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New Distributional, Host and Plant Association Records of Saproxylic Ichneumonid Parasitoids (Hymenoptera, Ichneumonidae) in Turkey

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ABSTRACT

The present study was carried out in Diyarbakır Province (N 37°53'36.96", E 40°16'13.65", 666 m) in Southeastern Anatolia Region of Turkey in 2018-2020. *Prunus cerasifera* tree parts infested by the buprestid beetle, *Ptosima undecimmaculata*, were cut in June 2018 and February 2019 (Figs. 1-2) and *Prunus persica* infested by buprestids larvae, *Ptosima undecimmaculata* (Herbst, 1784) and *Sphenoptera* (*Tropeopeltis*) *tappesi* Marseul, 1865, respecitvely were cut and placed in plastic boxes until host and/or their potential parasitoids were reared. Three ichneumonid parasitoids, *Dolichomitus kriechbaumeri* (Schulz, 1906), *Poemenia notata* Holmgren, 1859 and *Xorides gravenhorstii* (Curtis, 1831), were obtained. New host records were found: *P. undecimmaculata* for *D. kriechbaumeri* and *S. tappesi* for *X. gravenhorstii*. All three parasitoid species were reared from the studied plants for the first time. *P. notata* is a new record for Turkish fauna.

Key words: Pimplinae, Poemeniinae, Xoridinae, Buprestidae, new record, Turkey.

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INTRODUCTION

Ichneumonidae is one of the largest insect families represented by almost 25 000 described species, of which about 1200 species were recorded from Turkey (Yu, van Achterberg, & Horstmann, 2016). The Turkish Ichneumonidae fauna was unevenly and relatively poorly studied until the first catalogue was published by Kolarov (1995). He listed a little less than 400 species recorded mostly from Thrace and Egean regions, and Northeastern Turkey, while the Southeastern part of the country remained largely unstudied. Later, an intensive investigation of Ichneumonidae fauna of Eastern Turkey was conducted by J Kolarov, S. Çoruh and coauthors resulting in series of faunistic papers (e.g. Çoruh, 2010; Çoruh & Kolarov, 2010; Çoruh & Kolarov, 2013; Kolarov, Çoruh, Yurtcan, & Gürbüz, 2009). The seasonal dynamics, altitudinal distribution, individual diversities, biogeographical positions and host records of the Eastern Turkish Ichneumonidae were discussed by Çoruh, Kolarov, & Özbek (2014).

The aim of this paper is to provide new distributional, host and plant association records of ichneumonid parasitoids of the subfamilies Pimplinae, Poemeniinae, Xoridinae from the Southeastern Anatolia Region of Turkey.

MATERIAL AND METHODS

The present study was carried out in Diyarbakır Province (N 37°53'36.96", E 40°16'13.65", 666 m) in Southeastern Anatolia Region of Turkey in 2018-2020. *Prunus cerasifera* tree parts infested by the buprestid beetle, *Ptosima undecimmaculata*, were cut in June 2018 and February 2019 (Figs. 1-2) and *Prunus persica* infested by the buprestid species, *Sphenoptera tappesi* (Fig. 3), were cut in April 2019 and March 2020. All collected logs were stored in plastic boxes with 20x20x30 cm lids closed with thin mesh fabric at a temperature of 26±1°C, relative humidity of 65±5, and illumination of 3500 lux for 16 hours per day (Fig. 4). Totally, 84 beetle and 37 parasitoid specimens were reared.

The hymenopteran material from this study is deposited in the collection of the Schmalhausen Institute of Zoology NAS of Ukraine in Kyiv (SIZK). Image of *Poemenia notata* was taken with a Leica Z16 APO microscope equipped with Leica DFC 450 camera and processed by LAS Core software at SIZK.

RESULTS

Dolichomitus kriechbaumeri (Schulz, 1906)

Distribution: Western Palaearctic (Yu et al, 2016), Turkey (Kolarov, 1995; Bolu, 2008).

Material examined: Turkey, Diyarbakır, N 37°53'36.96", E 40°16'13.65", 666 m, ex *Prunus cerasifera* logs infested by *Ptosima undecimmaculata,* 15.06.2018-06.02.2019, leg. H. Bolu, 1 ♂, 2 ♀♀; idem, ex *Prunus persica* logs infested by *Sphenoptera tappesi*, 31.04.2019, 5 ♂♂, 5 ♀♀; idem, 09.03.2020, 5 ♂♂, 5 ♀♀; idem, 10.03.2020, 5 ♂♂, 4 ♀♀; idem, ex *Prunus cerasifera* logs infested by *Sphenoptera tappesi*, 10.03.2020, 2 ♂♂.

***Poemenia notata* Holmgren, 1859** (Figs. 5-6.)

Distribution: Widespread and common species in Western Palaearctic (Yu et al, 2016), new for Turkey.

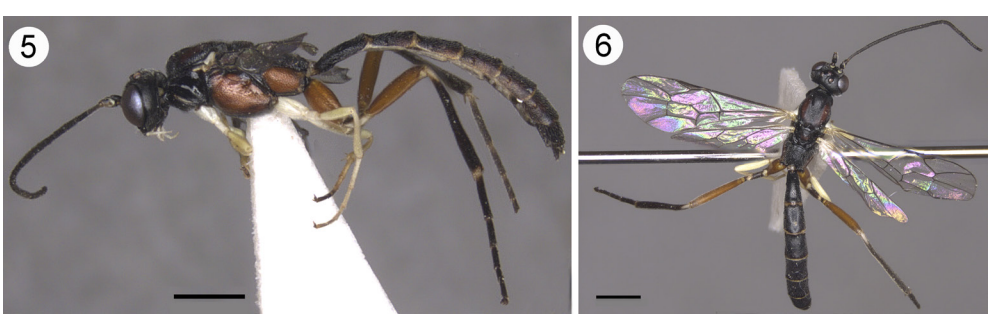
Material examined: Turkey, Diyarbakır, N 37°53'36.96", E 40°16'13.65", 666 m, ex *Prunus cerasifera* logs infested by *Ptosima undecimmaculata,* 15.06.2018-06.02.2019, leg. H. Bolu, 1 ♂.

***Xorides gravenhorstii* (Curtis, 1831)**

Distribution: Widespread and common species in Western Palaearctic (Yu et al, 2016), Turkey (Kolarov, 1995).

Material examined: Turkey, Diyarbakır, N 37°53'36.96", E 40°16'13.65", 666 m, ex *Prunus persica* logs infested by *Sphenoptera (Tropeopeltis) tappesi*, 31.04.2019, leg. H. Bolu, 1 ♂, 1 ♀.

Figs. 1-4. Rearing. 1. *Prunus cerasifera* parts infested *Ptosima undecimmaculata*. 2. Reared *Ptosima undecimmaculata* imago. 3. Reared *Sphenoptera tappesi* imago. 4. Plastic boxes with infested logs.



Figs. 5-6. *Poemenia notata*, male. 5. Lateral view. 6. Dorsal view.

CONCLUSIONS AND DISCUSSION

Three ichneumonid species (Hymenoptera: Ichneumonidae) belonging to subfamilies Pimplinae, Poemeniinae, Xoridinae were reared during this study. These species are parasitoids of coleopteran or hymenopteran insect hosts living in the dead wood (Yu et al, 2016).

Pimplinae-wasp, *Dolichomitus kriechbaumeri,* is one of twenty-five species of the genus known from Western Palaearctic (Zwakhals, 2010; Varga, 2012). Generally, most of *Dolichomitus* species are reported as ectoparasitoids of different Cerambycidae larvae. Unlike other species, *D. kriechbaumeri* is a specialized parasitoid of the buprestid beetles (e.g. Zwakhals, 2010). Several buprestid beetle species, *Anthaxia manca* (Linnaeus, 1767), *Sphenoptera tappesi* and *Trachypteris picta* (Pallas, 1773), are listed as hosts in papers of Aubert (1969), Bolu (2008) and Zwakhals (2010). In this study, we provide a new host record for *D. kriechbaumeri*, a buprestid beetle *Ptosima undecimmaculata* inhabiting *Prunus cerasifera* logs. In addition, this tree is a new plant association record for this species.

Another parasitoid of wood-boring beetles reared during this study is a member of the subfamily Xoridinae, *Xorides gravenhorstii*. It seems that this species is generalist ectoparasitoid of different saproxylic beetle larvae. It is reported as parasitoid of Ptinidae: *Hedobia pubescens* (Olivier, 1790) (Aubert, 1969), *Xestobium plumbeum* (Illiger, 1801) (Leclercq, 1945), Bostrichidae: *Psoa dubia* (Rossi, 1792), Cerambycidae: *Phymatodes (Paraphymatodes) fasciatus* (Villers, 1789) (Aubert, 1969), *Pogonocherus hispidus* (Linnaeus, 1758) (Sedivy, 1967), *Callidium aeneum* (De Geer, 1775) (Campadelli & Scaramozzino, 1994), *Molorchus umbellatarum* (Schreber, 1759) on *Malus domestica* (Borkh., 1803) (Strojnowski, 1977). In addition, two plant are reported to be associated with this species by Pisica (1969): *Alnus glutinosa* (L.) Gaerth, 1790 and *Corylus avellana* Linnaeus, 1753. Here we provide additional host and plant association records for *Xorides gravenhorstii*: the species was reared from *Prunus persica* and buprestid beetle larva for the first time.

The genus *Poemenia* from the subfamily Poemeniinae numbers only four species in Europe, of which at least two species, *P. notata* and *P. collaris* (Haupt, 1917), were reared from trap-nests inhabited by the crabronid wasps, *Passaloecus eremita* Kohl, 1893 and *P. corniger* Shuckard, 1837 (Schmidt & Zmudzinski, 1983). Jussila and Kapyla (1975) reported *P. notata* as a parasitoid of another crabronid, *Trypoxylon figulum* (Linnaeus, 1758). In addition, the first author has a specimen of *Poemenia collaris* reared from trap-nests in Ukraine. On the other hand, he saw the *P. notata* specimen reared from the buprestid species in Georgia (Varga, in prep.) and several cerambycids species, *Acanthocinus aedilis* (Linnaeus, 1758), *Arhopalus rusticus* (Linnaeus, 1758) and *Asemum striatum* (Linnaeus, 1758) are reported as hosts of *P. notata* by R. Uhthoff-Kaufmann (1991). The male specimen of *P. notata* reported in this study was reared together with *Dolichomitus* specimens from logs of *Prunus cerasifera* infested by *Ptosima undecimmaculata*. Unfortunately, little is known about biology of poemeniines and thus, direct observation of parasitoid larva is needed

to confidently state about host-parasitoid interactions of the current species. Thus, in this paper we just reported the new plant association, *Prunus cerasifera*, for the observed Poemeniine wasp.

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