

Two new species of *Laemostenus* (*Antisphodrus*) (Coleoptera: Carabiade) from Turkey and Syria

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Abstract. Two new species of the genus *Laemostenus* Bonelli, 1810, subgenus *Antisphodrus* Schaufuss, 1865 are described, illustrated and compared with the related species: *Laemostenus* (*Antisphodrus*) *puchneri* sp. nov. of the *L. (A.) bodemeyeri* Ganglbauer, 1909 species-group and *Laemostenus* (*Antisphodrus*) *nusayriyahensis* sp. nov. of the small cave dwelling *L. (A.) cavazzutii* Casale, 1983 species-group. Some faunistic and systematic comments on the *L. (A.) glasunowi* species-group are given. Identification keys for the Turkish species of the *L. (A.) bodemeyeri* species-group, as well as the *L. (A.) cavazzutii* and *L. (A.) glasunowi* species-groups are provided, check lists for all three species-groups are given.

Taxonomy, descriptions, new species, distribution, Coleoptera, Carabidae, *Laemostenus*, *Antisphodrus*, Palearctic region

INTRODUCTION

The subgenus *Antisphodrus* Schaufuss, 1865 of the genus *Laemostenus* Bonelli, 1810 includes about 55 species with a circum-mediterranean distribution (Casale 1988, Casale & Vigna Taglianti 1999, Casale 2003). Most of them are known to be depigmented, with a subterranean way of life, frequently cavernicolous (Casale 1988, 1997, Casale et al. 2003, Jeanne 1996, Lassalle 1997).

Twenty-two species of this subgenus have been reported from Turkey so far (Casale & Vigna Taglianti 1999, Casale et al. 2003, Lohaj 2004).

In the course of study of the Turkish material of the genus *Laemostenus*, collected by Alfred Puchner in the spring 2000, one male belonging to an undescribed species of the *L. (A.) bodemeyeri* species-group has been discovered. This material has been made available for the study by Walter Heinz (Schwanfeld, Germany). Another material of *Laemostenus* has been delivered by Milan Řezáč (Charles University in Prague, Czech Republic), Czech specialist on spiders, and has been collected during his expedition to Syria. This material contained one new species belonging to the small, specialised cave dwelling species-group *L. (A.) cavazzutii* and it is a first representative of subgenus *Antisphodrus* from territory of Syria.

MATERIAL AND METHODS

Taxonomy of species-groups of the subgenus *Antisphodrus* used here is that of Casale (1988).

Abbreviations used in the text: CEH – collection of Evžen Hajdaj, Ježov, Czech Republic; CRL – collection of Roman Lohaj, Košice, Slovakia; CWH – collection of Walter Heinz, Schwanfeld, Germany.

TAXONOMY

Laemostenus (Antisphodrus) puchneri sp. nov.

(Figs 1, 4–7)

TYPE MATERIAL. Holotype, male, labelled: “Turkei, s.c. Anatolien, Murtici, umg. Gözelsu, Gulendag, 1050 m, A. Puchner, 16. IV.– 7.V.2000“, deposited in CWH.

DESCRIPTION OF HOLOTYPE. Total body length (from apex of mandibles to apex of elytra) 14.7 mm. Colour piceous-brown, antennae and tarsi reddish-brown. Head and pronotum smooth, shiny, elytra glabrous, dull, with distinct microsculpture (Fig. 1).

Head. Large, robust, almost as long as wide and as long as pronotum, shiny, smooth, with two supraorbital setiferous punctures on each side and 11 additional occipital setae. Frontal furrows shallow, smooth, reaching to level of anterior edge of eyes. Eyes small, reduced. Clypeus with four (two on each side) long setae. Mandibles long, narrow. Antennae long and slender, reaching almost half of elytral length, from antennomere V flattened. Antennomere III with accessory setation consisting of 9–11 long, protruding setae. Antennomere IV–XI with dense, decumbent pubescence.

Pronotum. Slightly longer than wide, ratio maximum width / maximum length = 0.9, shiny, smooth, with very fine transversal rugae. Anterior angles prominent, rounded at apex. Sides sinuated before base, posterior angles obtuse, with one setiferous puncture. Base slightly oblique towards posterior angles, with two shallow, smooth basal impressions. Lateral furrow narrow, with one setiferous puncture in apical third.

Elytra. Oval, expanded posteriorly, with maximal width at its apical third, flattened, dull, with isodiametric microsculpture. Base almost as wide as the base of pronotum. Basal bead strongly concave, humeri distinct. Striae very fine, punctate, intervals flat. Scutellar stria and scutellar setiferous punctures present. Series umbilicata consists of 18–19 setae. Mesosternum denticulate before mesocoxae. Abdominal sternites smooth, dull, with fine, dense microsculpture, sternites IV–VI with two setae on distal margin, without accessory ones.

Legs. Elongate, slender, mesotibiae straight. Protibiae with fine, sparse pubescence limited to internal sides of apical portions. Pubescence of metatibiae dense, limited to the apical half. Tarsi with fine, sparse, decumbent pubescence. Claws smooth, without denticulation.

Genitalia. Aedeagus (Figs 4–7) with median lobe short, arcuate, inflated at its basal third, apex short, subtruncate, slightly prominent dorsally. Right paramere rounded apically, left paramere with short apical membranous lobe. Female unknown.

DISTRIBUTION. So far known only from the type locality.

COLLECTION CIRCUMSTANCES. Holotype was collected by pitfall traps exposed for *Carabus* sp. during three weeks.

ETYMOLOGY. Patronymic, dedicated to Alfred Puchner (Oberdanegg, Austria), the collector of the new species.

DISCUSSION. According to the last revision of the genus *Laemostenus* (Casale 1988) and the following studies (Casale 1998, Casale & Vigna Taglianti 1999, Casale et al. 2003, Lohaj 2004), the new species belongs to the *L. (A.) bodemeyeri* species-group (sensu Casale 1988). The group is occurring through Greece (south Peloponnesos and the Island of Kalymnos), the Anatolian mountain range Taurus (Toros Dağları) to Lebanon (Djebel Sannin) and includes 15 species (2 species from Greece, 12 species from Turkey and one species from Lebanon). Representatives of this species-group are characterised by more or less depigmented body, often strongly flattened, partially reduced, but still functioned eyes and long and slender legs and antennae, which suppose started but unfinished stage to subterranean adaptation.

Laemostenus (Antisphodrus) puchneri sp. nov. is most closely similar to *L. (A.) cyrili* and *L. (A.) lundbergi*. All three species, which are spread on the relatively small territory of Taurus mountains (about 100 km), are characterised by additional setation on antennomere III, consisting of 9–20 long, protruding setae and numerous additional occipital setae. The main difference of the new species from *L. (A.) cyrili* and *L. (A.) lundbergi* is the presence of four setae on clypeus, while these two species possess only two clypeal setae. *Laemostenus (Antisphodrus) puchneri* sp. nov. can be easily separated from the other species of *L. (A.) bodemeyeri* species group described from Turkey so far as follows:

**Key to the identification of Turkish species of
Laemostenus (Antisphodrus) bodemeyeri species-group**

- 1(6) Antennomere III without accessory setae except apical fixed ones.
- 2(3) Elytra strongly convex, especially at its posterior third, legs more robust. Eastern Taurus: Bolkar dađları. *L. (A.) bodemeyeri* Ganglbauer
- 3(2) Elytra more flattened, legs long and slender.
- 4(5) Head and pronotum remarkably elongate, narrow and parallelsided. Pronotum distinctly longer than wide, eyes reduced, but prominent. Antennae reaching half of elytra. Eastern Taurus: environs of Mersin. *L. (A.) zoiai* Casale et Vigna Taglianti
- 5(4) Head and pronotum broader, pronotum almost as long as wide, eyes reduced, but not strongly prominent. Antennae very long, reaching apical third or fourth of elytra. Western Taurus: environs of Akseki and Antalya. *L. (A.) longicornis* Casale, 1988
- 6(1) Antennomere III with accessory setation consisting of 1–7 very short, or numerous (9–20) long, protruding setae.
- 7(14) Antennomere III with 9–20 long, protruding setae.
- 8(9) Head with two supraorbital setiferous punctures, without additional occipital ones. *L. (A.) agnolettii* Vigna Taglianti
- 9(8) Head with additional occipital setae.
- 10(11) Clypeus with four setae. *L. (A.) puchneri* sp. nov.
- 11(10) Clypeus with two setae.
- 12(13) Smaller species, 14–16 mm, more slender, elytrae narrower, with maximum width in the middle, basal bead of elytra strongly concave. *L. (A.) cyrili* Lassalle, 1997
- 13(12) Larger, 14–18 mm, more robust, elytrae broader, with maximum width in apical third, basal bead of elytra slightly concave. *L. (A.) lundbergi* (Jeanne)
- 14(7) Antennomere III with accessory setation consisting of 1–7 very short setae.
- 15(16) Colour dark brown, elytra strongly flattened, striae very fine, smooth. Larger species, 14–17.5 mm. *L. (A.) catlosi* Lohaj
- 16(15) Colour fully redish to redish-brown, elytra more convex, striae deep. Smaller species, 11.5–15.6 mm.
- 17(18) Small species, 11.9 mm, collar fully reddish-brown, aedeagus markedly constricted to the apex. *L. (A.) gasparoi* Casale
- 18(17) Larger species, 12–15.6 mm, aedeagus with short, subtruncate apex.
- 19(20) Protibiae without accessory pubescence on internal sides of apical portions, 11.5–13 mm. Eastern Taurus Mts: caves and pits near Mersin. *L. (A.) guzelulukensis* Lassalle
- 20(19) Protibiae with with fine, sparse pubescence. 12–15.6 mm. Western Taurus: surrounding of Antalya and Burdur.
- 21(22) Smaller species (12–14.4 mm), with narrower and more elongate head, elytra shorter, more depressed. *L. (A.) kestelensis* Casale, Felix et Muilwijk
- 22(21) Larger species (13–15.6 mm), elytra more elongated, strongly convex. *L. (A.) patrizii* Vigna Taglianti

Annotated catalogue of *Laemostenus (Antisphodrus) bodemeyeri* species-group

- 1. *L. (A.) agnolettii* Vigna Taglianti, 1999: 334; Turkey, Konya, Seydişehir, Ferzen (Kuđlu) mađara cave (type locality)
- 2. *L. (A.) beroni* Casale, 1988: 924: Greece, Island of Kalymnos, Cave of Seven virgins (type locality), cave de Skalia.
- 3. *L. (A.) bodemeyeri* Ganglbauer, 1900: 134; Turkey, Taurus, Bolkar dađları [= Bulghar Dagħ by the earlier authors], Bolkar Mađara cave (type locality).
- 4. *L. (A.) casalei* Dubault et Lassalle, 1991: 87; Greece, Peloponnesos, mountain range Taygétos (type locality).
- 5. *L. (A.) catlosi* Lohaj, 2004: 113; Turkey, Taurus, Akseki, Bademli pass (type locality), surrounding of Yarpuz.

6. *L. (A.) cyrili* Lassalle, 1997: 7; Turkey, Konya, south of Beyşehir lake (type locality), Konya, Yesildağ.
7. *L. (A.) gasparoi* Casale, 2003: 238; Turkey, western Taurus, Akyarlar mağara-cave, near road Antalya–Kemer (type locality).
8. *L. (A.) guzelolukensis* Lassalle, 1997: 7; Turkey, Eastern Taurus, Mersin, caves and pits near Güzeloluk (type locality), Mersin, Silifke, Cennet mağarası caves, Astim mağarası caves, Cennet Cögükü mağara (cave).
9. *L. (A.) kestelensis* Casale, Felix et Muilwijk, 2003: 235; Turkey, Buçak, Burdur, Yarasa mağara cave (type locality), Sefer Yitiği mağara cave.
10. *L. (A.) libanensis* (La Brulerie, 1875: 421) (described as *Sphodrus*); Lebanon, Djebel Sannin (type locality).
11. *L. (A.) longicornis* Casale, 1988: 608; Turkey, Western Taurus, Akseki-Imrasan Geçidi (pass) – unknown cave (type locality), Akseki cave of Demirci Dükkanlan, Akseki, pit near Dikmen, 900 m, Gülendağ, North of Manavgat (Antalya).
12. *L. (A.) lundbergi* (Jeanne, 1996: 107) (*Antisphodrus*); Turkey, Western Taurus, Antalya, Yarpuz, 1200 m (type locality), Imrasan geçidi (Lassalle 1997).
13. *L. (A.) patrizii* Vigna Taglianti, 1999: 327; Turkey, Western Taurus, Antalya, Dosemealti, Yağca, Mustan Ini (type locality), unknown caves – mountain range In Dagh, Yeniköy, Karain mağarası, Koca in mağara – mountain range In Dağ (ca 45 km North of Antalya) (Lohaj 2004).
14. *L. (A.) puchneri* sp. nov.; Turkey, Antalya, Mürtici, Gülendağ (type locality).
15. *L. (A.) zoiai* Casale & Vigna Taglianti, 1999: 332; Turkey, Eastern Taurus, Mersin, Anamur, Kösen Bürkü mağara cave (type locality), Antalya – Gazipasa, Yalan Dünya mağara (cave), (Eric Ollivier lgt., unpublished data).

***Laemostenus (Antisphodrus) nusayriyahensis* sp. nov.**

(Figs 2, 8)

TYPE MATERIAL. Holotype female, five last left antennomeres and last right antennomera missing, labelled: “NW Syria, Homs, cave between Mashtal Helu and Uyounl Wadi, 600 m a.s.l., Mts Jebel Ansaria, 31.3.2001, M.Řezáč lgt.”, deposited in CRL.

DESCRIPTION. Total body length (from the apex of mandibles to apex of elytra) 11.4 mm, colour pale redish-brown, depigmented, antennae and legs paler. Head and pronotum smooth, shiny, elytra strongly flattened, glabrous, dull, with distinct isodiametric microsculpture (Fig. 2).

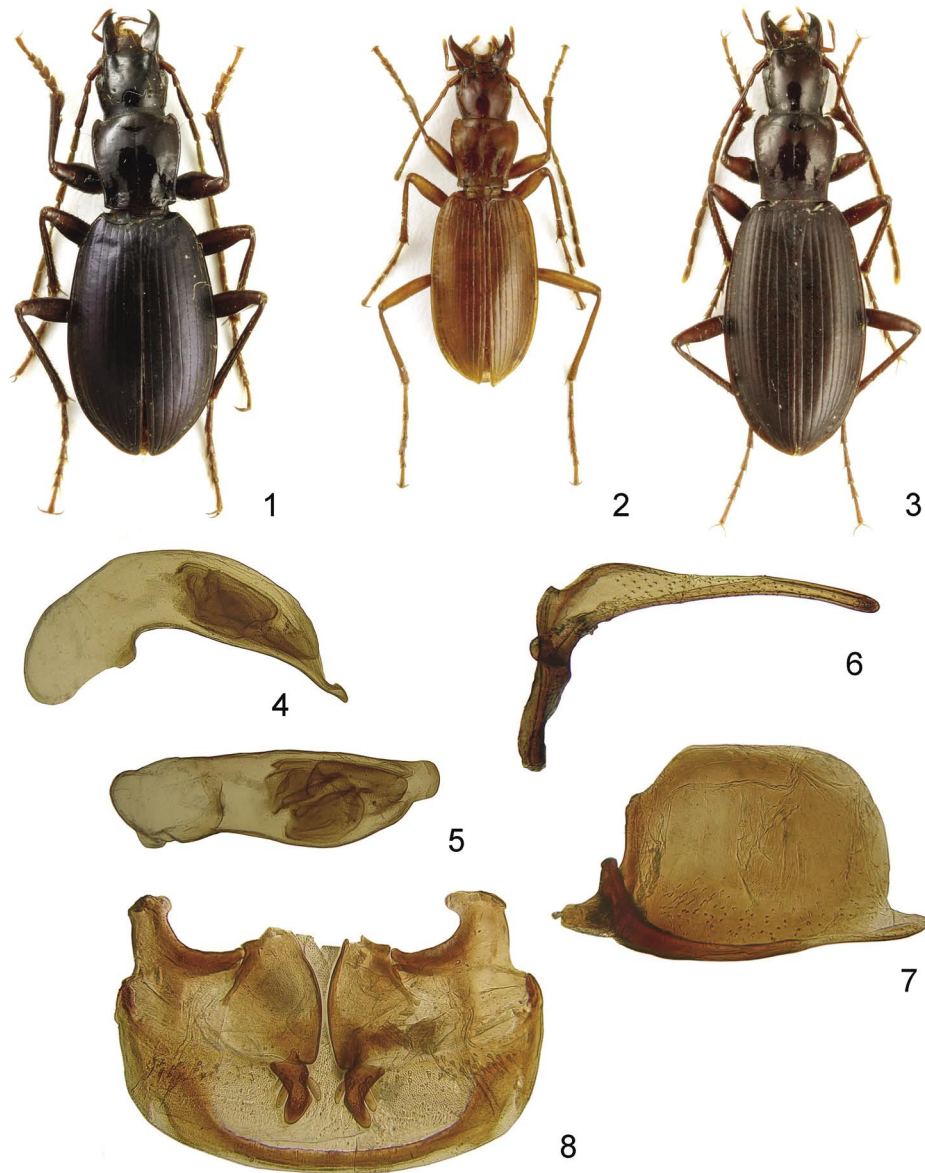
Head. Medium-sized, almost as long as wide, slightly narrower than pronotum, shiny, smooth, with two supraorbital setiferous punctures on each side, without additional occipital ones. Frontal furrows scarcely visible, very fine, shallow, smooth. Eyes strongly reduced, not prominent, limited to a paler spot with darker centre. Clypeus with two long setae. Mandibles long, narrow. Antennae long and slender, reaching almost half of elytral length. Antennomere III with accessory setation consisting of 2–3 short setae. Antennae with dense, decumbent pubescence from antennomere IV, from antennomere V strongly flattened.

Pronotum. Narrower, almost as long as wide, index maximum length/maximum width = 1, shiny, smooth. Sides of pronotum strongly sinuated before base, posterior angles acute, with one setiferous puncture. Anterior angles prominent, rounded at apex. Base of pronotum slightly oblique towards the posterior angles, with two deep, smooth basal impressions reaching middle of pronotal length. Lateral furrow distinct, narrow, with one setiferous puncture in its apical third.

Elytra. Oblong, almost parallel sided, with maximum width at its middle part, strongly flattened, dull, with evident isodiametric microsculpture. Base of elytra distinctly wider than base of pronotum. Basal bead concave, humeri rounded. Elytral striae distinct, but fine, punctate, intervals flat. Scutellar striae and scutellar setiferous punctures present. Series umbilicata consists of 15–16 setae. Mesosternum unarmed, without teeth before mesocoxae. Abdominal sternites smooth, dull, with fine, dense microsculpture, sternites IV–IV with two setae on the distal margin, without accessory ones.

Legs. Very long, slender, mesotibiae straight. Protibiae without accessory pubescence on the internal sides of apical portions. Pubescence of metatibiae dense, limited to apical half. Tarsi with fine, sparse, decumbent pubescence; tarsal claws smooth, without traces of denticulation.

Genitalia. Female stylomeres as on Fig. 8. Male unknown.



Figs 1–8. 1 – *Laemostenus (Antisphodrus) puchneri* sp. nov., holotype, 2 – *Laemostenus (Antisphodrus) nusayriyahensis* sp. nov., holotype, 3 – *Laemostenus (Antisphodrus) glasunowi* Semenov, 1895, female, Iran, Hasan Keif, 4 – *Laemostenus (Antisphodrus) puchneri* sp. nov., aedeagus – median lobe, left side, 5 – *Laemostenus (Antisphodrus) puchneri* sp. nov., aedeagus – median lobe, dorsal side, 6 – *Laemostenus (Antisphodrus) puchneri* sp. nov., aedeagus – right paramera, 7 – *Laemostenus (Antisphodrus) puchneri* sp. nov., aedeagus – left paramera, 8 – *Laemostenus (Antisphodrus) nusayriyahensis* sp. nov., ovipositor, ventral view.

DISTRIBUTION. NW Syria, cave between Mashtal Helu and Uyun al Vadi (ca. 60 km W of Homs), southern part of the mountain range Jabal an Nusayriyah, original name in arabic language (= Jebel Ansaria, Ansaryia, probably european transcription of vernacular name).

COLLECTION CIRCUMSTANCES. Type locality – nameless cave, situated in 600 m a.s.l., is about 100 m long; it was relatively wet in time of visit (end of March). Type specimen was collected under stone in the entrance, together with troglobiont spider genus *Harpactea* (Araneae: Dysderidae).

ETYMOLOGY. Topotypic, referring to the Jabal an Nusayriyah mountains, type locality of this remarkable species.

DISCUSSION. *Laemostenus (Antisphodrus) nusayriyahensis* sp. nov. belongs to the small, eucavernicolous species-group of *Laemostenus (Antisphodrus) cavazzutii* (sensu Casale 1988). This homogenous group is primarily characterised by depigmented, flattened, slender and elongate body, very long and slender legs, unarmed mesosternum and smooth tarsal claws. Two species from eastern Turkey have been described in the group: *L. (A.) cavazzutii* from the cave near Imranli (Sivas) and *L. (A.) kurdicus* from the cave about 30 km North of Göksun (Casale 1988). *Laemostenus (A.) libanensis* has been described from Lebanon, mountain range Djebel Sannin, and currently is placed to the *L. (A.) bodemeyeri* species-group. Last species has been described on remains (Casale 1988, Lohaj 2004) and its correct systematic position still needs to be verified. *Laemostenus (A.) libanensis* differs from all species of *L. (A.) cavazzutii* species-group by the presence of mesosternal teeth. *Laemostenus (A.) nusayriyahensis* sp. nov. can be easily separated from another two Turkish species as follows:

Key to the identification of *Laemostenus (Antisphodrus) cavazzutii* species-group

- 1(2) Antennomere III with accessory setation consisting of two-three very short setae, eyes strongly reduced, not prominent. 11.4 mm long. Syria: Jabal an Nusayriyah mountains. *L. (A.) nusayriyahensis* sp. nov.
- 2(1) Antennomere III without accessory setae except apical fixed ones, eyes reduced, but prominent. 10–16 mm long. Eastern Turkey (Göksun, Sivas).
- 3(4) Larger species (12.5–16 mm), shiny, with narrow pronotum. Turkey: Sivas. *L. (A.) cavazzutii* Casale, 1983
- 4(3) Smaller species (10–12.5 mm), matt, with distinct microsculpture, pronotum wider, transverse. Turkey: Göksun.
..... *L. (A.) kurdicus* Casale, 1988

Annotated catalogue of *Laemostenus (subg. Antisphodrus) cavazzutii* species-group

1. *L. (A.) cavazzutii* Casale, 1983: 258; Turkey, Sivas, Imranli, nameless cave (type locality).
2. *L. (A.) kurdicus* Casale, 1988: 628; Turkey, small nameless cave about 30 km North of Göksun (type locality).
3. *L. (A.) nusayriyahensis* sp. nov.; Syria, mountain range Jabal an Nusayriyah, nameless cave between Mashta Helu and Uyun al Vadi (ca 60 km W of Homs) (type locality).

Notes on *Laemostenus (Antisphodrus) glasunowi* species-group

Laemostenus (Antisphodrus) glasunowi Semenov, 1895

(Fig. 3)

MATERIAL EXAMINATED. Two females labelled as follows: "N Iran p. Mazandaran, 10 km S Hasan Keif, 2300 m, 3625N 5102E, 17.VI.2000, lgt. Hajdaj E. P.", R. Lohaj det. (CEH, CRL).

REMARKS. Specimens were collected in the alpine zone in about 2300 m a.s.l. under large stones near thawing snow together with *Carabus (Mimocarabus) elburzensis* Breuning 1946, *Carabus (Sphodristocarabus) adamsi persa* Lapouge 1925, *Nebria nigerrima* Chaudoir 1846, *Stomis hyrcanus* Tschitschérine, 1904, *Platyderus davatchii* Morvan 1970, *Laemostenus (Pristonychus) elytrolargus* Morvan 1981, etc. (Coleoptera, Carabidae). Village Hasan Keif is near the villages

Kalardasht and Rudbarak (J. Procházka, pers. comm.). One female of *L. (Antisphodrus) glasunowi* was recorded also from this locality (Dvořák 1982: 279). Two examined females are 14.5 and 14.9 mm long, morphological characters agree with those presented in Casale (1988: 620–623). Both two specimens have reduced, but evident mesosternal teeth before mesocoxae.

***Laemostenus (Antisphodrus) bulirschi* Dvořák, 1995**

MATERIAL EXAMINED. Paratype, male, labelled: “Turc. c. m., 1–3.7.1993, Ala daglari 1700 m, Demirkazik env., Bulirsch & Resl lgt.” (CRL).

***Laemostenus (Antisphodrus) hroni* Dvořák, 1998**

MATERIAL EXAMINED. Paratype, female, labelled: “Turcia c., Pozanti env., 26.IV.–6.V.1995, F. Moravec & J. Hron lgt.” (Collection Vladimír Skoupý, Žilina, Czech Republic).

***Laemostenus (Antisphodrus) deconincki* Casale et Quéinnec, 2001**

MATERIAL EXAMINED. Paratype, female, labelled: Iran, Grotte de Gama Siab, Zagros – Kuh e Garrin, VIII–IX 1996, P. de Coninck (CRL).

According to the last revision of the genus *Laemostenus* (Casale 1988), *L. (A.) glasunowi* species-group includes three species: *L. glasunowi* Semenov, 1895, *L. mirzayani* (Morvan, 1973) and *L. iranicus* (Dvořák, 1982). During years 1995–2004, another five species, currently placed to this group have been described (Casale 1997, Casale et Quéinnec 2001, Dvořák 1995, 1998, Morvan 2004). All, so far known species can be easily separated by the following key for identification:

Key to the identification of *Laemostenus (Antisphodrus) glasunowi* species-group

- 1(10) Mesosternum with teeth before mesocoxae.
- 2(3) Protibiae with fine, sparse setation limited to the internal sides of apical portions. 12.2–15 mm. Turkey.
..... *L. (A.) bulirschi* Dvořák, 1995
- 3(2) Protibiae without accessory setation. Iran: Zagros and Elborz mountain ranges.
- 4(5) Eyes large, not reduced, long almost as tempora. Pronotum subquadrate, slightly sinuated toward hind angles. 13–14.5 mm. Zagros.
..... *L. (A.) mirzayani* (Morvan, 1973)
- 5(4) Eyes smaller, reduced, long about as half of tempora, pronotum subcordiforme.
- 6(7) Base of elytra broad, distinctly wider than base of pronotum, elytral striae with very fine punctation. 11.5 mm. Zagros.
..... *L. (A.) iranicus* (Dvořák, 1982)
- 7(6) Base of elytra almost as wide as base of pronotum. 12–15.5 mm. Elborz
- 8(9) Elytra broader and more convex, elytral striae with fine punctation. 13.5–15 mm.
..... *L. (A.) sulaimanensis* (Morvan, 2004)
- 9(8) Elytra more slender and flattened, elytral striae with distinct punctation. 12–15.5 mm.
..... *L. (A.) glasunowi* Semenov, 1895
- 10(1) Mesosternum unarmed, without teeth before mesocoxae.
- 11(14) Colour reddish-testaceous, or depigmented, slight species with narrow, cordiforme pronotum.
- 12(13) Larger, 15–18 mm, very slight (4.8–5.6 mm) and more convex species. Iran, Zagros.
..... *L. (A.) deconincki* Casale et Quéinnec, 2001
- 13(12) Smaller, 13.5 mm, testaceous, depigmented, strongly flattened species. Turkey. *L. (A.) baehri* Casale, 1997
- 14(11) Colour piceous brown, species with wider elytra, maximum width in apical third, index maximum length/maximum width of elytra = 1.5. 14–15 mm. Turkey. *L. (A.) hroni* Dvořák, 1998

Annotated list of *Laemostenus (Antisphodrus) glasunowi* species-group

1. *L. (A.) baehri* Casale, 1997: 280; holotype locality label is „Taurus armen.“. According to Casale et Vigna Taglianti (1999, p.401), the type locality could be more correctly identified as Eastern Taurus – Bolkar dağlari (= Bulghar dagh, Cilician Toros of the earlier authors).
2. *L. (A.) bulirschi* Dvořák, 1995: 417: Turkey, Aladağlari, Demirkazik env. (type locality). *glasunowi* Semenov, 1895: 193: Iran, Elburz, Demavend, cave „Karr“ near Ask (type locality), mountain ranges Kuh-I-Kahar and Taht-El-Suleiman (Casale 1988), Kalardasht-Rudbarak (Dvořák 1982).
3. *L. (A.) deconincki* Casale et Quéinnec, 2001: 178: Iran, Zagros, Kuh-e-Garrin, Navahan, Gamasiab cave (type locality).
4. *L. (A.) glasunowi* Semenov, 1895: 193: Iran, Elburz, Demavend, cave „Karr“ near Ask (type locality), mountain ranges Kuh-I-Kahar and Taht-El-Suleiman (Casale 1988), Kalardasht-Rudbarak (Dvořák, 1982).
5. *L. (A.) hroni* Dvořák, 1998: 169: Turkey, Taurus – Bolkar dağlari, Pozanti env. (type locality)
6. *L. (A.) iranicus* (Dvořák, 1982): 279 (*Antisphodrus*): Iran, Zagros, Kuhé Dena, 2000–3000 m (type locality).
7. *L. (A.) mirzayani* (Morvan, 1973): 184 (*Antisphodrus*): Iran, Zagros, Zardeh-Kuh Kurang, 3800 m (type locality).
8. *L. (A.) sulaimanensis* (Morvan, 2004): 31 (*Antisphodrus*): Iran, Elburz, Mt. Sulaiman, 3700 m (type locality).

NOTE: According to the original description and drawings, this species is probably identical with *L. (A.) glasunowi*, which was also reported (Casale, 1988: 623, see also above) from Sulaiman mountain (Kuh-e Tacht-e Soleiman, english transcription of vernacular name).

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