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Contribution to the knowledge of the bionomics of some steppe Westpalaearctic species belonging to tribe Prionini Latreille, 1802, with the description for the first time of the females of *Polylobarthron margelanicum* (Théry, 1896) and *Mesoprionus petrovitzi* (Holzschuh, 1981) (Coleoptera, Cerambycidae, Prioninae)

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Summary

In this contribution, bionomic information is provided for several species belonging to the Prionini tribe : *Polylobarthron margelanicum* (Théry, 1896), Lobarthron balassogloi (Jakovlev, 1885), *Monocladum iranicum* Villiers, 1961 and *Mesoprionus petrovitzi (*Holzschuh, 1981). The female sex for *P. margelanicum* and *M. petrovitzi* is described here, and the occurrence of the species *P. margelanicum* in Kyrgyzstan is reported for the first time.

Résumé

Dans cette note, des informations écologiques sont fournies pour plusieurs espèces appartenant à la tribu des Prionini : *Polylobarthron margelanicum* (Théry, 1896), *Lobarthron balassogloi* (Jakovlev, 1885), *Monocladum iranicum* Villiers, 1961 et *Mesoprionus petrovitzi* (Holzschuh, 1981). Le sexe femelle de *P. margelanicum* et de *M. petrovitzi* est décrit et la présence de *P. margelanicum* au Kirghizistan est signalée pour la première fois.

Key words

Coleoptera, Cerambycidae, Prioninae, Prionini, *Polylobarthron margelanicum, Lobarthron balassogloi, Monocladum iranicum, Mesoprionus petrovitzi*, palaearctic region, Uzbekistan, Iran, Kyrgyzstan, new country record, bionomy, female description.

Introduction

The fauna of the Prioninae of the central part of Palaearctic area is rich in species that live in the forest-steppe, steppe and desert natural formations. Such species occur at altitudes from –50 (Turpan Depression, Xinjiang, China) to almost 3.500 meters above sea level in several areas in Iran, Afghanistan and Xizang (China).

In those areas, the time of their occurrence is very much influenced by the atmospheric conditions which are often variable from one year to another. Individual species can be found in such a time interval of four months. For these reasons, some species are often caught by accident.

The first author has observed the behavior of several species of this group belonging to the Prionini tribe Latreille, 1802 over many years. Based on the results obtained, bionomic information could be related for the species *Polylobarthron margelanicum* (Théry, 1896), *Lobarthron balassogloi* (Jakovlev, 1885), *Monocladum iranicum* Villiers, 1961 and *Mesoprionus petrovitzi* (Holzschuh, 1981). We also described for the first time the female sex for *P. margelanicum* and *M. petrovitzi.* Finally, this study has lead us to provide a new country record for *P. margelanicum* in Kyrgyzstan.

Collections examined

ADC : collection Alain Drumont, Brussels, Belgium.

JLC : collection Jiri Lorenc, Chomutov, Czech Republic.

Polylobarthron margelanicum (Théry, 1896) (Figs 1-3)

Distribution. – Southern Kazakhstan and eastern Uzbekistan (Plavilstshikov, 1936; Drumont & Komiya, 2010). The species was not mentioned for Kyrgyzstan by Ovtchinnikov (1996) but has been collected in north-western part of this country by the first author in two localities (see below). Then, based on the data presented here, Kyrgyzstan can be added to the distribution range of *P. margelanicum* (first record).

Material studied. – Uzbekistan : 36 females, Aktash, about 1260 m. in alt., 14 km N. Gazalkent, 70 km NE Toshkent, E. Uzbekistan, 29-VI/14-VII-1988, J. Lorenc sen. and jun. *leg*., *in* JLC; 1 female, same locality and date, *in* ADC; 12 females, same locality, 10-VI/27-VI-1989, J. Lorenc sen. *leg*., *in* JLC. Kyrgyzstan : 3 males, 2 females, Chatkal riv., Naysa, 41°35'N-70°22'E, 3000 m., on light, VIII-1992, *leg*. J. Lorenc sen., *in* JLC; 1 male, 1 female, same locality and date, *in* ADC; 12 males, 3 females, 10 Km NE Besharal, 2250 m., VIII-1992, *leg*. J. Lorenc sen., *in* JLC; 1 male, 1 female, same locality and date, *in* ADC.

Description of the female. – (Figs 2-3). Distinctly different from the male (Fig. 1). Body dark brown, nearly black, or light brown, darker on mandibles, eyes, pronotum and scutellum.

Head relatively with moderately rough sculpture and, mainly on the sides and underside with sparsely light yellow pubescense; vertex and antennal tubercles deeply punctured, mandibles long, sharply arcuate inwards, closely punctured along external margins.

Antennae (fig. 3) 14-segmented, short, reaching posterior border of first elytral quarter, segment 3-14 serrate, sparsely coarsely punctured, 3th joint as long as the three following segments together.

Prothorax about 2 times wider than long, pronotum strongly convex, glabrous, with sparsely and finely punctured, anterior and posterior teeth distinct, rounded, middle lateral teeth usually long and sharp.

Scutellum about 2 times wider than long, finely punctured.

Elytra about 1,3-1,5 times long as wide, widest at about middle, on base wrinkled, densely and deeply punctured throughout, furnished with small sutural teeth.

Legs slender, covered with long yellow setae on the most parts. Tarsi narrow and rather long, tarsi lobes finely punctured and with long spines, claws about as long as first and second tarsal joint together.

Ventral surface from dark brown to light brown, with long yellow setae on the most parts, prosternum and mesosternum deeply punctured, metasternum sparcely punctured, last abdominal tergit rounded.

Body length from mandibles to apices of elytra : 24-36 mm.

Remarks. – The females of *Polylobarthron margelanicum* are close to those of *Lobarthron balassogloi* (see next species treated in this paper) but easily distinguished by the antennae. The females of *L. balassogloi* have only 12-segmented antennae, segment 6-12 serrate, with the 3th joint not as long as three following segments together (Fig. 6.)

Bionomy. – Aktash village is located in Boskanlyk district of Toshkent province in Eastern Uzbekistan. It is situated on the southern slopes of the Karjantau ridge of the West Tien Shan. Close to the village are sparse vegetation composed with *Pyrus, Crataegus, Amygdalus, Pistacia, Acer, Juniperus* and other rich flora (include many endemics).

On 3-VII-1988 evening, a hole was found in the ground, close to 0,5 m from a shrub and with a diameter of 18-20 mm. Pointing straight down the tunel, it was noted a length of 25-30 cm with at the end a horizontal oval cavity of 60x40 mm. In this cavity was found a female of *P. margelanicum*. In the next few days, on the same locality, we made the following observations:

- larvae of *P. margelanicum* live in the ground at a depth of 15-40 cm and outside eating the roots of shrubs of various kinds,

- larvae before pupation creates not only pupal chamber, but also the vertical passage to the surface, wheren in place of the solid surface (for example paths of sheep or goats) leaves a layer of soil of thickeness about 3-5 mm. As beetles make holes in the solid surface, the edges of the holes must not crumble, this is suitable for close-packed trails from animals,

- hatching time depends on the altitude and the life cycle of beetles is not long (10-14 days : males 10-14, females 5-10),

- beetles after hatching break through the remaining layer of soil, and males depart and starts to fly while the females return to pupal chamber,

- mating takes place in the female pupal chamber (found 16 pairs in copulation),

- females lay directly in the chamber, where they become prey for several species of scorpions and spiders,

- females never leaves from the ground, after several days of dust and plant debris opening closed and so is not clear that there was the culmination of a life cycle of the species,

- males can thus be found under the lights, in flight or dead, but the females never.

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Figs 1-2. *Polylobarthron margelanicum* (Théry, 1896), habitus, dorsal view. Fig. 1. Male (34 mm). Fig. 2. Female (28 mm). Fig. 3. *P. margelanicum*. Female, left antenna, lateral view.

***Lobarthron balassogloi* (Jakovlev, 1885)** (Figs 4-6)

Distribution. – Eastern Uzbekistan, northwest Kyrgyzstan & southern Kazakhstan (Drumont & Komiya, 2010; Danilevsky, 2012).

Material studied. – 8 males, 12 females, Chimgan env., 1580 m. in alt., 40 km E. Gazalkent, 70 km NE Toshkent, E. Uzbekistan, 11/14-VII-1988, J. Lorenc sen. and jun. *leg*., all specimens *in* JLC.

Bionomy. – Chimgan village in Toshkent province of Uzbekistan is located in alt. 1520-1600 m. of West slopes of the Chatkal range of the West Tien Shan. Habitat type is similar to the previous reported for *P. margelanicum*, but with less overgrown bushes and more grassy. Development cycle is also similar to the previous species with these differences observed :

- vertical length of the passage between the surface and the pupal chamber is a little shorter, and then the location of a pupal chamber is not so deep, only 12-15 cm below the soil surface,

- in one case, in the female cavity were found two males, which was not occuring in the preceding species,

- one female was found slowly moving through the soil in the vicinity of the hole. Due to the short time of observation it is currently impossible to answer to the question of whether females of *L. balassogloi* normally leave the ground or just in case of expulsion by males of the female pupal chamber.

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Figs 4-5. *Lobarthron balassogloi (*Jakovlev, 1885), habitus, dorsal view. Fig. 4. Male (31 mm). Fig. 5. Female (33 mm). Fig. 6. *L. balassogloi*. Female, left antenna, lateral view.

Remarks. – Recently, Danilevsky (2012) recognised two subspecies in the species *L. balassogloi* :

- the nominative subspecies, described by Jakovlev (1885), is characterised by very long and narrow antennal lamellae and relatively dense and rough pronotal punctuation. The subspecies

balassogloi ssp. *balassogloi s. str.* includes all populations from Chimgan Mt. and Chatkal Ridge in Uzbekistan. The specimens studied by the first author for this contribution correspond to this subspecies ;

- the subspecies *balassogloi* ssp. *brevispinum*, also described by Jakovlev (1885), is characterised by wide and short antenna lamellae, that makes antennae rather thick, and by pronotum with large smooth areas. *L. balassogloi brevispinum* is distributed in Uzbekistan (west of Ugam Ridge and west part of Pskem Ridge), in Kyrgyzstan (Besh-Aral Natural Reserve) and in Kazakhstan (Karzhantau Ridge) (Danilevsky, 2012).

***Monocladum iranicum* Villiers, 1961** (Figs 7-8)

Distribution. – Southeastern part of Iran.

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Figs 7-8. *Monocladum iranicum* Villiers, 1961, habitus, dorsal view. Fig. 7. Male (36 mm). Fig. 8. Female (40 mm).

Material studied. – 1 male, Dalfard, about 2630 m. in alt., 65 km NW Jiroft, Kerman district, SE Iran, 30-VI-2008, *in* JLC; 40 males, 10 females, Sarbezhan, about 2810 m. in alt., 10 km NW Dalfard, 8/12-VII-2008, *in* JLC; 8 males, 1 female, same locality and date, *in* ADC; 10 males, 8 females, same locality, 12-15-VII-2010, all J. Lorenc *leg.*, *in* JLC.

Bionomy. – The locality is situated on southwestern slopes of central part of the Kuh-e Gebal Barez Mts. Slopes are covered with steppe vegetation (dominated by *Pistacia* sp.) where *M. iranicum* develops in the shallow roots of various plants. Around 20 hours time, adult males start to fly to search for females or are already climbed to just wade through the females on the surface soil layer. Important condition is loamy soil free from stone rubble. The gathering of

males was observed in very near at the climbing females that had not been seen. Mating occurs immediately. After a few hours, the abdomen of females, which after hatching is larger than the body, start to reduce to reach later the usual size as observed in females of other desert Prioninae species. The life cycle of females is not long, it was estimated about 5-8 days.

***Mesoprionus petrovitzi* (Holzschuh, 1981)** (Figs 9-10)

Distribution. – Southeastern part of Iran.

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Figs 9-10. *Mesoprionus petrovitzi* (Holzschuh, 1981), habitus, dorsal view. Fig. 9. Male, (45 mm). Fig. 10. Female (49 mm) (all specimens illustrated in Jiri Lorenc coll.).

Material studied. – 1 female, Sarbezhan vill., about 2810 m in alt., 10 km NW Dalfard, 75 km NW Jiroft, Kerman district, SE Iran, 10-VII-2008, J. Dalihod *leg*., *in* JLC.

Description of the female. – (Fig. 10). Body dark brown, head and mandibles nearly black, palpes, eyes, antennae, tibiae and tarsi lighter, the underside black, abdomen shiny. The surface of the body wrinkled except for palpes, antennae and legs, which are punctured.

Head relatively very rough sculpture, with rather separated eyes, frons only slightly impressed, finely wrinkled, antennal sockets smooth on the edge, mandibles long, sharply arcuate inwards, coarsely punctured along external margins, with sparsely long yellow setae, labrum with long yellow setae, gula coarsely punctured, genae wide and glanced, maxillary palpus light brown, setaceous and with extended last segment, which is longer than wide.

Antennae with 12 segments, reaching the middle of the elytra length, segments 1 strongly pointed and oblique at apex, segment 2 very short, pointed and conical, segment 3 1,25 times longer than the first, sparsely and coarsely punctured, with external spine at apex,

fourth to sixth with two spines, finely punctured, seventh to eleventh with one spine, sixth to twelfth slightly wrinkled.

Pronotum rather flat, glabrous, with coarsely wrinkled, in the middle about 2 times wider than long including spines. Median lateral tooth longer and strongly curved posteriorly.

Scutellum about 2 times wider than long, coarsely punctured and rounded posteriorly.

Elytra almost twice longer than wide, parallel, wrinkled and deeply punctured troughout, finely shiny, furnished with very small rectangular sutural tooth, not covering whole abdomen.

Legs rather stronger, femora sparsely punctate, tibiae and tarsi long, from ventral side with dense light brown pubescence, finely punctured, tarsal lobes with long spines, claws about as long as second and third tarsal joint together, tarsi and tarsal claws with dorsal short yellow setae.

Ventral surface with long brown setae on the most parts, prosternum and mesosternum deeply punctured, metasternum sparcely finely punctured, last abdominal tergit rounded.

Body length from mandibles to apices of abdomen : 58 mm.

Bionomy. – The development occurs in the roots of shrubby *Pistacia* sp. The female was found under a slight drizzle around 19 hours sitting on the tree at a height of about 50 cm and attracting males by periodic streitching and shrinking of ist abdomen. In the soil, near the roots was an oval hole with the dimensions noted of 20-30 mm. At a distance about of 3 meters from that tree, was also found a male of *P. petrovitzi* to female running.

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References consulted

Danilevsky (M. L.), 2004. – Review of genus *Pogonarthron* Semenov, 1900 with a description of a new species (Coleoptera, Cerambycidae). *Les Cahiers Magellanes,* 40.

Danilevsky (M. L.), 2012. – *Additions and corrections to the new Catalogue of Palaearctic Cerambycidae* (Coleoptera) edited by I. Löbl and A. Smetana, 2010. Part. VI. *Humanity space, International almanac*, vol. 1, No 4: 900-943.

Drumont (A.) & Komiya (Z.), 2010. – *Cerambycidae: Prioninae. Catalogue of species* [pp. 86-95] *in* Löbl I. & Smetana A. Catalogue of Palaearctic Coleoptera, volume 6. Chrysomeloidea. Löbl I. & Smetana A. Eds, Apollo Books, Stenstrup, Denmark, 924 pp.

Gressitt (J. L.), 1951. – Longicorn beetles of China. *Longicornia*, 2, éd. Paul Lechevalier, Paris : 667 pp.

Heyrovsky (L.), 1939. – Weiterer Beitrag zur Kenntnis der Asiatischen Cerambyciden. *Casopis Spol. Ent.*, 36(1-2): 27-29.

Holzschuh (C.), 1981. – Zwanzig neue Bockkafer aus Asien. (Cerambycidae, Col.). *Koleopterol. Rundschau*, 55 : 91-112.

Jakovlev (B. E.), 1887. – Révision des espèces du genre *Prionus* de la faune de la Russie. *Horae Soc. ent. Ross.*, 21 : 321-340.

Kabakow (O. N.) & Dolin (W. G.), 1996. – Eine neue *Prionus*-Art aus Afghanistan (Coleoptera: Cerambycidae). *Z. Arb. Gem. Ost. Ent.*, 48 : 45-48.

Lameere (A.), 1912. – Révision des Prionides. Vingtième mémoire - Prionines (VII). *Ann. Soc. Ent. Belg.*, 56 : 185-260.

Ovtchinnikov (S. V.), 1996. – [Fam. Cerambycidae – longicorn-beetles.]- *In* : Genetical fund cadastre of Kyrghyzstan. Vol. 3. Superclassis Hexapoda (Entognatha and Insecta). Bishkek : 160-163. [in Russian]

Plavilstshikov (N. N.), 1936. – Cerambycidae (P. 1). Faune de l´URSS, Insectes Coleoptéres, 21: 612 pp.

Pu (F. J.), 1987. – Coleoptera Cerambycidae. *In* : Agricultural insects, spiders, plant diseases and weeds of Xizang, Vol. II, 89-97.

Villiers (A.), 1961. – Sur le genre *Monocladum* Pic (Cerambycidae, Prioninae, Prionini). *Bull. de l'I.F.A.N.*, série A, 23(2) : 445-451.