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New or little known *Laemostenus* species from the Near and Middle East (Coleoptera, Carabidae: Sphodrini)

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Abstract: Some new, unexpected, *Laemostenus* (sensu lato) species are described from localities in Near and Middle East previously apparently well known from the entomological point of view. *Laemostenus* (*Laemostenus*) *croyi* nov.sp. is described from Turkey (southern Anatolia, Antalya Province) (Type locality: 5 km N Manavgat, western Toros Dağları) and *Laemostenus* (*Laemostenus*) *phoenicius* nov.sp. is described from Lebanon (Type locality: Maïfouq, NE Jbail, Mont-Liban). Both species belong to the *L. quadricollis* species group (in the sense of CASALE 1988). A key for the identification of the species of this group known so far, which includes both epigean and subterranean species, is provided. One new *Laemostenus* (*Antisphodrus*) species of the *L. esfandiarii* species group is described from the Northern Iran, Māzandarān province: *Laemostenus* (*Antisphodrus*) *skalei* nov.sp. (Type locality: Now Shahr env., Kheiroud Kenar forest, 36°31'38"N, 51°38'46"E). Two new *Laemostenus* (*Pristonychus*) species of the *L. terricola* species group (in the sense of CASALE 1988) are also described from Northern and Western Syria, respectively: *Laemostenus* (*Pristonychus*) *eggeri* nov.sp. (Type locality: Harim and Bashmishli env., NW of Aleppo), and *Laemostenus* (*Pristonychus*) *bellicosus* nov.sp. (Type locality: Crac des Chevaliers, near Homs). The diagnostic features of all species newly described are illustrated and their possible relationships with species localised in Southern Anatolia are discussed. A short note is added concerning *Laemostenus* (*Pristonychus*) *asiaeminoris* CASALE 1988, localised in some massifs of North-Western Anatolia (W Turkey), underlining that different populations show a marked variability to each other, already stressed in the original description. So far, however, it is not possible to distinguish distinct populations within this taxon on subspecies level, based on constant, diagnostic features.

Key words: Coleoptera, Carabidae, *Laemostenus*, *Laemostenus quadricollis* species group, *Laemostenus esfandiarii* species group, *Laemostenus terricola* species group, new species, Lebanon, Syria, Turkey (Anatolia).

Introduction

Carabid beetles of the tribe Sphodrini - in particular, Sphodrini of the *Laemostenus* and *Sphodrus* phyletic lineages - include many species in the Near and Middle East, and most of them have been treated and illustrated by CASALE (1988), with some maps of distribution of various taxa. Several forest dwelling and montane *Laemostenus* species (of different subgenera), and numerous troglophilic *Laemostenus* species of the subgenus *Antisphodrus*, give to this group of carabids a marked biospeleological and biogeographic interest in this area (CASALE & VIGNA TAGLIANTI 1999). Further new

Laemostenus species have been described from the Near and Middle East in last years (CASALE 1997; CASALE & VIGNA TAGLIANTI 1999; CASALE et al. 2003; LOHAJ & CASALE 2011; and see, for a review of some groups, LOHAJ & MLEJNEK 2007). However, large areas have not been adequately investigated so far; therefore, we have to expect that a large number of new species await discovery. But also well known areas can still offer unexpected new taxa: in fact, in this contribution, we will describe and illustrate some new *Laemostenus* species sampled in localities of Anatolia, Syria and Lebanon, respectively, which have been the object, in the past, of careful entomological investigations.

Material

The material examined is housed in the collections listed below:

BOL Biologiezentrum am Oberösterreichischen Landesmuseum, Linz, Austria
 cCA Collection Achille Casale, Torino, Italy
 cEG Collection Manfred Egger, Wattens, Austria
 cHE Collection Walter Heinz, Schwanfeld, Germany
 cWR Collection David W. Wrase, Berlin, Germany

Methods

The total body length (TL) is measured from the anterior margin of the clypeus to the apex of the elytra as the maximum linear distance; the overall length (L) from the apex of the mandibles to the apex of the elytra, measured along the suture; the length of the pronotum (PL) as linear distance from the anterior to the basal margin, measured along the midline; the width of the pronotum (PW) at its broadest point; the length of the elytra (EL) as linear distance from the basal ridge to the apex, measured along the suture; the width of the elytra (EW) at its broadest point. These measurements, using an ocular micrometer in a Wild M-3 or Wild M-5 stereobinocular microscope, were combined as ratios as follows: PL/PW and EL/EW. Dissections were made using standard techniques; male and female genitalia were dissected and examined in glycerol or in dry condition, before their final inclusion on labels pinned beneath the specimens from which they had been removed. Line drawings were made using a camera lucida attached to a Wild M-3 or Wild M-5 stereobinocular microscope. The habitus photographs (Figs 22-25) were taken with a Nikon D 300 digital camera and Nikon Macro 105 mm lens. Post-processing was done in Adobe Acrobat Professional 7.0. To achieve sufficient depth of focus, 20 planes were captured which were copied to separate layers, and the out-of-focus planes are masked by the stacking programme Helicon Focus. Photographs (Figs 19, 20) were taken with a Nikon D70 attached to a stereomicroscope Zeiss Stemi 2000, with a ring of fixed lights. Post-processing was done in Adobe Photoshop CS 3.

Taxonomic treatment and morphological terms

The genus *Laemostenus* is treated in the widest sense of CASALE (1988), in which the

limits of subgenera and species groups are clear in some cases (for instance, the *L. quadricollis* species group of *Laemostenus* sensu stricto), but not yet defined in other cases.

The median lobe of aedeagus is synonym of phallus of some authors. The proximal gonocoxite 1, and the more distal gonocoxite 2 of ovipositor are synonyms of stylomere 1 and stylomere 2 of authors, respectively.

Laemostenus (Laemostenus) of the *L. quadricollis* species group

(sensu CASALE 1988)

A homogeneous *Laemostenus (Laemostenus)* species group, mostly characterized by the peculiar combination of the following features: small to medium sized, pigmented or depigmented brachypterous species, with shortened, rhomboidal metepisterna; eyes as long, or shorter than tempora; pronotum quadrate or rectangular, with lateral sides not or slightly sinuate in front of basolateral angles; mesosternum denticulate in front of mesocoxae. Aedeagus peculiarly small, its median lobe slightly curved, with thickened, rounded or truncate apex. Range: Near and Middle East (Turkey [SE Anatolia], Cyprus, W Iran, Syria, Lebanon, Israel, N Egypt).

***Laemostenus (Laemostenus) croyi* nov.sp.**

Type material: Holotype ♂, labelled: "Türkei Südküste 5 Km N Manavgat Ackerbrache leg. Kielhorn 17.III.1997" (cWR). Paratypes: 2 ♀ ♀, labelled: "Turkey (Antalya) E Taurus Mts. Kizildag, env. 1800 m 37.03N/32.21E (subalpine) 6.-15.VI.2004 P. Croy" (cCa, cWR).

Diagnosis: A small to medium-sized *Laemostenus (Laemostenus)* species of the *L. quadricollis* species group (sensu CASALE 1988), mostly characterised by the dark violet colour of the dorsal surface, the rectangular pronotum with deep transverse wrinkles on disc and deep punctures on basal foveae and lateral furrows, the elytral intervals flat or slightly convex, and the reduced, small teeth on the internal side of tarsal claws. Habitus Fig. 22.

Etymology: Dedicated to our dear friend and colleague, Dr. Peter Croy (Leipzig, Germany), specialist in *Carabus* and also succesful collector of other Carabidae groups who sampled a part of the type series of the new taxon.

Description: Body small to medium sized, TL: 14.4 mm (holotype) -16.0 mm, L: 15.7 (holotype) -17.5 mm.

Colour: Dorsal surface dark violet, markedly sericeous; underside, antennomeres 1-4, femora and tibiae blackish; labrum, mandibles, palpomeres, antennomeres 5-11, tarsi, and lateral margins of pronotum reddish brown.

Microsculpture: Head and pronotum with transversal, evident microlines, elytra with distinct, isodiametric meshes.

Head elongate but robust, with deep transversal wrinkles on frons; eyes large, as long as tempora, slightly prominent laterally; frontal impressions rather deep but short, reaching the level of the anterior margin of eyes.

Pronotum narrow, rectangular (PL/PW: 0.93-0.96) (holotype), parallel-sided, its lateral sides slightly reflexed in the posterior half, slightly curved in front and constricted to the basolateral angles, which are obtuse; anterolateral angles large, markedly prominent;

base straight, fully beaded. Disc with deep transverse wrinkles; basal impressions small, deep, each with dense, large, deep punctures extended to the basal area and the lateral furrows; anterolateral and basolateral setiferous punctures present.

Mesosternum denticulate in front of mesocoxae.

Elytra ovate (EL/EW: 1.50-1.60) (holotype), convex. Base narrow, almost straight; basal ridge incavate; humeral tooth small but evident. Striae very deep, shallowly punctate; intervals almost flat or slightly convex, finely wrinkled. Chaetotaxy: Basal pore present; umbilicate series with 17-18 setiferous punctures; 1 seta at apex of stria 7.

Legs rather long and slender; profemora on ventral side longitudinally shallowly concave for entire length, its outer side with an oblique series of 3 setae, one of them in some cases reaching the apical third of the outer margin, which is smooth; mesotibiae straight; metatibiae each with apical group of short, sparse yellow-reddish setae; tarsomeres with dorsal pubescence sparse. Tarsal claws with a series of small teeth, reduced in number (5-6), along the basal half of the internal margin.

Male genitalia (immature in the male holotype): Median lobe of aedeagus small, slightly curved; apex short, thickened, regularly rounded; right paramere very short, subtruncate apically; left paramere with developed apical membranous lobe (Fig. 1).

Female genitalia: Gonocoxites 2 of ovipositor as in Fig. 16.

Comparisons: Due to the combination of several peculiar features, such as the dark violet colour of the dorsal surface, the rectangular pronotum with deep transverse wrinkles on disc and deep punctures on basal foveae and lateral furrows, the elytral intervals flat or slightly convex, and the reduced, small teeth on the internal side of tarsal claws, this new taxon seems to be markedly isolated from all other *Laemostenus* species of the *L. quadricollis* species group (see key below), but can be attributed to the latter due to the rectangular pronotum, the mesosternum denticulate in front of mesocoxae, and the small sized, slightly curved median lobe of aedeagus.

Distribution and habitat: An epigeal species, occurring from low to subalpine elevations, known so far only from the type locality 5 km north of Manavgat and from Kızıldağ in the western Toros Dağları (Turkey, S Anatolia). The holotype was collected on fallow land at low elevation (in not more than 50 m altitude), the paratypes on the border between a subalpine pasture and dwarf pines in 1800 m altitude in pitfall traps provided with a mixture of red wine and vinegar.

Remarks: The unexpected discovery of this new, highly characterized and remarkable species in a rather well investigated area of Southern Anatolia confirms the high diversity of the carabid fauna in the Toros chain, one of the most rich hotspots and interesting Mediterranean areas from the biogeographical point of view (CASALE & VIGNA TAGLIANTI 1999).

***Laemostenus (Laemostenus) phoenicius* nov.sp.**

Type material: Holotype ♂, labelled: "Libanon: Maïfouq 800 m 4/43/IV/1997 (ne. Jbaïl) Heinz leg." (cHE). Paratypes: 1 ♀ with same data but handwritten on backside of the label: 11.IV. (cHE); 1 ♀ with same data but: 4.IV. (cWR); 1 ♂, 2 ♀: "Libanon E Saida 650 m ZW. Anan u. Aazour 5/17.XI.2003 Heinz leg." (cCa, cHE).

Diagnosis: A small sized *Laemostenus (Laemostenus)* species of the *L. quadricollis* species group (sensu CASALE 1988), mostly characterised by the uniformly

reddish colour with brown-bluish disc of elytra, parallel-sided tempora, small eyes, and the tarsal claws with reduced, small teeth on the internal side. Habitus Fig. 23.

E t y m o l o g y : Referring on the type locality of the new species, Lebanon, from which the Phoenician people originated and extended to one of the most important and ancient civilizations in the Mediterranean area.

D e s c r i p t i o n : Body small: TL: 11.5-12.0 (holotype) mm; L: 12.5-13.0 (holotype) mm).

Colour: Uniformly reddish, markedly depigmented; disc of elytra (except the sutural interval) darker, brownish with slight bluish-violet reflection at oblique light. Surface moderately shining, elytra sericeous.

Microsculpture: Head and pronotum with shallow, transversal microlines, elytra with distinct, isodiametric meshes.

Head elongate but robust, thickened; dorsal surface smooth; frons convex, tempora parallel-sided; eyes small, much shorter than tempora, slightly prominent laterally; frontal impressions small, short, slightly impressed; antennae long, if stretched backwards exceeding by four antennomeres the elytral base.

Pronotum subquadrate cordiform (PL/PW: 0.97), its lateral sides slightly reflexed in the posterior half, briefly sinuate anteriorly to the basolateral angles, which are rectangular; anterolateral angles acutely prominent; base moderately oblique at sides, superficially beaded. Disc depressed, smooth, with sparse and shallow transverse wrinkles close to the median furrow; lateral furrow deeper in the anterior half; basal impressions wide, moderately deep, each with a few, deep punctures extended to the basal area and the lateral furrows; anterolateral and basolateral setiferous punctures present.

Elytra ovate, short (EL/EW: 1.70), widened in the posterior third, subconvex but depressed on the disc. Base narrow, almost straight; basal ridge incavate; humeral tooth absent, shoulders obtusely rounded but evident. Striae very deep, shallowly punctured; intervals flat, smooth. Chaetotaxy: Basal pore present; umbilicate series with 17-18 setiferous punctures; 1-2 setae at apex of stria 7.

Legs long and slender; profemora on ventral side longitudinally shallowly concave for entire length, its outer side with an oblique series of setae, one of them reaching the apical third of the outer margin, which is smooth; mesotibiae straight; metatibiae each with apical group of short, sparse yellow-reddish setae. Tarsomeres narrow, thin, with dorsal pubescence short and sparse. Males with fore tarsomeres 1-3 moderately dilated and with ventral, biseriate adhesive vestiture. Tarsal claws with a series of small teeth, reduced in number (4), along the basal half of the internal margin.

Male genitalia and abdominal segment IX in male as in Figs. 2-5. Aedeagus small; median lobe slightly curved, its apex short, in dorsal aspect slightly asymmetric, subtruncate and emarginate distally; right paramere very short, subtruncate apically; left paramere with reduced apical membranous lobe.

Female genitalia: Not examined.

D i s t r i b u t i o n a n d h a b i t a t : Known so far from two localities in Lebanon, in a range of altitude from 650 to 800 m a.s.l. The few specimens of the type series were collected in different localities and in two different years. The adaptive features of this species indicate a subterranean way of life, confirmed by the scarcity of individuals

and its living condition. The localities are far apart, but of the same geological character: karstic limestone rock terraces with fissures. Grass grows on the horizontal surface up to the fissures which are filled with humus and detritus and very humid, at least after the thaw (in Maïfouq snow was still lying on the ground). The specimens were captured in traps on the horizontal surface and each placed near to a fissure. Today the biotope at Maïfouq is completely destroyed being now used for waste disposal. The locality near Saida is thought to still exist (W. Heinz, pers. comm.).

C o m p a r i s o n s : Close to *L. (L.) antonrichter* CASALE 1988, from which it is distinguished by the elytral disc darker, brownish with slight bluish-violet reflection, the elytra shorter, ovate, and by elytral intervals flat and the tarsal claws with reduced but evident denticulation on the internal side in the basal half.

R e m a r k s : The general depigmentation of integument, the reduced eyes, the slender and elongate appendages, and the reduced denticulation of tarsal claws, clearly indicate in this species marked adaptive features to a subterranean way of life, as in three other species of the *quadricollis* species group: *L. (L.) aegyptiacus* SCHATZMAYR 1936, *L. (L.) heinzi* CASALE 1988 and *L. (L.) antonrichter* CASALE 1988 (CASALE 1988).

A preliminary, superficial examination of the individuals of this new *Laemostenus* species induced one of the authors (A.C.) to suspect the re-discovery of the enigmatic *Laemostenus (Antisphodrus) libanensis* (LA BRÜLERIE 1875), described from remains collected at high altitude (2600 m) in the Djebel Sannin, under a big stone, and never found again (CASALE 1988). A subsequent, careful examination of these individuals showed that they were not *L. (A.) libanensis* but a new species here described, belonging to *Laemostenus* sensu stricto.

The *Laemostenus (Laemostenus)* species of the *L. quadricollis* species group, all localized in reduced range of distribution in the Near and Middle East, can be identified by the following operative key.

Key to species of *Laemostenus (Laemostenus) quadricollis* species group

- 1 Elytral intervals very convex, in most individuals carinate in the middle. Body wide, depressed; colour black, elytra bluish or blue-violet. Relatively large species (L: 15-17 mm). Range: SE Anatolia, Syria, Lebanon, Israel.....*(L.) parallellocollis* (REICHE 1855)
- Elytral intervals flat or slightly convex. Dorsal surface black, or reddish brown, or blue-violet2
- 2 Head and pronotum with deep transversal wrinkles; dorsal surface violet, markedly sericeous. Range: Turkey, S Anatolia, Western Toros chain*L. (L.) croyi* nov.sp.
- Head and pronotum without deep transversal wrinkles.....3
- 3 Eyes large, about as long as tempora, slightly prominent; tempora moderately swollen. Pigmented or slightly depigmented species4
- Eyes markedly reduced in size, as long as 1/2 or 1/3 of tempora, moved forward; head elongate, tempora parallel-sided. Markedly depigmented, reddish brown subterranean species6
- 4 Dorsal surface reddish brown, depigmented; elytra darker, with slight bluish reflection. Tarsal claws with almost vanished denticulation on the internal side. Range: Egypt (Sinai).....*L. (L.) aegyptiacus* SCHATZMAYR 1936
- Body dark brown or blackish, fully pigmented. Tarsal claws with distinct denticulation on the internal side of the basal half.....5

- 5 Elytra dull, moderately sericeous, with bluish or violet reflection; pronotum subquadrate. Range: Turkey (SE Anatolia), Cyprus, Syria, Lebanon, Israel.....
.....*L. (L.) quadricollis* (REDTENBACHER 1843) (sensu lato)
- Elytra shiny, black, not sericeous; pronotum elongate, sub-rectangular. Range: Iran (Luristan).....*L. (L.) luristanus* CASALE 1988
- 6 Elytral striae almost smooth. Range: Turkey, SE Anatolia (Antakya: Nur Dağ).
.....*L. (L.) heinzi* CASALE 1988
- Elytral striae distinctly punctate.....7
- 7 Elytral disc dark reddish; elytra markedly elongate, parallel sided; elytral intervals subconvex. Tarsal claws with almost lacking denticulation on the internal side in the basal half. Range: Israel, Mount Hermon.....*L. (L.) antonrichteri* CASALE 1988
- Elytral disc darker, brownish with slight bluish-violet reflection; elytra short, ovate; elytral intervals flat. Tarsal claws with reduced but evident denticulation on the internal side in the basal half. Range: Lebanon.....*L. (L.) phoenicius* nov.sp.

***Laemostenus (Antisphodrus) of the L. esfandiarii species group* (sensu CASALE 1988)**

This very isolated group of *Antisphodrus* SCHAUFUSS 1865 was proposed by CASALE (1988) for the distinctive species *L. (A.) esfandiarii* (MORVAN 1974) from northern Iran (Elburz mountains), distinctly characterized by the peculiar combination of the following features: medium-sized (L: 12-14 mm), pigmented, black or dark brown brachypterous species, with very shiny, polished dorsal surface; head elongate, narrow, parallel-sided; eyes small, shorter than tempora; pronotum elongate-cordiform, with basal foveae and lateral furrows deeply punctate; elytra wide, ovate, very convex but with evident depression on the disc and deep, deeply punctate striae; mesosternum with reduced or absent tooth in front of mesocoxae; tarsal claws toothed in the basal half. Median lobe of aedeagus elongate and slender, slightly curved, with thickened, sub-acuminate apex.

The discovery of the new, interesting and unexpected species described here allow us to confirm the homogeneity of this previously mono-specific group, endemic so far to Northern Iran (Māzandarān province).

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

Type material: Holotype ♂, labelled: "N-Iran: Prov. Mazandaran, vic. Now Shahr, Kheiroud Kenar forest 36°31'38"N, 51°38'46"E, 880 m, 2.V.2010 leg. A. Skale (43)" (cWR).

D i a g n o s i s: A medium-sized *Laemostenus (Antisphodrus)* species sharing the main features of *L. (A.) esfandiarii* (MORVAN) (see above). Habitus Fig. 20.

E t y m o l o g y: Cordially dedicated to our friend and colleague André Skale (Hof/Saale, Germany), well known specialist in water beetles.

D e s c r i p t i o n: Body size 12.5 mm (TL) and 14.0 mm (L), respectively.

Colour: Dorsal surface black, very shiny, polished; labrum, palpomeres, antennae and legs brown reddish.

Microsculpture: Head and pronotum with hardly distinguishable transversal microlines, elytra with almost vanished isodiametric meshes.

Head wide, robust; tempora swollen, moderately oblique, convergent backwards; neck constriction evident; eyes relatively large, as long as 2/3 of tempora, not prominent outside; frontal impressions rather deep but short, wide, deep, reaching the level of the anterior supra-orbital setiferous punctures; antennae relatively short, exceeding by three

antennomeres the base of pronotum; antennomere 3 without accessory setae in addition to the apical fixed setae.

Pronotum cordate, slightly transverse (PL/PW: 0.90), its maximum width at the anterior third; lateral sides narrowly beaded, deeply sinuate and constricted to the basolateral angles, which are acute, evident; anterolateral angles rounded, slightly prominent; basal margin beaded at sides only. Disc moderately convex; median furrow superficial; basal impressions narrow, elongate, each with a few, deep punctures extended to the lateral furrows; anterolateral and basolateral setiferous pores present.

Mesosternum not denticulate in front of mesocoxae.

Elytra elongate-ovate, relatively narrow (EL/EW: 1.60), convex, but with a wide depression on disc extended on intervals 1-4. Base narrow, oblique at sides; basal ridge weakly concave; humeri rounded, humeral tooth vanished. Striae very deep and deeply punctuate; intervals flat. Chaetotaxy: Basal pore present; umbilicate series with 16 setiferous punctures; 1-2 setae at apex of stria 7.

Legs moderately long and slender; profemora with ventral side flat, its external and internal sides smooth, without marginal setae; mesotibiae straight; metatibiae each with some apical short, yellow reddish setae; metatarsomeres elongate and narrow, with dorsal pubescence long, scarce, not strigose; protarsomeres 1-3 dilated and with ventral, biseriate adhesive vestiture (male holotype). Tarsal claws with a series of small teeth, reduced in number (3-4), along the basal half of the internal margin.

Male genitalia (Figs. 6-9): Median lobe of aedeagus small, slightly curved; apex thickened, prominent on the dorsal side, obtusely angular in the middle in dorsal aspect; right paramere long and slender, rounded apically; left paramere with developed apical membranous lobe.

Female genitalia: Unknown.

C o m p a r i s o n s : Very close to *L. (Antisphodrus) esfandiarrii* (MORVAN) but markedly distinct by the wide, inflated head, with markedly swollen tempora and larger eyes; the wider, cordiform pronotum (PL/PW: 1.0 in *L. esfandiarrii*, 0.90 in *L. skalei* nov.sp.), markedly widened in the anterior third, with lateral sides curved in front and deeply sinuate in the posterior forth; the narrower, elongate, parallel-sided elytra (compare Figs 19, 20); and by the shape of the median lobe of the aedeagus (Fig. 6, 7), which is more thickened, less elongate, and wider at apex in dorsal aspect in the new species.

D i s t r i b u t i o n a n d h a b i t a t : An epigeal, forest dwelling species, known so far only from the type locality in the province Māzandarān in northern Iran south of the town Now Shahr. This locality is situated in the Kheiroud Kenar forest, an old deciduous forest, partly of primary character (Fig. 21). The specimen was collected along a brook called "Kheiroud Kenar stream" on its bank or near to it under stones or wood (A. Skale, pers. comm.). Interestingly, in the same locality one specimen of *L. esfandiarrii* (MORVAN) was also collected. This syntopic condition is an additional proof of the specific separation of the two species of the *L. esfandiarrii* species group.

R e m a r k s : The discovery of this new, highly characterized species in a rather well investigated area, confirms the high diversity of Sphodrina species in the Iranian territory, highly interesting from the biogeographical point of view (see, for instance, LOHAJ & CASALE 2011).

Laemostenus (Pristonychus)* species of the *L. terricola* species group (sensu CASALE 1988)**Laemostenus (Pristonychus) eggeri* nov.sp.**

Type material: Holotype ♂, labelled: "SYRIEN, nord-west Aleppo, ca. 500-550 m, umg. HARIM u. BASHMISHLI, I. Puchner 1.V.-20.V.99" (cWR). Paratypes: 12 ♂♂, 15 ♀♀, same as holotype (BOL, cCA, cEG, cHE, cWR).

D i a g n o s i s: A medium-sized, piceous black *Laemostenus (Pristonychus)* species of the *L. terricola* species group (in the widest sense of CASALE 1988). Habitus Fig. 24.

E t y m o l o g y: Dedicated to our friend and active coleopterist Manfred Egger (Wattens, Austria), with great experiences in collecting cave beetles who kindly offered to us for study the specimens described here.

D e s c r i p t i o n: Body medium-sized (TL: 14.0-16.5 mm, holotype 15.5 mm; L: 15.0-18.0 mm, holotype 16.8 mm).

Colour: Piceous black; labrum, mandibles and palpomeres brown-blackish. Surface shining, elytra not sericeous.

Microsculpture: Head and pronotum with transverse, very indistinct microlines, elytra with distinct, isodiametric meshes.

Head small, narrow, smooth or with very shallow transverse wrinkles; eyes small, shorter than tempora, but prominent outside; frontal impressions very short, narrow, moderately impressed.

Pronotum (Fig. 10) transverse (LP/WP: 0.85), slightly cordate, its lateral sides reflexed, markedly widened in front, posteriorly briefly sinuate and markedly constricted to the basolateral angles, which are small but prominent laterally; anterolateral angles small, but prominent; base fully beaded. Disc flattened, with shallow transverse wrinkles; basal impressions small, elongate, deep, each with some large, deep punctures extended, in some individuals, to the basal area and the lateral furrow; anterolateral and basolateral setiferous punctures present.

Mesosternum not denticulate.

Elytra ovate, short (LE/WE: 1.50), markedly depressed at base, subconvex in the apical half. Base narrow; basal ridge weakly concave; humeral tooth and shoulders vanished. Striae deep, punctuate; intervals subconvex. Chaetotaxy: Basal pore present; umbilicate series with 18-19 setiferous punctures; 2 setae at apex of stria 7.

Legs long and slender; profemora on ventral side longitudinally shallowly concave for entire length, their outer margin smooth or with some small teeth and a few (2-5) short setae; mesotibiae straight in females, markedly curved in males; metatibiae each with apical brush of rather long, yellow-reddish setae; tarsomeres with dorsal pubescence sparse and short; metatarsomeres very thin and elongate; males with protarsomeres 1-3 dilated and with ventral, biseriate adhesive vestiture. Tarsal claws with a series of very small teeth, reduced in number (5-6), along the basal half of the internal margin.

Male genitalia (Figs 11-14): Aedeagus with median lobe rather short, arcuate, medially inflated; apex very short, regularly rounded, dorsally depressed, not prominent on the dorsal side. Apical orifice wide. Right paramere rounded apically; left paramere with short apical membranous lobe.

Female genitalia: Not examined.

C o m p a r i s o n s : The new species is related to both *L. (P.) pisidicus* (G. MÜLLER 1931) and *L. (P.) sciakyi* CASALE & VIGNA TAGLIANTI 1999, Anatolian species from which it is recognized by the more reduced although prominent eyes, the flattened, more transverse pronotum, widened in front, the shorter, more ovate elytra, with shoulders and humeral tooth fully vanished, the markedly curved mesotibiae in males, the more slender and more elongate metatarsomeres, with shorter and sparse dorsal pubescence, the tarsal claws with more reduced teeth on the internal side, and the different shape of the median lobe of the aedeagus.

D i s t r i b u t i o n a n d h a b i t a t : An epigeal species, known so far only from the Aleppo region (North-Western Syria), at 500-550 m a.s.l. The specimens were caught by traps but we have no information on the biotope.

R e m a r k s : As in the case of *L. (Laemostenus) croyi* nov.sp. described above, the discovery of a new, apparently not rare taxon in an area well investigated since many years was unexpected, and confirms the high diversity and the importance in biogeographic aspects of the carabid fauna in the Eastern Mediterranean area as a whole (CASALE & VIGNA TAGLIANTI 1999).

***Laemostenus (Pristonychus) bellicosus* nov.sp.**

T y p e m a t e r i a l : Holotype ♀, labelled: "SYRIA occ., Crac des Chevaliers 34° 45' N 36° 17' E, 27.VI.1998 leg. P. Kabátek, 610 m" (cWR).

D i a g n o s i s : A medium-sized, completely piceous-black *Laemostenus (Pristonychus)* species of the *L. terricola* species group (in the widest sense of CASALE 1988). Habitus Fig. 25.

E t y m o l o g y : The Latin specific epithet (*bellicosus*: bellicose, belligerent) indicates the strategic rule of the type locality of this species, the famous medieval crusader castle Crac (incorrect: Krak) des Chevaliers in Syria (in Arabic language: Qal'at al-Hosn), that T.E. Lawrence (better known as "Lawrence of Arabia") described as being "the most impressive fortress in the world". The site is now included in the UNESCO world heritage.

D e s c r i p t i o n : Body medium-sized 18.0 mm (TL) and 19.0 mm (L), respectively.

Colour: Piceous black; labrum, mandibles, palpomeres, and sutural interval of elytra dark reddish brown; elytra without bluish reflection. Surface opaque, elytra not sericeous. **Microsculpture:** head and pronotum with transverse, evident microlines; elytra with distinct, isodiametric meshes.

Head narrow, elongate, with distinct transverse wrinkles; eyes small, shorter than tempora, not prominent laterally; frontal impressions wide, shallow, wrinkled.

Pronotum (Fig. 15) narrow (PL/PW: 0.91), cordate, its lateral sides moderately reflexed and markedly sinuate in front of the basolateral angles, which are acute and prominent outside; anterolateral angles small, but markedly prominent; base fully beaded. Disc flattened, with deep transverse wrinkles; basal impressions elongate, deep, each with some large, deep punctures; anterolateral and basolateral setiferous punctures present.

Mesosternum not denticulate.

Elytra elongate-ovate (EL/EW: 1.71), subconvex. Base narrow; basal ridge weakly concave; humeral tooth and shoulders absent. Striae deep, smooth; intervals slightly

convex. Chaetotaxy: Basal pore present; umbilicate series with 24-26 setiferous punctures; 2-3 setae at apex of stria 7.

Legs long and slender; profemora on ventral side longitudinally shallowly concave for entire length, with both external and internal margins smooth, their outer side with 3 short setae, the apical one reaching the outer margin of femur; mesotibiae almost straight (female holotype); metatibiae each with apical brush of rather long, yellow reddish setae; tarsomeres with dorsal pubescence dense, short; metatarsomers short, thickened. Tarsal claws with a series of very small teeth, reduced in number (4-5), along the basal half of the internal margin.

Male genitalia: Unknown.

Female genitalia: Internal tract, spermatheca, and gonocoxites 1 and 2 of ovipositor as in Figs 17, 18.

Comparisons: The new species is related to the Anatolian species *L. (P.) pisidicus* (G. MÜLLER 1931), from which it differs by the more elongate head, the more reduced, not prominent eyes, the narrower, markedly cordiform pronotum, with antero-lateral angles prominent in front and basolateral angles prominent outside, the more elongate elytra, with smooth striae and shoulders and humeral tooth completely absent. It is not related to other *Laemostenus* species reported from this area (from Crac des Chevaliers, *L. (L.) parallelocollis* [REICHE 1855] was cited by CASALE 1988), but apparently closer to taxa distributed in Southern Anatolia and in other areas of Syria (see *L. eggeri* nov.sp., described above).

Remarks: This species is a further, unexpected new taxon in a well known site of the Eastern Mediterranean area, sampled in a locality famous and visited by both tourists and entomologists for many years. Its apparent rarity could be attributed to its putative subterranean way of life, indicated by some morphological features, as the slender habitus, the small-sized eyes, the long appendages, the reduced denticulation of the internal side of tarsal claws, and the absence of bluish, metallic reflection on elytra.

Distribution and habitat: This markedly characterized species is so far known from only one female sampled in the type locality, at 610 m altitude. We have no information about the habitat.

Additional note on a *Laemostenus (Pristonychus)* species of the *L. terricola* species group in Anatolia

***Laemostenus (Pristonychus) asiaeminoris* CASALE 1988**

This taxon was described from a long series of individuals sampled in different mountain massifs of North Western Anatolia (W Turkey), with the type locality "Masukiye (Sapança), Goek Dag (=Kel Tepé)" (CASALE 1988).

As stressed in the original description, individuals of different populations, spread from S Istanbul (Bursa, Uludağ, and Usak, Simav Dağları) to E Istanbul (Bolu; a reported locality near Tokat merits verification), show some morphological differences to each other. Nevertheless, so far no morphological, constant character allows the separation of distinct subspecies within this species.

Therefore, we believe that a few specimens distributed in some collections (Casale,

Heinz, Schnitter, Staven, and Wrase collections) with the name in litteris "*L. (P.) walterheinzi* CASALE & STAVEN, new species" (nomen nudum), coming from "Turkey, Bolu, Bolu/Kaynasli Bolu Dağ 900 m" (different dates and collectors), collected in a *Fagus* and *Rhododendron* forest locality close to the Black Sea and characterised by very wet climate, with frequent rains and clouds, have to be attributed to *Laemostenus (Pristonychus) asiaeminoris* CASALE 1988.

Further investigation should allow the identification, within this taxon, of distinct sub-species or sibling species; however, after a careful, further re-examination of specimens from all localities known so far, this seems to be not possible at the moment on available character states of both external and genitalia morphological features.

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Zusammenfassung

Einige neue Arten von *Laemostenus* (sensu lato) werden aus Gebieten des Nahen und Mittleren Ostens beschrieben, die bis heute in entomologischer Hinsicht als gut erforscht galten. *Laemostenus (Laemostenus) croyi* nov.sp. wird aus der Türkei (Südanatolien, Provinz Antalya) beschrieben (Loc. typ.: 5 km N Manavgat, westliche Toros Dağları), und *Laemostenus (Laemostenus) phoenicius* nov.sp. wird aus dem Libanon beschrieben (Loc. typ.: Maïfouq, NE Jbail, Mont-Liban). Beide Arten gehören zu der *quadricollis*-Artengruppe (sensu CASALE 1988). Ein Bestimmungsschlüssel für die bisher bekannten Arten, zu denen sowohl epigäische als auch subterrane lebende Arten gehören, wird gegeben. Eine neue *Laemostenus (Antisphodrus)*-Art aus der *esfandarii*-Artengruppe (sensu CASALE 1988) wird aus dem Nordiran (Provinz Māzandarān) beschrieben: *Laemostenus (Antisphodrus) skalei* nov.sp. (Loc. typ.: Now Shahr env., Kheiroud Kenar forest, 36°31'38"N, 51°38'46"E). Zwei neue *Laemostenus (Pristonychus)*-Arten aus der *terricola*-Artengruppe (sensu CASALE 1988) werden aus Nord- bzw. Westsyrien beschrieben: *Laemostenus (Pristonychus) eggeri* nov.sp. (Loc. typ.: Harim and Bashmishli env., NW of Aleppo), und *Laemostenus (Pristonychus) bellicosus* nov.sp. (Loc. typ.: Crac des Chevaliers, near Homs). Alle diagnostisch wichtigen Merkmale der neuen Arten werden abgebildet und deren mögliche Verwandtschaftsverhältnisse zu anderen in Südanatolien vorkommenden Arten diskutiert. In einer kurzen Notiz über die Art *Laemostenus (Pristonychus) asiaeminoris* CASALE 1988, die in einigen Massiven von Nordwest-Anatolien (Westtürkei) vorkommt und deren Mitglieder von verschiedenen Populationen eine beträchtliche Variabilität aufweisen, wird dargestellt, daß momentan infolge fehlender konstanter morphologischer Unterschiede keine Teilung der Spezies in verschiedene Subspezies möglich ist.

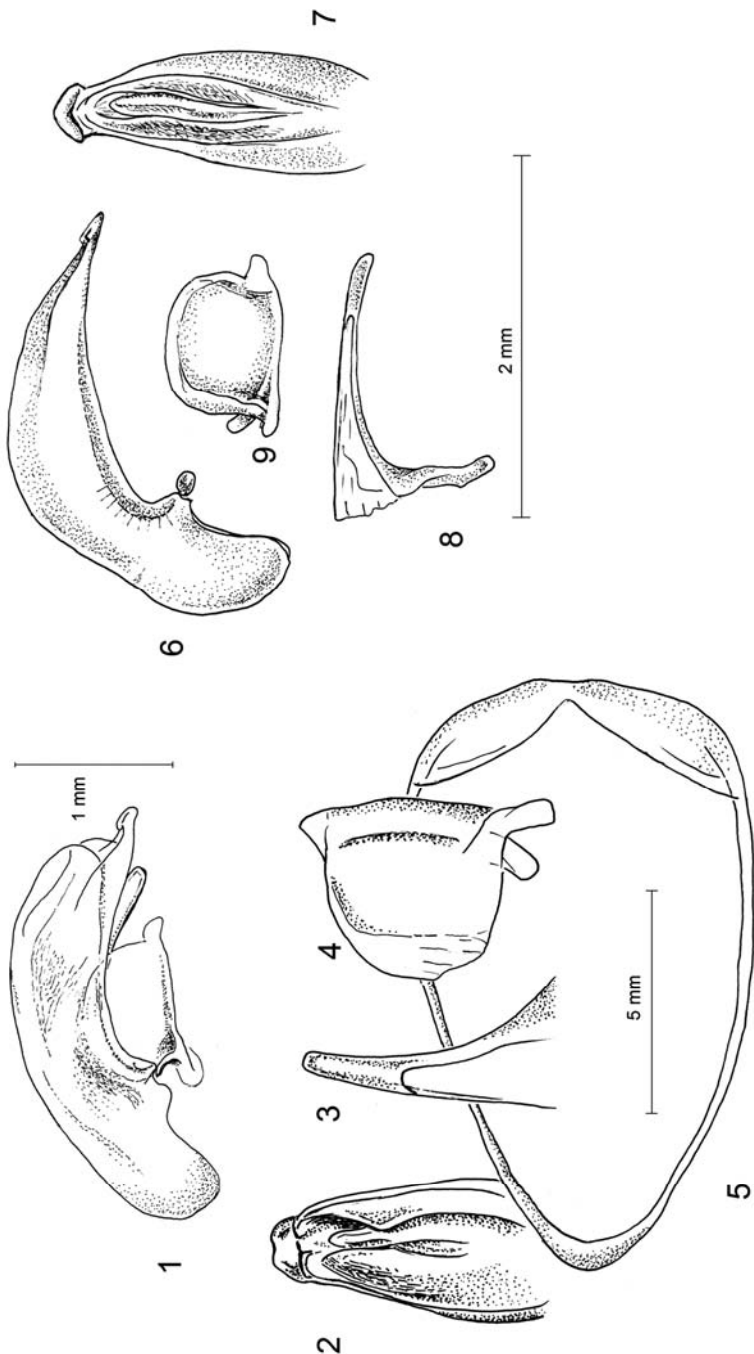
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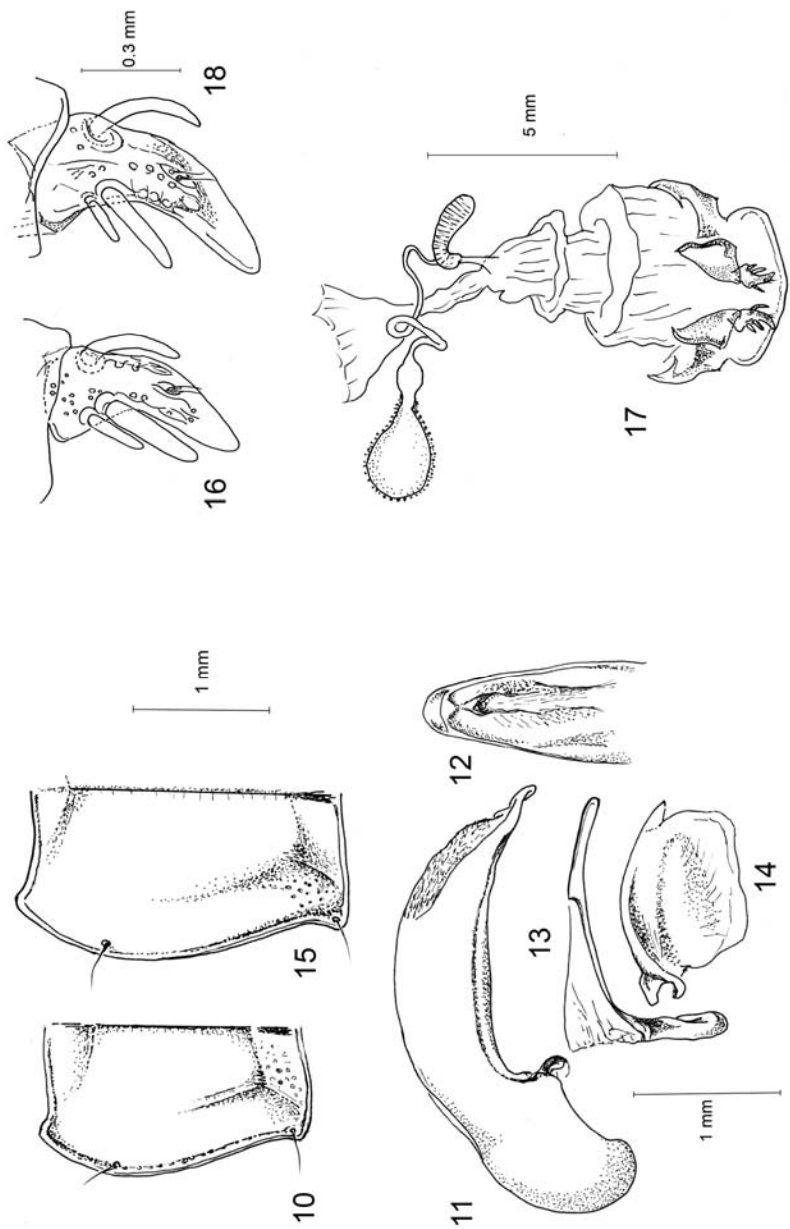
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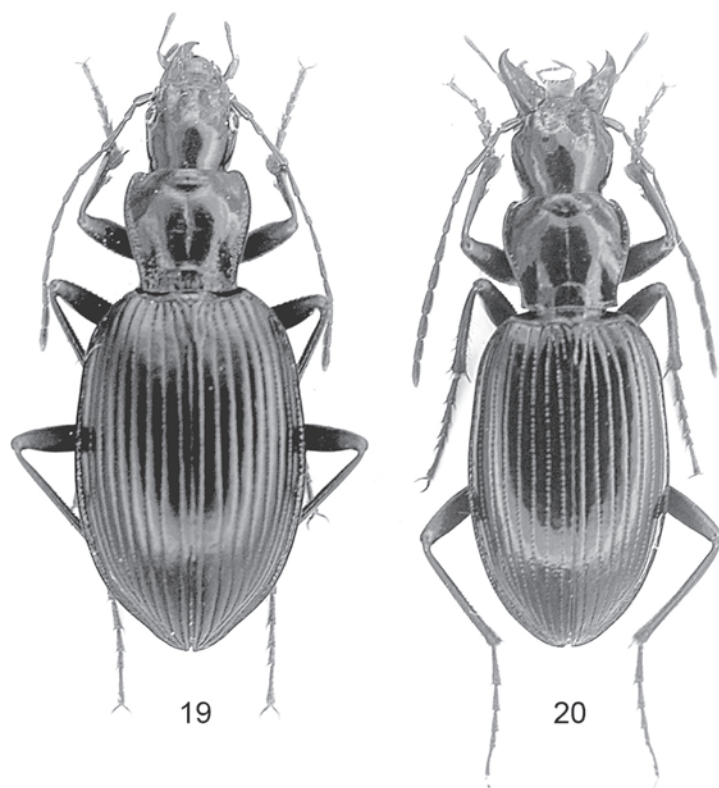
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Figs 1-9: *Laemostenus*: (1, 6) median lobe of aedeagus, lateral view. (2, 7) median lobe of aedeagus (without base), dorsal view. (3, 8) right paramere, lateral view. (4, 9) left paramere, lateral view. (5) abdominal segment IX. (1) *L. crovi* nov.sp., holotype. (2-5) *L. phoenicicus* nov.sp., holotype. (6-9) *L. skalet* nov.sp., holotype.



Figs 10-18: *Laemostenus*. (10, 15) pronotum, left part. (11) median lobe of aedeagus, lateral view. (12) median lobe of aedeagus (without base), dorsal view. (13) right paramere, lateral view. (14) left paramere, lateral view. (16, 18) right gonocoxite 2 of ovipositor, ventral view. (17) female genitalia, ventral view. (10-14) *L. eggeri* nov. sp., paratype. (15, 17, 18) *L. bellicosus* nov. sp., holotype. (16) *L. crovi* nov. sp., paratype.



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Figs 19-20: *Laemostenus*, habitus. (19) *L. esfandarii* (MORVAN) (Kheiroud Kenar forest). (20) *L. skalei* nov.sp., holotype. **Fig. 21:** biotope of the type locality of *L. skalei* nov.sp., (Kheiroud Kenar forest) (photograph: André Skale).



Figs 22-25: *Laemostenus*, habitus. (22) *L. croyi* nov.sp., paratype. (23) *L. phoenicius* nov.sp., paratype (Maïfouq). (24) *L. eggeri* nov.sp., paratype. (25) *L. bellicosus* nov.sp., holotype (various magnifications).

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