I.V. Shokhin; 49♂♂, 40♀♀ (ZDEU, dry collection), 2♂♂, 21♀♀ (ZDEU, ethanol), 9♂♂, 4♀♀ (ZIN, CN): Turkey, İçel Province, near Çamlıyayla, N 37°10'307"E 34°31'239", 1700 m, on *Cedrus libani*, 18.v.2009, leg. M.V. and S.V. Nabozhenko, B. Keskin; 1♀ (ZDEU, dry collection): Turkey, İçel Province, Gülekboğazi, 37°20'17"N 34°45'48.8"E, 1520 m, 17.v.2010, leg. M.V. and S.V. Nabozhenko, B. Keskin; 4♂♂ 15♀♀ (ZDEU, dry collection) 3♂♂ 13♀♀ (ZDEU, ethanol): Turkey, İçel Province, Toros (above town), N 36°54'28", E 34°05'45", 1709 m, 31.05.2011, leg. B. Keskin; 1♂ 2♀♀ (ZDEU, dry collection): Turkey, İçel Province, Sertavul Pass, 1441m, N 36°51'14", E 33°17'50", 30.05.2011, leg. B. Keskin.

**Redescription. Male.** Body length 13–19 mm, width 3.7–4.5 mm. Body slender, subparallel, strongly elongate, brown, with dull shine. **Head:** Widest at eye level. Eyes large, convex. Head

width 1.8 times width of interocular space. Genae strongly rounded. Outer margin of head between genae and clypeus with deep rectangular sinuation. Frontoclypeus strongly depressed. Punctuation of head moderately coarse, sparse on frons (puncture diameter less than distance between punctures), dense on other surfaces (puncture diameter 1.5–2.0 times as long as distance between punctures). Antennae long, with 5 apical antennomeres extending beyond base of pronotum, reaching middle of elytra. **Thorax:** Pronotum subquadrate (1.04 times as wide as long), widest before middle. Lateral margins weakly rounded in widest place and straight to base and anterior margin; anterior margin widely emarginate, base emarginate in middle. Anterior angles weakly obtuse, with rounded apex; posterior angles almost right, distinct on apex. All margins narrowly regularly beaded. Disc weakly convex, often with middle line. Punctuation of disc fine and sparse, distance between punctures 2 or more times as long as puncture diameter. Prothoracic hypomera with fine microwrinkles and clear sparse punctuation. Prosternal process moderately convex. Hind wings absent. **Elytra:** Strongly elongate, 2.8 times as long as wide, 1.55 times as wide as head, 1.2 times as wide and 3.5 times as long as pronotum. Striae with round punctures not merged in entire furrows. Punctuation of interstriae fine and sparse, with 2 punctures placed in transverse interval. Interstriae (except at middle of elytra) with granules with celoconic sensilla. Interstria 8 keel-shaped on apex, connected with elytral margin. Epipleura strongly narrowing apically, extending to elytral apex. Elytra without mucro. Dorsal epipleural carina visible only near base and apex of elytra where it abuts interstria 8. **Venter:** Mesepimera with coarse and dense punctuation. Metepisterna and metaventrite with sparse fine punctuation; metaventrite with depression in middle and convex intercoxal process. Abdominal ventrites with fine and sparse punctuation and fine longitudinal wrinkles on sides. Abdominal ventrites 3

and 4 depressed on sides, their posterior margin strongly elevated. Membranes between ventrites 3–5 very wide. Abdominal ventrite 5 strongly convex, inwardly curved, with weakly bisinuate apical margin. **Legs:** Trochanters (all legs) without hair brush, with 1 long seta. Protibiae bent and flattened (viewed from flexion side), depressed and densely pubescent on inner side. Mesotibiae bent (in dorsal view). Metatibiae bent and thickened in basal third (in dorsal view) and weakly bent from flexion side, flattened and strongly pubescent on inner side of apical 2/3. Tarsi long, not widened, with dense brush on plantar surface.

**Female.** Body length 12–17 mm, width 4.5–6 mm. Body more robust. Head width 1.4 times width of interocular space. Antennae shorter, with only 3 apical antennomeres extending beyond base of pronotum, reaching basal quarter of elytra. Pronotum more transverse (1.2 times as wide as long), widest in middle (rarely after middle), narrowed to anterior margin. Punctuation of pronotum moderately coarse and dense (puncture diameter subequal to distance between them). Elytra more wide (1.8 times as long as wide), 2 times as wide as head, 1.3 times as wide and 2.90–2.95 times as long as elytra. Protibiae simple, straight, not bent, not flattened; meso- and metatibiae weakly bent, with simple pubescence.

**Distribution.** Turkey: central part of Central Taurus Mountains (Fig. 28).

**Bionomics.** Adult specimens of this species were collected on trunks of *C. libani* and rarely *Juniperus excelsa* Pursh (Cupressaceae) between 20:00 and 00:00 hrs in April and May. They feed on lichens on the trunks.

***Taurohelops triplehorni* Keskin and  
Nabozhenko, new species**  
(Figs. 15–22, 26, 27)

**Description. Male.** Body length 13.5–14.8 mm, width 3.9–4.2 mm. Body slender, strongly elongate, brown, with dull shine. **Head:** Widest at eye level. Eyes large, convex. Head width 1.95 times width of interocular space. Genae strongly rounded. Outer margin of head between genae and clypeus with deep rectangular situation. Frontoclypeus strongly depressed. Punctuation of head moderately coarse, sparse on frons (puncture diameter less than distance between punctures), dense on other surfaces (puncture diameter 1.5–2.0 times as long as distance between punctures). Antennae long, with 5 apical antennomeres extending beyond base of pronotum, reaching middle of elytra. **Thorax:** Pronotum weakly transverse (1.05–1.08 times as wide as long), widest before middle. Lateral margins weakly rounded at widest point and straight to base and anterior margin; anterior margin widely emarginate, base emarginate in middle. Anterior angles weakly obtuse, with

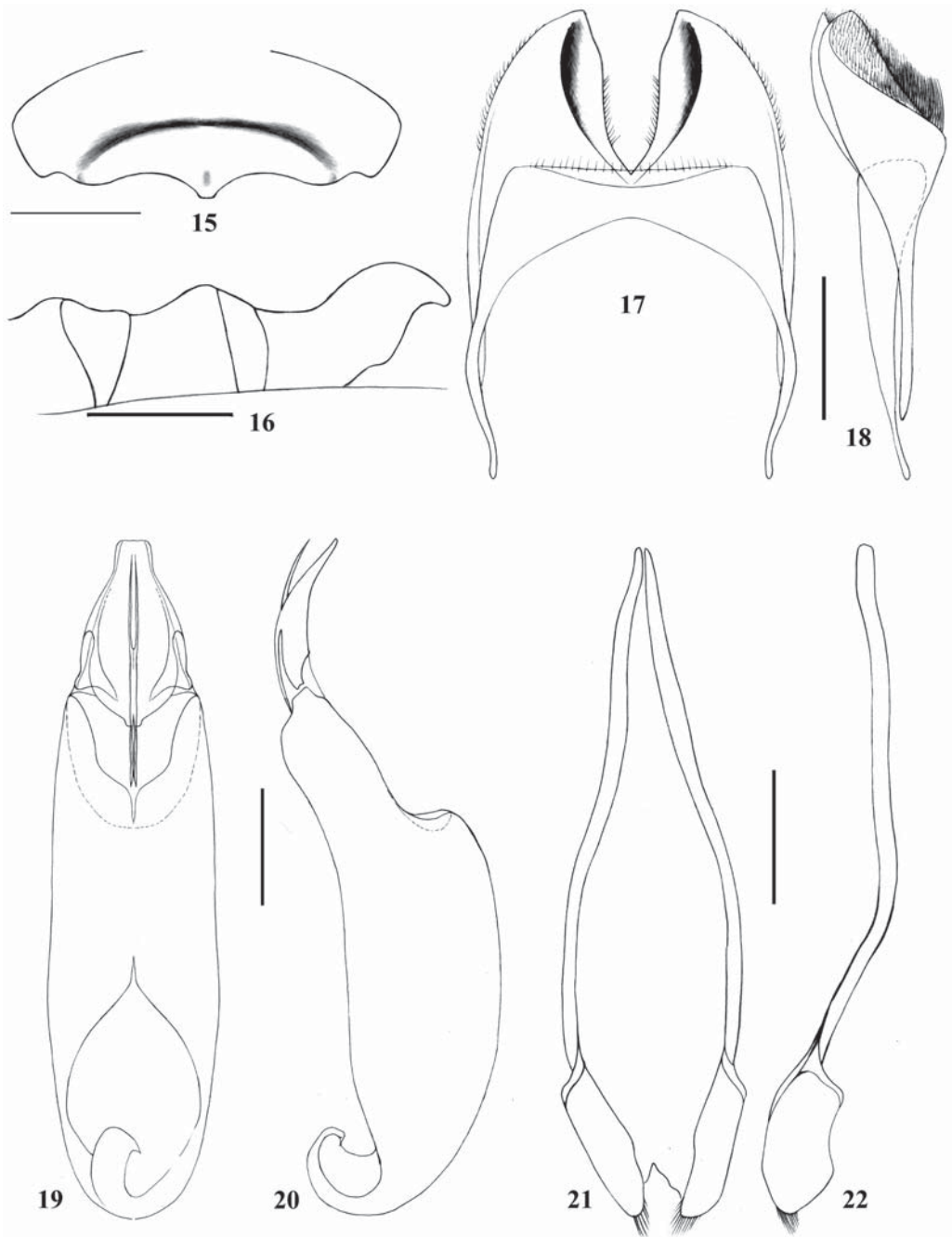
rounded apex; posterior angles almost right, distinct on apex. All margins narrowly regularly beaded. Disc weakly convex, often with middle line. Punctuation of disc fine and sparse, distance between punctures 2 or more times as long as puncture diameter. Prothoracic hypomera with fine microwrinkles and clear sparse punctuation. Prosternal process moderately convex. Hind wings absent. **Elytra:** Strongly elongate (2.35 times as long as wide), 1.7 times as wide as head, 1.27–1.30 times as wide and 3.2 times as long as pronotum. Striae with round punctures not merged in entire furrows. Punctuation of interstriae fine and sparse, with 2 punctures placed in transverse interval. Interstriae (except of middle of elytra) with granules with celoconic sensilla. Interstria 8 keel-shaped on apex, connected with elytral margin. Epipleura strongly narrowing apically, extending to elytral apex, where together with interstria 8 forms a mucro. Dorsal epipleural carina visible only near base and apex of elytra where it abutts interstria 8. **Venter:** Mesepimera with coarse, dense punctuation. Metepisterna and metaventrite with sparse, fine punctuation; metaventrite with depression in middle and convex intercoxal process. Abdominal ventrites with fine, sparse punctuation and fine, longitudinal wrinkles on sides. Abdominal ventrites 3 and 4 depressed on sides, their posterior margin strongly elevated. Membranes between ventrites 3–5 very wide. Abdominal ventrite 5 strongly convex, inwardly curved, with bisinuate apical margin and tooth-shaped obtuse apex. **Legs:** Trochanters (all legs) with hair brush. Protibiae bent and flattened (viewed from flexion side), depressed and densely pubescent on inner side. Mesotibiae bent (in dorsal view). Metatibiae bent and thickened in basal third (in dorsal view) and weakly bent from flexion side, flattened and strongly pubescent on inner side of apical 2/3. Tarsi long, not widened, with dense brush on plantar surface.

**Female.** Body length 13.5–15.2 mm, width 4.5–5.7 mm. Head width 1.7 times width of interocular space. Body more robust. Antennae shorter, with only 3 apical antennomeres extending beyond base of pronotum, reaching basal quarter of elytra. Pronotum more transverse (1.25 times as wide as long), often widest in middle and weakly flattened sides. Elytra more wide (1.6 times as long as wide), 2.00–2.05 times as wide as head, 1.4 times as wide and 2.8–2.9 times as long as elytra. Protibiae simple, straight, not bent, not flattened; meso- and metatibiae weakly bent, with simple pubescence.

**Etymology.** The species is named in honor of the famous coleopterist and great specialist on Tenebrionidae, Charles A. Triplehorn.

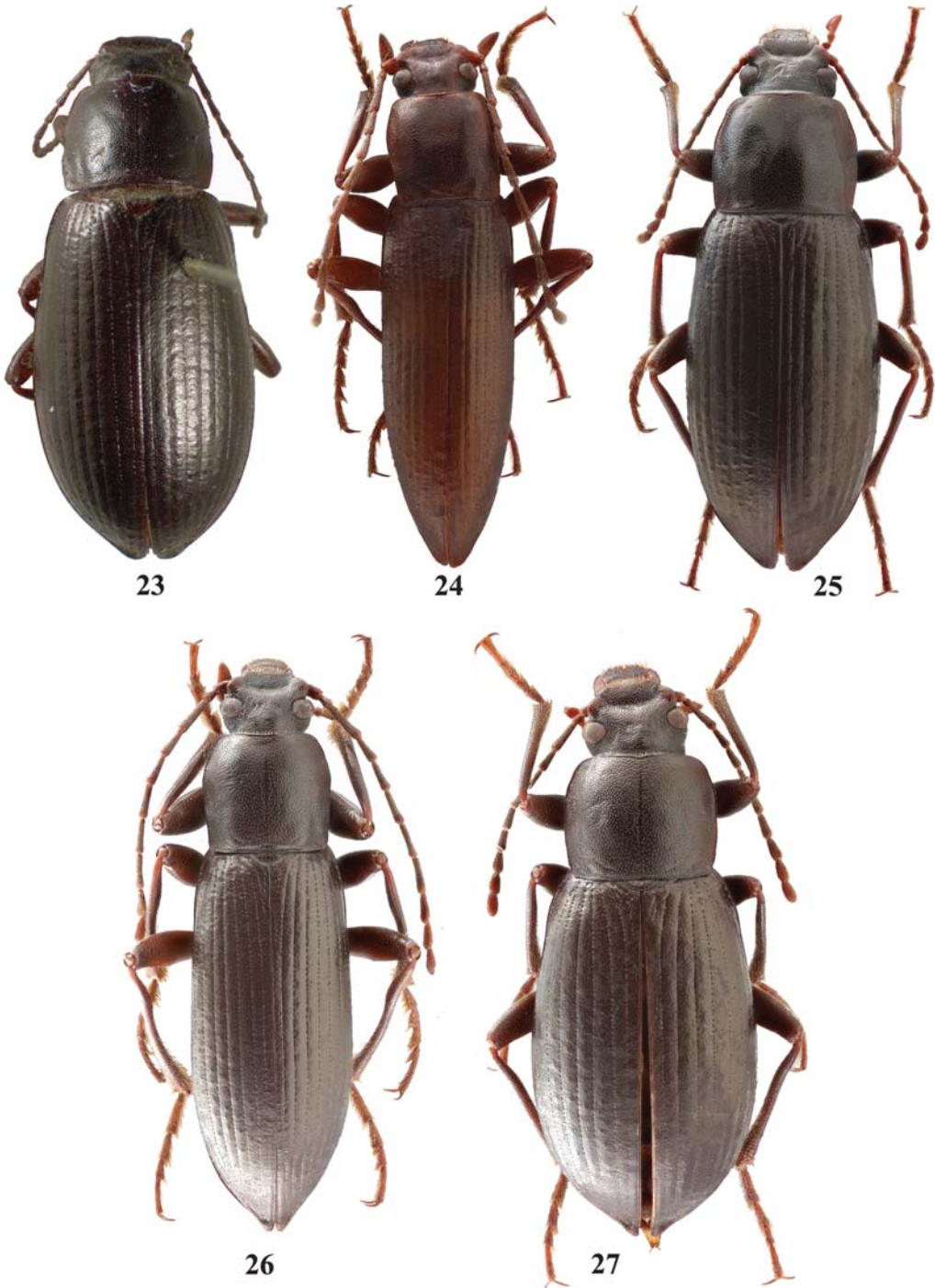
**Diagnosis.** Differences with *T. incultus* are in the key.

**Distribution.** Turkey: eastern part of Central Taurus Mountains (Fig. 28).



**Figs. 15–22.** *Taurohelops triplehorni*, male structures. **15)** Abdominal ventrite 5, posterior view; **16)** Abdominal ventrites 3–5, lateral view; **17)** Sternite VIII, ventral view; **18)** Sternite VIII, lateral view; **19)** Aedeagus, ventral view; **20)** Aedeagus, lateral view; **21)** Gastral spicula, ventral view; **22)** Gastral spicula, lateral view. Scale bars = 1 mm.





**Figs. 23–27.** *Taurohelops* species, habitus. 23) *T. incultus*, female, holotype; 24) *T. incultus*, male; 25) *T. incultus*, female; 26) *T. triplehorni*, male; 27) *T. triplehorni*, female.

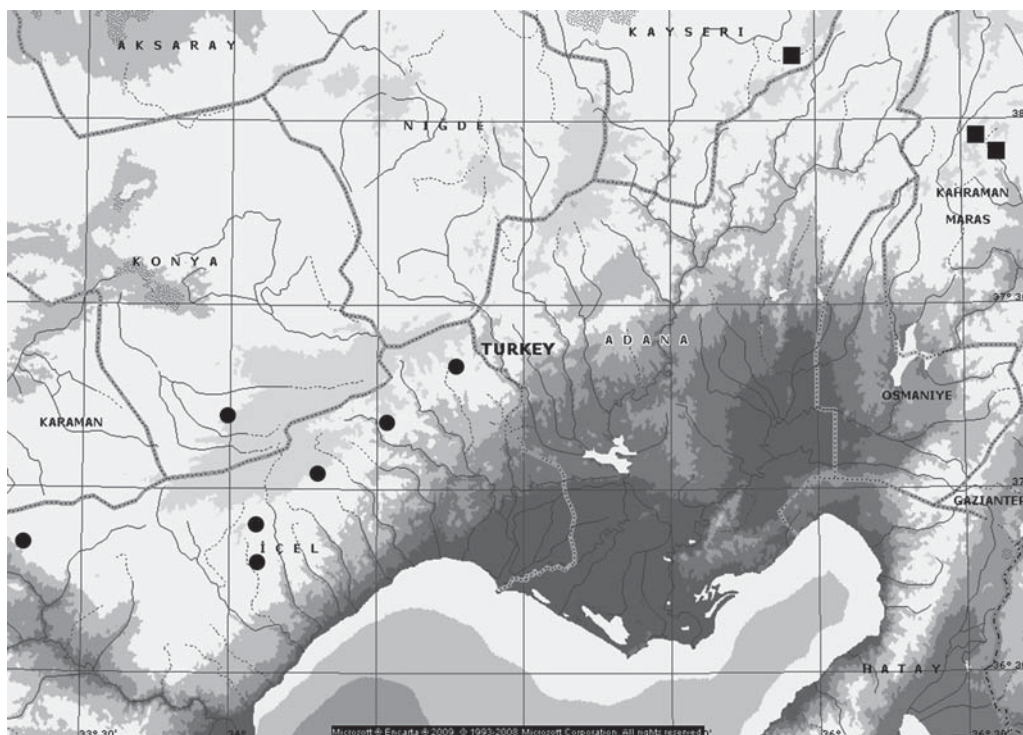


Fig. 28. Distribution map of *Taurohelops* species. Circle = *T. incultus*; square = *T. triplehorni*.

**Bionomics.** Adult specimens of this species were collected on trunks of *C. libani* from 21:00 to 23:00 hrs. Series of this species was also collected on *Populus* sp. near Yeşilgöz (Karamanmaraş Province, Turkey). The species feeds on lichens on the trunks of these trees.

**Type Material.** Holotype, ♂ (ZDEU) and paratypes: 2♂♂, 4♀♀ (ZIN, CN), 1♂, 3♀♀ (ZDEU, ethanol): Kahramanmaraş Province, distr. Göksun, Yeşilgöz, 37°54'58"N / 36°37'08.1"E, 1020 m, 20.05.2010 Leg. M.V. and S.V. Nabozhenko, B. Keskin; Additional paratypes: 6♀♀ (ZDEU, dry collection), 3♀♀ (ZDEU, ethanol), 4♀♀ (ZIN, CN): Kahramanmaraş Province, Göksun District, Püren Geçidi, N 37°57'16.5", E 36°33'36.2", 1404 m, 20.05.2010, leg. M.V. and S.V. Nabozhenko, B. Keskin; 3♂♂, 2♀♀ (ZIN, CN): same place, 15.iv. 2014, leg. M.V. and S.V. Nabozhenko, B. Keskin; 1♂, 1♀ (ZDEU, dry collection), 1♀ (ZIN): Kayseri Province, Devili District, Çadırıyeri, N 38°10'52.2", E 35°56'42.8", 1730 m, 15.04.2014, leg. M.V. and S.V. Nabozhenko, B. Keskin.

#### KEY TO THE SPECIES OF *TAUROHELOPS*

1. Elytra without mucro. Abdominal ventrite 5 weakly bisinuate apically, beaded apically,

without tooth-shaped apex. Trochanters with single long seta. Gastral spicula with sclerotized teeth, without dense pubescence. Basal piece of aedeagus strongly elongate, without deep, wide depression. Female pronotal sides narrowed to apex ..... *T. incultus*

- 1'. Elytra with mucro. Abdominal ventrite 5 strongly bisinuate apically, not beaded apically, with tooth-shaped obtuse apex. Trochanters with hair brush. Gastral spicula without teeth, lobes with dense pubescence. Basal piece of aedeagus moderately elongate, with deep, wide depression. Female pronotum subquadrate, not narrowed to apex, sides weakly rounded .....  
..... *T. triplehorni*, new species

#### ACKNOWLEDGMENTS

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