

Description of three new species of the tribe Trechini (Col.: Carabidae) from south Iran

J. Muilwijk^{1&*} and R. Felix²

1. Utrechtsseweg 384, 3731 GE De Bilt, The Netherlands, 2. Hazelaarlaan 51, 5056 XP Berkel Enschtot, The Netherlands, E-mail: R.Felix3@kpnplanet.nl

*Corresponding author, E-mail: J.Muilwijk@dddeee.com

Abstract

Two new species of the genus *Duvalius* Delarouzeé from south west Iran and one new *Perileptus* Schaum from south east Iran are described. *Duvalius koeni* sp. n. was collected in Khuzestan and *Duvalius mohammadzadehi* sp. n. in Fars. The species are compared with *D. hetschkoi matilei* Deuve. *Perileptus jelineki* sp. n. was collected in Baluchestan and Hormozgan, and compared with other *Perileptus* species of Iran and Afghanistan.

Key words: *Duvalius*, *Perileptus*, Trechini, Carabidae, Iran

چکیده

در این مقاله دو گونه‌ی جدید از جنس *Duvalius* Delarouzeé از جنوب غربی ایران و یک گونه‌ی جدید از جنس *Perileptus* Schaum از جنوب شرقی ایران توصیف شده‌اند. گونه‌ی *Duvalius koeni* sp. n. از خوزستان و گونه‌ی *Duvalius mohammadzadehi* sp. n. از فارس جمع‌آوری شد. این گونه‌ها با *D. hetschkoi matilei* Deuve مورد مقایسه قرار گرفته‌اند. گونه‌ی *Perileptus jelineki* sp. n. از بلوچستان و هرمزگان جمع‌آوری شد و با گونه‌های دیگر این جنس از ایران و افغانستان مقایسه گردید.

واژگان کلیدی: *Duvalius*, *Perileptus*, Trechini, Carabidae, ایران

Introduction

Deuve (2000) described the first *Duvalius* species from Iran, *Duvalius hetschkoi matilei*, which had been collected from Bushehr province near the Persian Gulf. *Duvalius koeni* sp. n., a macropteran *Duvalius* species, was collected in 1977 during the Czechoslovak-Iranian entomological expedition in the southern part of the Zagros Mountains. According to the description of Hoberlandt (1983), beetles were captured at this collecting place by hand and by light trap. Unfortunately, it is unknown if this macropteran *Duvalius* species was also captured by light. Another individual was recently collected under a stone at the border of a little temporary lake, also, in the southern part of the Zagros Mountains.

Duvalius mohammadzadehi sp. n. was collected near Estahban in the east of Fars province at an altitude of about 2050 m. Two specimens were captured in considerable deposits of dead leaves along a brook, at the mountain chains in this area.

Three species of the genus *Perileptus* Schaum are hitherto known from Iran. Among the collected material of the Czechoslovak-Iranian entomological expeditions, a 4th undescribed *Perileptus* species, *P. jelineki* sp. n. is here described from Sistan-Baluchestan and Hormozgan provinces.

It is worth mentioning that for all three new species, body length is measured without mandibles.

***Duvalius (Duvalius) koeni* sp. n.**

(Figs 1-2)

Type material – Holotype (male): SW Iran, Pole-e Tang, 60 km NW Andimeshk, 10-11.IV.1977, Loc. No. 284, Exped. Nat. Mus. Praha. Paratypes: 1 ♂, 1 ♀, the same data as holotype; 1 ♀, Khuzestan, Izeh, 1.IV.2007, Muilwijk leg. Holotype and two paratypes *in coll.* National Museum Prague, Czech Republic, Department of Entomology; one female paratype *in coll.* Muilwijk.

Description – A medium sized *Duvalius* species; body length: males 4.6-5.2 mm, females 5.0 - 5.2 mm. Dorsum testaceous-reddish brown; palpi, legs and antennae yellow.

Head as long as wide (length and width 0.95 mm), narrower than pronotum (head width/pronotum width 0.8), and as long as pronotum (head length/pronotum length 1.01). Eyes salient, round (0.3 mm), temples almost straight, near neck slightly convex, frontal furrows distinct, deepest in middle, gradually widened anteriorly and posteriorly. Antennae long (3.6 mm) and filiform, reaching over middle of elytra, antennae from third antennomere onward pubescent, antennomeres III–VII with equal length.

Pronotum cordate, constricted toward base, lateral sides strongly sinuated before protruding hind angles, hind angles acute. Length 0.95 mm, width before middle 1.18 mm, posteriorly 0.8 mm. Marginal bead of pronotum posteriorly ending in basal foveal impression, one seta before the middle and one seta in the posterior angle, median furrow distinct, basal fovea moderately deep, ending in a deep oval shaped furrow at the base.

Elytra discoid, shoulders subrounded, with 8 punctured striae, striae I-III impressed, stria VIII superficially and incomplete. First elytral puncture in the elytral interval III, the second puncture in stria III and the third puncture in interval II. Striae III and IV bend to each other shaping an X-like figure at the place of the first elytral puncture. Series umbilicata with four humeral setae at equal distance, two lateral setae and two apical setae, elytra length 2.9 - 3.3 mm, width 1.8 - 2, 1 mm. Macropterous.

Microsculpture (magnification 40×) comprising isodiametric meshes at labrum and posterior margin of head, no visible microsculpture on pronotum and elytra. Pronotum and head shiny.

Foretibia on anterior innerside with a few erected short setae, grooved. Aedeagus as in fig. 2.



Figures 1-2. *Duvalius koeni* sp. n.: 1. habitus, dorsal view; 2. aedeagus.

Sexual differences – No sexual differences, except the two broadened first two tarsomeres of the male, and the more pronounced microsculpture on head of female.

Differential diagnosis – This new species resembles *D. hetschkoi matilei*, but differs by form of aedeagus, and distinctly smaller eyes (compared with cotype).

Distribution and habitat – Hoberlandt (1983) describes the habitat of the holotype and two paratypes as a deep lateral valley with grassy terraces and with scarce growth of *Quercus brantii*. The paratype near Izeh city in Khuzestan province was collected under a stone at the border of a little temporary lake along a rock wall.

Etymology – This species is dedicated to Koen, son of the first author, who made an excellent faunistic computer program and contributed much to the collection of the first author.

***Duvalius (Duvalius) mohammadzadehi* sp. n.**

(Figs 3-4)

Type material – Holotype (male): Iran, Fars, Estahban, 25.IV.2006, leg. J. Muilwijk. Paratype: female, the same data as holotype. Holotype *in coll.* National Museum Prague, Czech Republic, Department of Entomology; Paratype *in coll.* Muilwijk.

Description – A medium sized *Duvalius* species; body length: male 5.0 mm, female 4.8 mm. Dorsum testaceous; palpi yellow; legs and antennae testaceous.

Head much wider than long (length 0.88 mm, width 0.95 mm), narrower than pronotum (head width/pronotum width 0.83), nearly as long as pronotum (head length/pronotum length 0.97). Eyes medium sized, round (0.2 mm), temples almost straight, frontal furrows deep anteriorly and shallow posteriorly. Antennae 3.6 mm, reaching middle of elytra, antennae

from second half of third antennomere onwards pubescent, antennomere III and IV almost with equal length, from fifth antennomere onwards gradually shorter.

Pronotum cordate, constricted toward base, lateral sides strongly sinuated before hind angles, hind angles acute, upwards directed. Length 0.9 mm, width before middle 1.15 mm, posteriorly 0.8 mm. Outer margin of pronotum anteriorly broader, disappearing before hind angles with 1 seta before the middle and 1 seta in the posterior angle, median furrow at the base debouched into a broad oval shaped deep furrow, basal fovea deep.

Elytra discoid, shoulders rounded, with seven punctured striae, from middle to sides less impressed and incomplete, striae V and VI superficially, stria VII hardly visible and only indicated by some vague punctures. First and second elytral puncture in stria III, third puncture near stria II, series umbilicata with four humeral setae at equal distance, two lateral setae and two apical setae, elytra length 3.0 mm, width 1.9 mm. Apterous.

Microsculpture (magnification 40×) comprising isodiametric meshes at posterior margin of head, no visible microsculpture on pronotum and elytra. Pronotum a little bit shiny.

Protibia on anterior inner side with setae, grooved. Aedeagus as in fig. 4.



Figures 3-4. *Duvalius mohammadzadehi* sp. n.: 3. habitus, dorsal view; 4. aedeagus.

Sexual differences – No sexual differences, except the first two broadened tarsomeres of the male, female is not completely matured.

Differential diagnosis – This new species differs from *D. hetschkoi matilei* and from *D. koeni* sp. n. by the absence of wings, smaller eyes, less visible striae on elytra, and form of the aedeagus. No other wingless *Duvalius* species has hitherto been described from south-west Iran.

Distribution and habitat – This species is only known from the collecting place and is found in deposits of dead humid leafs along the brook. Possibly the species also lives in the nearby cave.

Etymology – This species is dedicated to Sara Mohammadzadeh, an entomologist of the Natural History and Technology Museum of Shiraz University. Sara stimulated the interest of first author in the Iranian carabid fauna, and during his visits in Fars province, he enjoyed her overwhelming hospitality and help.

Remarks – In the northern part of Fars province about 20 km north of lake Kafer, another wingless *Duvalius* specimen was collected along a river. Only one female was collected. Most probably this specimen belongs to another species because the eyes are smaller than in *D. mohammadzadehi* sp. n.

***Perileptus (Perileptus) jelineki* sp. n.**

(Fig. 5)

Type material – Holotype (male): SE Iran, 13 km SSE Nikshahr (riv.), 8-9.IV.1973, Loc. No 152, Exp. Nat. Mus. Praha. Paratypes: 1 ♂, S Iran, Minab, 19-20.V.1973, Loc. No 203, Exp. Nat. Mus. Praha; 1 ♀, the same data as holotype. Holotype and one paratype *in coll.* National Museum Prague, Czech Republic, Department of Entomology; one male paratype *in coll.* Muilwijk.

Description – A small *Perileptus* species; body length 2 mm. Dorsum testaceous; palpi, legs and antennae yellowish.

Head frontal furrows deep, supraorbital area and frons with a few punctures, labrum with a distinct central tubercle, head wider than long (length 0.38 mm, width 0.45 mm), smaller than pronotum (head length/pronotum length 0.84). Eyes salient, round (0.19 mm), short, convex and almost perpendicular to the neck (eye length/temple length 2.6). Antennae short (1.0 mm), not reaching the middle of elytra, antennomere III about 2.2 times longer than wide. Superficial microsculpture is restricted to the posterior margin.

Pronotum subcordate, constricted toward base, lateral sides sinuate, hind angles blunt, base near hind angles oblique laterally, with a distinct median furrow. Marginal bead of pronotum narrow. Pronotum wider than long (length 0.44 mm, width 0.50 mm), apex wider than base. Pronotum punctuate with a few laying white hairs along the marginal sides, a little bit shiny with superficial microsculpture.

Elytra with six visible striae, stria I reaches the apex. Striae I-VI with punctures at the base, punctures in stria V are deepest, stria VI short with superficial punctures. The punctures

in the striae shift from the apex to the base of elytra from striae I to V, the punctures in striae I and II cross the middle, the punctures in stria V don't cross the middle of the elytra. Elytral intervals with scarce laying white pubescence. Elytra a little bit shiny, with unclear isodiametric microsculpture. Elytra rather wide (elytral length/elytral width 1.73). Macropterous.

The aedeagus not visible.

Sexual differences – Female with dense short light erected hairs on elytra, and scarce short light erected hairs along marginal sides of pronotum, temples and supraorbital area of the head. Elytra dull, transverse microsculpture distinctly visible.



Figure 5. *Perileptus jelineki* sp. n., habitus, dorsal view.

Differential diagnosis – This new species differs by its length from the other *Perileptus* species in Iran; also, from *P. robustus* Jeannel by the absence of sharp hind angles of pronotum, from *P. areolatus* Creutzer by coloration, from *P. jedlickai* Uéno by the form of pronotum and the absence of dent on clypeus margin. *P. jelineki* sp. n. differs by the length and form of pronotum from *P. mesasiaticus* Uéno from Afghanistan and Central Asia.

Distribution and habitat – This new species was collected at two places in the south and south east of Iran. At location 152, along the Nikshahr river, *P. jelineki* sp. n. was found together with *P. robustus*, *P. jedlickai* and *Neoblemus glazunovi* Jeannel.

Etymology – This species is dedicated to Dr J. Jelínek, one of the entomologists of the Czechoslovak-Iranian entomological expeditions and former director of the National Museum Prague, Czech Republic, Department of Entomology.

Remarks – The description of *P. jedlickai* by Uéno (1976) was based on the only known female, represented in figure 1. During the Czechoslovak-Iranian entomological expeditions, more than 350 specimens of *P. jedlickai* were collected in the south of Iran. Males of *P. jedlickai* have only few laying hairs on the elytra in contrast with the dense pubescence of the female.

Acknowledgements

We thank Mr. Jiří Hájek, Department of Entomology, National Museum Prague, for loaning material of the Czechoslovak-Iranian entomological expeditions and Mr J. van Tol, Museum Naturalis, Leiden, for the appreciated help with photographing.

References

- Deuve, T.** (2000) La vie deserticole dans le genre *Duvalius* Delarouzée, 1854. Description d'une forme macroptère du Golfe Persique (Coleoptera, Trechidae). *Revue Francaise d'Entomologie (Nouvelle Serie)* 22, 159-163.
- Hoberlandt, L.** (1983) Results of the Czechoslovak-Iranian entomological expeditions to Iran. Introduction to the third expedition 1977. *Acta Entomologica Musei Nationalis Pragae* 41, 5-24.
- Uéno, S. I.** (1976) A note on *Perileptus jeanneli* Jedlicka, nec Darlington (Coleoptera, Trechinae). *Bulletin of the National Science Museum, Tokyo (A)* 2, 183-187.

Received: 18 November 2007

Accepted: 23 July 2008