Descriptions of immature stages of the weevil *Lixus punctiventris* Boheman, 1835 (Coleoptera, Curculionidae, Lixini)

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Abstract

Last instar larva of *Lixus punctiventris* Boheman is redescribed and illustrated, its pupa is described and illustrated for the first time. Biology of this species is analyzed in association with larval morphology and feeding habits. Overall larval and pupal morphological diagnoses of the genus *Lixus* and larval diagnosis of the tribe Lixini are updated.

Key words: weevils, Lixini, *Lixus*, taxonomy, morphology, chaetotaxy, larva, pupa, bionomics

Introduction

The knowledge of the morphology of mature larvae of the genus *Lixus* is based primarily on the recent studies by Nikulina (2001, 2007) and Nikulina & Gültekin (2011), as well as on some older works of Ter-Minassian (1936, 1943), Scherf (1964) and Lee & Morimoto (1988). Scherf (1964) listed the descriptions of larvae of 14 *Lixus* species, but only 4 of them are at least partially illustrated and can be regarded as detailed. Moreover the pupae have been described (more or less) precisely for only 3 species (Scherf 1964). Most of the hitherto described preimaginal stages are of the species distributed in the Far East or in Central Asia: 9 species (Nikulina 2001) and then 3 more species (Nikulina 2007), while those of the west Palaearctic species are still insufficiently known.

*Lixus punctiventris* Boheman (beetle on figures 1, 4) was for a long time an almost unknown weevil in Poland, with only several mostly old records from southern subregions of the country, and only one discovery after WWII (Burakowski *et al.* 1993; Stachowiak 1999). In 2011 one of us published results of field studies initiated after discovery of this species in 2005 in the Przedborski Landscape Park, and soon after in the neighbouring Świętokrzyskie Mts (Wanat 2011). The weevil appeared relatively common in both studied areas, which was realized after examination of its primary host plants, i.e. *Crepis biennis* L. and *Picris hieracioides* L. The former plant especially revealed approximately 100% presence of the larvae of *L. punctiventris* in every controlled site. In contrast, adult beetles were invariably found only sporadically using standard collecting methods and even by watching the proper plants specifically. Attempts at sweeping fields of the host plants by night did not bring much better results. The beetles turned out to be dedicated epigeic ground-dwellers, generally avoiding climbing vegetation, even their proper host plants.

While the former contribution by Wanat (2011) was focused on general biology and host preferences of *L. punctiventris* in Poland, in the present study we provide detailed morphological descriptions of mature larva and pupa. Although a larval description of this species can be found in Scherf (1964), we find it insufficient and lacking in a number of characters relevant in Lixini, particularly as regards chaetotaxy.

Material and methods

Material examined. POLAND: Chęciny, lat/long 50.8127N/20.4573E, 09.07.2007, pupae (1♂ 2♀♀), larvae (4 mature spec., 1 younger larval instar), leg. M. Wanat. All specimens deposited at collections of Department of Zoology of Maria Curie-Skłodowska University in Lublin.

After compilation of Scherf's (1964) verified descriptions, primarily of *L. paraplecticus*, and our present examination of the pupa of *L. punctiventris*, the following combination of pupal characters can be proposed, as diagnostic for the genus *Lixus*: 1) body slender, elongate, 2) setae on head, rostrum and pronotum placed on small protuberances; 3) thoracic segments II and III each with 6 dorsal setae (*d*); 4) Abl–VIII each with 5 pairs of ventral setae (*v*), 2 pairs of lateral setae and 6–9 pairs of dorsal setae; 5) some dorsal setae on Abl–VIII replaced with thorn-like cuticular protuberances; 6) rostrum with 1–3 pairs of rostral setae (*rs*), and 3–5 pairs of postantennal setae (*pas*); 7) head with 1–2 pairs of orbital setae (*os*), 2–3 pairs of super-orbital setae (*sos*), and 1–2 pairs of vertical setae (*vs*); 8) pronotum with 1–2 pairs of apical setae (*as*), 2–5 pairs of lateral setae (*ls*), 1–3 pairs of discal setae (*ds*), 2 pairs of superlateral setae (*sls*), and 2 pairs of posterolateral setae (*pls*); 9) each femoral apex with 2 setae; 10) pseudocerci very short, triangular, well sclerotized.

Regarding chaetotaxy, analogies between pupae of weevil genera *Lixus* and *Larinus* are observed only in the number of dorsal setae on meso-, metathorax (6 pairs of setae) and Abl–VIII (9 pairs of setae). On the other body parts the number of setae is different in both genera. Moreover, the setae of AblVIII are placed on elongated protuberances in *Larinus* pupae, while it has not been observed in studied *Lixus* pupae. Also the shape of pseudocerci is different in both genera: narrow in *Larinus*, short and triangular in *Lixus*. However, the very poor knowledge on pupae of *Lixini* does not allow us to generalize the differences listed above and this diagnosis must be considered as provisional and requiring confirmation based on a larger species number. Number and shape of pseudocerci is different in both genera: narrow in *Lixus* (Nikulina 2001, 2007); *L. punctiventris* (Bodenheimer, F.S. (1928) Ist *Lixus algirus* L. ein Schädlings. *Zeitschrift für Angewandte Zoologie*, 13, 477–482. http://dx.doi.org/10.1111/j.1439-0418.1928.tb00052.x


References


IMMATURE STAGES OF LIXUS PUNCTIVENTRIS

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