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Redescription of *Pachybrachis pentheri* (Coleoptera: Chrysomelidae: Cryptocephalinae), a Little Known Endemic Species from Turkey, with Notes on New Distribution Localities and Habitat

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ABSTRACT

Pachybrachis pentheri Ganglbauer, 1905 (Coleoptera: Chrysomelidae: Cryptocephalinae) is a rare and insufficiently known taxon which is described from central Anatolia (Kayseri province). The species was not reported since its original description in 1905 and its validity was controversial. The species is reported here for the second time based on samples collected from Central and Southwestern Anatolia and also redescribed on the basis of 20 specimens (16♂♂, 4 ♀♀) collected from Kızıldağ National Park, Isparta Province (Turkey). Photographs of the habitus and genital structures are presented. Habitat preference and a map of the current known distribution localities of the species are also provided for the first time.

Key words: Coleoptera, Chrysomelidae, Cryptocephalinae, *Pachybrachis pentheri*, redescription, taxonomy, Turkey.

INTRODUCTION

The genus *Pachybrachis* (s. str.) Chevrolat, 1837 comprises about 150 species in the Palaearctic Region and 23 of them are distributed in Turkey, seven of which are also endemic to Turkey (Sassi and Kısmalı, 2000; Warchałowski, 2008; Lopatin *et al*., 2010; Schöller, 2010). These species are as follows, in alphabetical order: *P. adaliensis* Weise, 1886, *P. anatolicus* Lopatin, 1985; *P. bodemeyeri* (Weise, 1906); *P. humeralis* Burlini, 1956; *P. pentheri* Ganglbauer, 1905; *P. velarum* Warchałowski, 1998 and *P. warchalowskii* Lopatin and Nesterova, 2010.

Among these species, *P. pentheri* was described by Ganglbauer (1905) on the basis of eight specimens (6♂♂, 2♀♀) collected from Mount Yılanlı, Kayseri province (Turkey); however, no figures of aedeagus and spermatheca of the species were given in its original description. Also, there was no data on the habitat and host plant preference of the species until now (Sassi and Kısmalı 2000). As far as we are aware, *P. pentheri* was not reported for more than 100 years since its original description. So, the species was known only from its type locality up to now.

During the faunistic surveys of the phytophagous beetles in Southwestern Turkey in 2010, the samples of this poorly known species were collected from Kızıldağ National Park, Isparta province (Turkey). This interesting rediscovery gave us the opportunity to re-examine the species. Consequently, the aims of this study are i) to present a detailed redescription of *P. pentheri* which is endemic to Turkey; ii) to provide new taxonomical (especially spermatheca) and geographical data about the species.

MATERIAL AND METHODS

This study was based on 20 specimens of *Pachybrachis pentheri* collected from Kızıldağ National Park, Isparta. The habitus and genital features are photographed by Camedia C-5060 digital camera attached to the Olympus SZX12 stereomicroscope. The specimens are deposited at the Department of Biology, Faculty of Arts and Science, Süleyman Demirel University, Isparta.

RESULTS

***Pachybrachis pentheri* Ganglbauer, 1905** (Figs. 1a–d, 2)

Material examined. Turkey, Isparta province, Kızıldağ National Park (38°01′N, 31°36′E), 1800 m a.s.l., 8.VII.2010, 3♂♂, same locality, 22.VII.2010, 13♂♂, 4♀♀.

Redescription. Male (Fig. 1a). Total body length: 2.2-2.5 mm.

Head. Generally black, with bipartite yellow stripes (divided in the middle) extending along the inner margin of each eye and a yellow triangular pattern between the antennal sockets; clypeus yellow, mandibles and maxillary palpi brownish; vertex, frons and clypeus densely and distinctly punctated; frons and labrum covered with long yellowish hairs; first five antennomeres black dorsally and yellow ventrally, the remaining segments completely black; antennal segment ratios: 12:7:8:13:15:15:15 :15:15:14:17.

Pronotum. Yellowish, with M-shaped black pattern; convex; about 1.5 times wider than its length at base; lateral margins not visible dorsally; surface hairless, finely and densely punctate.

Scutellum. Black; obtusely triangular, apically truncate, almost as long as its width; glabrous; finely and rarely punctate.

Elytra. Parallel-sided; nearly 1.2 times as long as its width; straw coloured, each elytron with a longitudinal black band parallel to elytral suture and 3 black spots (one humeral, one median and one apical) near lateral margins, elytral suture with a thin black stripe; elytral surface glabrous; covered with coarse, dense and irregular punctures except apex, elytral punctures larger than pronotal punctures; humeral tubercles prominent; lateral margins narrow, not visible from above.

Venter. Ventral side black, with a yellow band extending along the last abdominal sternite and tergite; covered with long, dense and whitish hairs; last abdominal sternite with a deep depression in the middle, surface of depression without hairs.

Legs. Yellowish, except dark brownish apical parts of the tarsal segments.

Aedeagus. Apex of aedeagus rounded, with a short tooth and ventral side of aedeagus laterally curved at angle with long erected hairs (Figs. 1b-c).

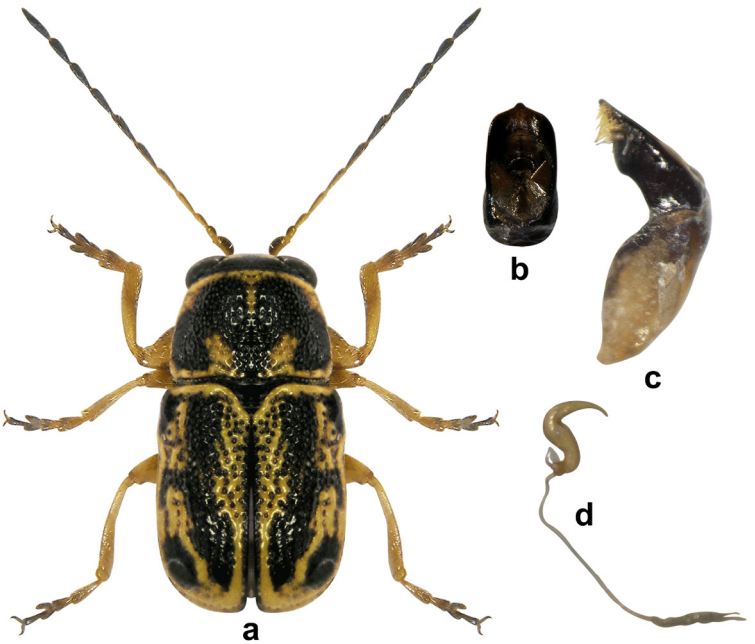

Fig. 1. *Pachybrachis pentheri* Ganglbauer, 1905. a. Habitus (male); b, c. Aedeagus; dorsal and lateral view; d. Spermatheca.

Female. Resembling males, except for the following characters: Total body length is 2.6-2.8 mm; the yellow band on the last tergite divided into two parts, without depression in the middle; the punctures on dorsal surface nearly the same size and pronotal punctures denser than punctures of elytra; antennal ratio: 12:7:8:11:12:12 :12:12:12:11:14.

Spermatheca. Yellow, hook-shaped, ductus rather long and wider at the end (Fig. 1-d).

Variation. The colour patterns of both males and females of *P. pentheri* are quite variable in shape and size. The yellow triangular pattern between the antennal sockets is reduced in some specimens. Ganglbauer (1905) stated in the original description that there is a yellow dot on the apical part of the scutellum of some samples; however, it is completely black in our samples. Each elytron generally yellowish with a longitudinal black band and 3 black spots; however, black spots on elytra fuse with longitudinal stripe in some specimens. In its original description, Ganglbauer (1905) stated that the longitudinal black band divided into 3 parts on the posterior half and 3 black spots are smaller or disappeared in some samples. Ventral parts generally black in our samples; but in the original description, Ganglbauer (1905) noted a yellow stripe on the mesoepimeron.

Distribution. Central Anatolia: Ankara, Eskişehir (personal communication with Dr. Jiří Hájek, Prague; see discussion), Southwestern Turkey: Isparta. All known localities of the species are given in the map (Fig. 2).

Bionomy. The specimens of *P. pentheri* were collected from an open area (1800 m a.s.l.) near the peak of the Kızıldağ located in the Kızıldağ National Park. The location where the beetles were collected has typical Mediterranean climate features. The floral composition of the area was especially dominated by species belonging to Poaceae which are covering nearly 60 % of the area. Adult *P. pentheri* specimens were collected from grass by sweep-netting, but the host plant of the species could not be determined.

DISCUSSION

The genus *Pachybrachis* (s. str) of the Palearctic Region was reviewed by Warchałowski (2008). In this study, Warchałowski (2008) emphasized that whether *P. pentheri* is a valid species or not should be questioned. Although *P. pentheri* was given in the identification key of this review, the author suspected that *P. pentheri* may be conspecific with *P. scripticollis* Falderman, 1837, because the black patterns on the upper side of these two species very closely resemble each other. This opinion was a result of the absence of aedeagal features in the original description of the species, and probably Warchalowski (2008) overlooked Sassi and Kısmalı (2000) in which *P. pentheri* was given as a valid species. Recently, Lopatin and Nesterova (2010) studied the museum specimens of both species and revealed that the aedegal forms of both species were different from each other. They also presented a key to distinguish these species including the aedeagal characteristics. In addition to this, the spermatheca, one of the most useful diagnostic characters, is studied here for the first time. The spermathecal features of both species are different from each other and it is now clear that *P. pentheri* is a valid species. We also observed some variability of the patterns of head, pronotum and elytra which are not mentioned in the original description (see variation section).

Almost all of the *Pachybrachis* species feed on the leaves of shrubs and trees belonging to Fagaceae, Salicaceae and Betulaceae, namely species from *Quercus*, *Salix*, *Populus*, *Corylus*, *Betula* (Mohr 1966, Sassi and Kısmalı 2000). However, in this study, the specimens of the *P. pentheri* were found in a xeric open habitat where the vegetation is mainly dominated by Poaceae species. The absence of formerly known host plants of the genus *Pachybrachis* set us think that the specimens were present at this habitat accidentally.

As far as we know, there is no literature about distributional records of the species up to now. Recently, as a result of correspondence with Dr. Jiří Hájek, we learned that there are 30 samples (collected from Ankara: Beynam, Mogan; Eskişehir: Sakarılıca) identified by Jan Bezděk (Mendel University of Agriculture and Forestry, Brno, Czech Republic) in Natural Museum of Prague. The additional distribution records obtained from this study and the samples in NM, Prague shows that the distributional area

of the species in Turkey considerably enlarges westwards. Also, the species may actually be distributed more widely to west and east through Taurus Mountain range (Fig. 2). However, additional records are needed to present the exact distributional range of this species in Turkey.

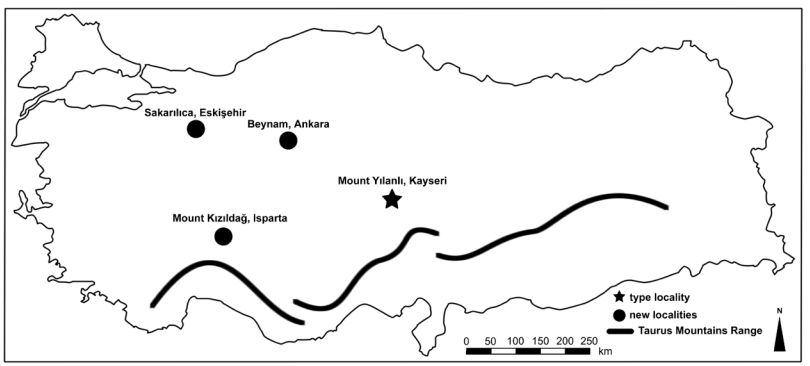

Fig. 2. Map showing the previous and new distribution localities of *Pachybrachis pentheri* Ganglbauer, 1905.

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