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Lixus davidiani, a new weevil species from Aras Valley (Coleoptera: Curculionidae: Lixinae)

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Abstract. *Lixus davidiani* sp. nov. is described from Aras Valley in Nahcivan (Azerbaijan) and northeastern Turkey. Adults were collected on *Lythrum salicaria* L. (Lythraceae) in northeastern Turkey. It was observed that females laid eggs in stem. The new species is assigned to the *Lixus iridis* species-group in the subgenus *Eulixus* Reitter, 1916, compared with related species, and morphological characters are presented.

Key words. Coleoptera, Curculionidae, Lixinae, *Lixus davidiani*, new species, host plant, Aras Valley, Azerbaijan, Turkey, Palaearctic Region

Introduction

The genus *Lixus* Fabricius, 1801 (Curculionidae: Lixinae) has a nearly worldwide distribution and comprises over 150 species in the Palaearctic Region (Winkler 1932, Csiki 1934, Ter-Minassian 1967). According to the world catalogue by Alonso-Zarazaga & Lyal (1999), the genus *Lixus* includes 18 subgenera. Its long and slender larvae are adapted to mine in the stems, petioles and rootcrowns of herbaceous plants (Scherf 1964; Nikulina 1989; Korotyaev & Gültekin 2003; Gültekin 2006a, 2007), although *Lixus obesus* Petri, 1904 completes its life-cycle in seed capsules of a *Prangos* species (Apiaceae) (Gültekin 2005). Taxonomic knowledge on the genus *Lixus* as well as the tribe Lixini has been recently updated by Gültekin (2006b, 2010), Gültekin & Perrin (2011) and Gültekin & Korotyaev (2011).

In this paper, a new species of *Lixus* is described from Aras Valley in Nahcivan (Azerbaijan) and northeastern Turkey. The new species belongs to the subgenus *Eulixus* Reitter, 1916, diagnosed by developed postocular lobes on prothorax (Reitter 1916). It is closely related to *Lixus iridis* Olivier, 1807 and *L. recurvus* Olivier, 1807 (= *L. nordmanni* Hochhuth, 1847) taxonomic status of which was recently clarified by Gültekin & Perrin (2011). Differential diagnosis of the new species and related species is presented.

Material and methods

Measurements were taken using an ocular micrometer under a stereomicroscope Leica MZ75. Measurements used here are defined as follows: body length – from anterior margin of eye to posterior margin of elytra; rostrum length – from apex of rostrum to anterior margin of eye; prothorax length – from apical margin to the posterior margin of scutellar corner. For the morphological study, dry adults were placed in warm water overnight and the genitalia were dissected. Parts with muscles and other tissues were macerated in 10% KOH overnight, cleaned with distilled water and 70% ethanol. Genitalia were kept in microvials or glued dry on paper card and placed under the pinned specimens they were dissected from. Photographs were taken with Leica DFC 420 digital camera joining macroscope Leica Z6APO using LeicaLAS software for montage. The digital images were then imported into Adobe Photoshop 8.0 and CorelDRAWX4 for labelling and plate composition.

Material is housed in the following institutions:

EMET Entomology Museum, Erzurum, Turkey;
ZIN Zoological Institute of the Russian Academy of Sciences, St. Petersburg, Russia.

Taxonomy

Lixus (*Eulixus*) *davidiani* sp. nov.

Type material. Holotype: ♂, **AZERBAIJAN:** Nahcivan Republic / Ordubad District, Nüsnüs Village / 7.v.1987, G. Davidian (EMET). Paratypes: **AZERBAIJAN:** Nahcivan Republic / Ordubad District, Nüsnüs Village / near Ordubad Çay, 7.v.1987, G. Davidian, 8 ♂♂ 6 ♀♀ (8 paratypes ZIN, 6 paratypes EMET). **TURKEY:** Kars Prov. / Aras Valley, 15 km E of Karakurt / 40º 08' 331'' N, 42º 42' 546'' E / 1383 m, 14.ix.2002, L. Gültekin, 1 ♂ 2 ♀♀ (EMET); Kars Prov. / Aras Valley, 15 km E of Karakurt / 40º 08' 331'' N, 42º 42' 546'' E / 1383 m 3.vi.2009, L. Gültekin, on *Lythrum salicaria* L., 1 ♂ 1 ♀ (EMET).

Description. Body length: 12.1–16.4 mm.

Male (holotype) (Figs. 1–12). Body length 16.0 mm. *Body* (Fig. 1) black; scape, funicle, unci and claws chestnut-brown, apical comb on tibiae pale brown. Surface of body vestitured with short grayish white pubescence, on ventrite slightly longer and denser. Pubescence semi-erect on inner margin of tibiae and funicle, a small tuft seta projecting to unci.

Rostrum subcylindrical (Fig. 2), weakly curved in lateral view, basal third slightly narrower than apical third in dorsal view, 0.80 times as wide as fore femur in widest point, 1.20 times as long as pronotum. Surface of rostrum shining and finely punctuated. Ventral margin of antennal scrobes partly visible from dorsal view. Antennae inserted at 0.35 rostral length from apex. Scape thin, weakly curved at basal part and dorso-ventrally flattened at basal 2/3 and subparallel-sided, abruptly widened toward apex, 1.15 times as long as funicle; funicle approximately as long as scape. Antennomere I wider and shorter than II, 0.80 times as long as antennomere II; antennomeres III–VI of subequal length and 0.40 times as long as II, antennomeres VI–VII wider than the others, the last one the widest. Club elongate with acuminate apex, 2.60 times as long as wide. Eyes sub-hemispherical, very weakly convex, transverse, dorsal part distinctly wider than ventral. Frons with deep small round fovea. Vertex convex, finely punctate.

Figs. 1–12. *Lixus davidiani* sp. nov. (holotype, male). 1 – habitus, dorsal view; 2 – rostrum; 3 – protibia; 4 – protarsus; 5 – apex of elytra, ventral view ; 6 – tergite VIII; 7 – sternite VIII; 8–9 – aedeagus, dorsal view; 10 – aedeagus, lateral view; 11 – spiculum gastrale; 12 – tegmen.

Figs. 13–20. *Lixus davidiani* sp. nov. (paratypus, female). 13 – habitus, dorsal view; 14 – rostrum; 15 – protibia; 16 – protarsus; 17 – tergite VIII; 18 – sternite VIII; 19 – coxite; 20 – spermatheca.

Figs. 21–24. Dorsal view of elytral apex of the *Lixus* spp. 21 – *L. iridis* Olivier, 1807; 22 – *L. divaricatus* Motschulsky, 1861; 23 – *L. recurvus* Olivier, 1807; 24 – L. davidiani sp. nov.

Prothorax narrow trapeziform (Fig. 1), 1.25 times as wide as long in widest part, slightly constricted under postocular area at apex. Anterior margin very slightly emarginated and not produced over head. Base bisinuate, prescutellar area short, deeply and narrowly depressed towards scutellum. Postocular lobes well developed, apical margin of prosternum slightly emarginated, sternellum with three tubercles and middle one larger than the other two. Disc flattened with V-formed shallow depressions on basal half, punctures finely and densely scattered.

Elytra subcylindrical (Fig. 1), 2.75 times as long as wide, 1.20 times as wide as pronotum in widest place. Sides subparallel, constricted beginning of apical half, weakly ampliate in posterior third, from this point to apex gradually and triangularly narrowed, apex with short tail (Fig. 5). Intervals flat, of subequal width, intervals III slightly convex at basal 1/5. Striae formed with rounded and separated punctures. Punctures smaller and partly confluent from posterior third to apex.

Femora swollen medially, profemora stronger than meso- and metafemora. Outer margins of tibiae straight, inner margins emarginated at apical third. Protibiae (Fig. 3) longer than meso- and metatibiae, a few small blunt denticles visible on protibia. Unci of moderate size, slightly smaller on meso- and metatibiae. Spines of apical comb mostly connate basally, on protibia

shorter than on meso- and metatibiae. Protarsi (Fig. 4) slightly longer and wider than meso- and metatarsi of subequal length with metatibia. Tarsomere I narrow triangular, twice as long as wide at widest part; tarsomere II trapeziform and about half as long as tarsomere I, tarsomere III bilobed, two times as wide as tarsomere II in widest part. Onychium curved, moderately and gradually widening apically, 1.5 times as long as tarsomere III. Claws distinctly curved, connate basally, of equal length, not diverging at apex, with parallel posterior margins.

Figs. 25–28. Dorsal view of aedeagus of the *Lixus* spp. 25 – *L. iridis* Olivier, 1807; 26 – *L. divaricatus* Motschulsky, 1861; 27 – *L. recurvus* Olivier, 1807; 28 – *L. davidiani* sp. nov.

Figs. 29–30. Habitat and host plants of *Lixus davidiani* sp. nov. 29 – habitat (Aras Valley, 15 km E of Karakurt); 30 – *Lythrum salicaria* L., host plant of the new species.

First visible *ventrite* weakly depressed medially. Surface of ventrites finely, sparsely and superficially punctate.

Male terminal segments and genitalia. Tergite VIII well sclerotized, elongated and convex, ends narrow U-shaped, immediate before apex flattened (Fig. 6). Sternite VIII contiguous (Fig. 7), hemisternite triangular, inner apical corner bears a group of short setae. Aedeagus (Fig. 8–9) gradually narrowed from base to basal 1/5 in dorsal view, from this part to median orifice parallel-sided, slightly constricted before orifice area, dorsal plate not sclerotized at apical half. Ventral plate distinctly and triangularly narrowed toward apex, 1.35 times as long as orifice windows width. Aedeagus (Fig. 10) strongly curved at basal third in lateral view, then curving slightly and gradually continuing. In ventral view, ventral plate well sclerotized. Spiculum gastrale (Fig. 11) stick-formed, curved and of subequal length with median lobe of aedeagus. Tegmen in form of complete ring (Fig. 12).

Female. Body shape of female (Fig. 13) is similar to male; rostrum distinctly longer than in male (Fig. 14), cylindrical, very slightly constricted before basal half and antennal insertion in dorsal view, 1.40–1.60 times as long as pronotum. Antennae inserted at 0.44–0.45 times length of rostrum from apex. Rostrum weakly curved in lateral view; surface shinning, finely and densely punctuated. Denticles on inner margin of protibia slightly larger than in male, subunci thin, long and sharp on protibia but concealed by a tuft setae projecting unci (Fig. 15). Lobes on tarsomere III slightly longer than in male (Fig. 16). Ventrites more swollen than in male.

Female terminalia segments and genitalia. Tergite VIII V-shaped, basal 2/3 not very well sclerotized (Fig. 17). Apodeme of sternite VIII too short, lateral arms starting near base of apodeme, V-shaped, basal part of lateral arms 1.75 times as long as vertical arms, vertical arms bent inward and upward (Fig. 18). Apex of vertical arms not very well sclerotized and bearing a few short setae. Coxite triangularly narrowed to apex, constituting a cylindrical basement for stylus (Fig. 19), moderately sclerotized toward stylus basement, surface sparsely punctuated, stylus basement bears a thick and long seta starting on inner apical margin and reaching apex of stylus. Stylus long, cylindrical and well sclerotized, apex bears 4–5 erect setae (Fig. 19). Spermatheca C-shaped, ramus longer than collum, apex of cornu obtuse (Fig. 20).

Differential diagnosis. *Lixus davidiani* sp. nov. is closely related to *L. iridis* Olivier, 1807, *L. recurvus* Olivier, 1807 and *L. divaricatus* Motschulsky, 1861. The new species is easily distinguishable from related species by short elytral tails (Figs. 5, 24); parallel-sided aedeagus in dorsal view, and triangular, long and sharp apex (Figs. 7–8, 28). Elytral tails of *L. iridis* (Fig. 21), *L. divaricatus* (Fig. 22) and *L. recurvus* (Fig. 23) are long, whereas they are short in *L. davidiani* sp. nov. (Fig. 24). Aedeagi of *L. iridis* (Fig. 25) and *L. divaricatus* (Fig. 26) are gradually widened from basal third to the median orifice area in dorsal view. Apex of aedeagus of *L. iridis* (Fig. 25), *L. divaricatus* (Fig. 26) and *L. davidiani* sp. nov. (Fig. 9, 28) end triangularly but it is distinctly long in the new species. Aedeagus of *L. recurvus* is parallel-sided and ends downwards as U-shaped (Fig. 27).

Etymology. The name of the new species is in honor of our friend Genrik Davidian (All-Russia Institute of Plant Protection, St. Petersburg).

Bionomics. Habitat of the new species is documented on southern riverbank of Aras Valley in northeastern Turkey. Specimens were collected on stony slope (Fig. 29) with a spring of

water. Five adult individuals were observed on the stems of a bunch of *Lythrum salicaria* (Lythraceae) (Fig. 30) concentrating to feed and making holes at the beginning of June (3rd June 2009). In captivity, two females laid eggs in lower parts of stems.

Distribution. The new species is distributed along the Aras Valley in Nahcivan (Azerbaijan) and northeastern Turkey.

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