

Contribution to the Knowledge of the Ormyridae (Hymenoptera:Chalcidoidea) from Sivas, Turkey, with Two New Records

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ABSTRACT

In the present study, it is aimed to determine Ormyridae fauna of Sivas province. In this study, Five species were found belonging to genus *Ormyrus* (Hymenoptera, Chalcidoidea, Ormyridae). These species are; namely *O. bingoeliensis* Doğanlar, 1991, *O. cupreus* Askew, 1998, *O. orientalis* Walker, 1871, *O. salmanticus* Nieves-Aldrey, 1984 and *O. tschami* (Doğanlar, 1991) were collected and identified from Sivas Province, eastern part of the Central Anatolian region of Turkey. *Ormyrus cupreus* and *O. salmanticus* from these species are reported for the first time in the Turkish fauna. In the result of the study, in addition to new records, *Echinops galaticus* and *E. pungens* two plants species were determined from Asteraceae are recorded as related plants for *Ormyrus tschami* and *O. cupreus*, respectively.

Key words: Ormyridae, *Ormyrus*, Sivas, Fauna, Chalcidoidea

INTRODUCTION

The family Ormyridae is represented by three genera, *Eubeckerella* Narendran, *Ormyrulus* Boucek and *Ormyrus* Westwood. However in the Palearctic Region, only one genus *Ormyrus* is recorded (Askew, 1994; Boucek *et al.*, 1981; Narendran, 1999; Zerova and Seryogina, 2006). *Ormyrus* is the largest and the most widespread genus of family. Since the fauna of Ormyridae is poorly known, it is necessary to study their taxonomy, biology and roles in the ecosystem. Most species of Ormyridae are inhabitants of plant galls while a few species develop in stems of grass. Although some studies have been conducted by works on the species of Ormyridae in Turkey (Doğanlar, 1984, 1991a, b; Öncür, 1991) the Turkish fauna of this family is not well known.

MATERIAL AND METHODS

In 2010, the material for this study were collected by the Mustafa Erdoğan from different localities in Sivas by sweeping from pasture and deposited in the Entomology Museum, Sivas, Turkey. For identification of the following keys were used Doğanlar (1991a,b), Boucek (1988), Hansonn (1992), Zerova and Seryogina (2006). Also, the information are given for synonyms and distribution of species (Doğanlar, 1991a, b;

Noyes, 2002, 2013; Stojanova, 2005). The plants were identified by Dr. Erol Dönmez (Cumhuriyet University, Department of Biology).

RESULTS

Five species of the Ormyridae were determined to occur in Sivas during this study. Two species are recorded for the first time in Turkey. In addition to new records, two plants species were determined Asteraceae as related plants for *Ormyrus tschami* and *O. cupreus*.

Ormyrus bingoliensis Doğanlar, 1991

Material examined: Kayapınar/Ulaş, 1504 m, 18.08.2009, 15 ♀♀

Distribution: Turkey (Doğanlar, 1991a; Noyes, 2013)

Hosts and Plant associates:

Primary hosts: Cynipidae (unspecified)(Hymenoptera)

Plant associates: *Quercus* sp. (Fagaceae)

Ormyrus cupreus Askew, 1998

Material examined: Başçayır/Ulaş, 1619 m, 23.07.2010, 1♀; Çetinkaya/Kangal, 1412 m, 20.08.2010, 7♀♀ 83♂♂, 17.09.2010, 8 ♀♀, 1♂; Dikköy/Gölova, 1200 m, 28.05.2010, 1♂; Elmalı/Şarkışla, 1265 m, 06.08.2010, 1♀; Eskibağ/Akıncılar, 1072 m, 28.08.2010, 1♀; Gürpınar/Ulaş, 1527 m, 05.08.2010, 1♀; İğdeli/Kangal, 1559 m, 04.08.2010, 1♀; Karaman/Divriği, 1356 m, 04.08.2010, 1♀, 18.07.2010, 1♀; Karacaören/Yıldızeli, 11.07.2010, 1♀; Karasarbeli/Divriği, 1924 m, 18.08.2010, 4♀♀, 1♂; Koşutdere/Hafik, 1301 m, 20.08.2010, 6♀♀, 7♂♂; Kömürkaya/Şarkışla, 1280m, 06.08.2010, 1♂; Kuluncak/Divriği, 1726 m, 18.08.2010, 3♀♀, 17.09.2010, 10♀♀, 4♂♂; Ödek/Divriği, 1714 m, 04.08.2010, 1♀, 17.09.2010, 6♀♀, 4♂♂; Şenyurt/Ulaş, 1615, 19.08.2010, 1♀; Sorguncuk/Merkez, 1381, 25.06.2010, 1♀; Tatlıca/Gemerek, 1210 m, 25.06.2010, 2♀♀; Taşgeçit/Kangal, 1541 m, 18.08.2010, 4♀♀, 8♂♂; Tödürge/Zara, 1367 m, 19.09.2010, 15♀♀, 11♂♂; Yellice/Kangal, 1754 m, 17.09.2010, 35♀♀, 6♂♂; Yusufşeyh/Divriği, 1378 m, 04.08.2010, 1 ♀

Distribution: Europe, Spain (Noyes, 2013)

New record for the Turkish fauna

Hosts and Plant associates:

Primary hosts: *Eurytoma gallephedrae* (Eurytomidae: Hymenoptera)

Parasitoid hosts: *Brasema ephedricola*, *Eupelmus* sp. (Eupelmidae: Hymenoptera)

Plant associates: *Ephedra nebrodensis*, *Ephedra* sp. (Gnetaceae)

Ormyrus cupreus were swept only from *Ecnihops galaticus* and *Echinops pungens* (Asteraceae).

Ormyrus orientalis Walker, 1871

Material examined: Çetinkaya/Kangal, 1412 m, 17.09.2010, 1♀, 20.08.2010, 5♀♀; Kömürkaya/Şarkışla, 1277 m, 25.06.2010, 1♀. Kuluncak/Divriği, 1731 m, 1541 m, 17.09.2010, 4♀♀; Taşgeçit/Kangal, 18.08.2010, 2♀♀; Yellice/Kangal, 17.09.2010, 1♀.

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Distribution: Afghanistan, Azerbaijan, Belarus, Bulgaria, Canary Island, Caucasus, Croatia, Czech Republic, France, Georgia, Greece, Hungary, India, Iran, Iraq, Italy, Macedonia, Pakistan, Russia, Slovakia, Spain, Sri Lanka, Tadjikistan, Turkey, Turmenistan, Ukraine, USSR, Uzbekistan, Yugoslavia (Noyes, 2013)

Hosts and Plant associates:

Primary hosts: *Melanagromyza obtusa* (Agromyzidae), *Lasioptera eryngii* (Cecidomyiidae), *Lonchaea* sp. (Lonchaeidae), *Acanthiophilus helianthi*, *Myopites frauenfeldi*, *Myopites inulaedyssentericae*, *Myopites* sp., *Tephritis* sp. *Tephritis stictica* (Tephritidae) (Diptera); *Aylax* sp. Cynipidea *unspecified* sp., *Diastrophus rubi*, *Diplolepis* sp., *Isocolus* sp., *Isocolus rogenhoferi*, *Neuroterus quercusbaccarum*, *Phanacis caulicola*, *Timaspis phoenixopodos* (Cynipidae:Hymenoptera).

Parasitoid hosts: *Eurytoma* sp., *Eurytoma tristis* (Eurytomidae:Hymenoptera).

Plant associates: *Eryngium campestre* (Apiaceae), *Phoenix sylvestris* (Arecaceae), *Artemisia herba-alba*, Asteraceae *unspecified* sp., *Carduus acanthoides*, *Carduus pycnocephalus*, *Carthamus tinctorius*, *Centaurea pannonica*, *Centaurea sadleriana*, *Centaurea* sp., *Inula viscosa*, *Onopordum nervosum*, *Serratula bractefolia* (Asteraceae), *Gypsophila struthium* (Caryophyllaceae), *Cajanus cajan*, *Retama sphaerocarpa* (Fabaceae), *Quercus coccifera* (Fagaceae), *Hordeum leporinum* (Poaceae), *Reseda lutea* (Resedaceae), *Rosa* sp. (Rosaceae).

***Ormyrus salmanticus* Nieves-Aldrey, 1984**

Material examined:Güllüce/Divriği, 1382 m, 18.07.2010, 1♀; Koşutdere/Hafik, 1301 m, 20.08.2010, 1♀.

Distribution: Spain (Noyes, 2013)

New record for the Turkish fauna

Hosts and Plant associates:

Primary hosts: *Aulacidea subterminalis* (Cynipidae:Hymenoptera).

Plant associates: *Hieracium pilosella* (Asteraceae).

***Ormyrus tschami* (Doğanlar, 1991)**

Cyrtosoma (*Monobaeus*) *tschami* Doğanlar, 1991

Ormyrus tschami (Doğanlar, 1991)

Material examined: Çetinkaya/Divriği, 1412 m, 20.08.2010, 3♀♀, 6♂♂; Güllüce/Divriği, 1382 m, 18.07.2010, 3♂♂; Karaman/Divriği, 1356 m, 18.07.2010, 1♀; Karasarbeli/Divriği, 1924 m, 18.08.2010, 19♀♀, 31♂♂; Koşutdere/Hafik, 1301 m, 20.08.2010, 40♀♀, 28♂♂; Kozlu/Doğanşar, 1233 m, 27.05.2010, 1♂; Kuluncak/Divriği, 1726 m, 18.08.2010, 30♀♀, 57♂♂, 17.09.2010, 3♀♀, 3♂♂; Ödek/Divriği, 1718 m, 04.08.2010, 11♀♀, 6♂♂; Sırçalı/Divriği, 1404 m, 18.07.2010, 1♂; Taşgeçit/Kangal, 1541m, 18.08.2010, 40♀♀, 50♂♂; Yellice/Kangal, 1754 m, 17.09.2010, 10♀♀, 2♂♂; Yusufşeyh/Divriği, 1378 m, 04.08.2010, 1♀

Distribution: Turkey (Doğanlar, 1991b; Noyes, 2013)

Hosts and Plant associates: There are no records about hosts and associates plants.

Ormyrus tschami were swept only from *Echinops pungens* and *Ecnihops galaticus* (Asteraceae)

DISCUSSION

In this study, 5 species were found belonging to *Ormyrus* genus. These species are *Ormyrus bingoeliensis* Doğanlar, 1991, *Ormyrus cupreus* Askew, 1998, *Ormyrus orientalis* Walker, 1871, *Ormyrus salmanticus* Nieves-Aldrey, 1984 and *Ormyrus tschami* (Doğanlar, 1991). *Ormyrus cupreus* Askew, 1998 and *Ormyrus salmanticus* Nieves-Aldrey, 1984 are reported for the first time in the Turkish fauna. The species belonging to *Ormyrus* genus has been found from Turkey in previous studies (Doğanlar, 1984; 1991a; b; Kılınçer, 1983). These are species; *Ormyrus bingoeliensis*, *O. diffinis*, *O. graciosus*, *O. nitidulus*, *O. orientalis*, *O. punctiger*, *O. rufimanus*, *O. tubulosus*, *Cyrtosoma tschami*, *C. ardahanensis*, *C. yeschilirmaka*, *C. kazovaensis*, *C. graciosus*, *C. diffinis*, *C. longicornis*, *C. papaveris* and *C. whactli*. Some species has been combined and synonymized as a result of studies on Ormyridae (Hanson, 1992; Narendran, 1999; Zerova and Seryogina, 2006). As a result of these changes, *Ormyrus* species recorded from Turkey are; *Ormyrus ardahanensis* (Doğanlar), *O. bingoeliensis* (Doğanlar), *O. diffinis* (Fonscolombe), *O. graciosus* (Förster), *O. kazovaensis* (Doğanlar), *O. nitidulus* (Fabricius), *O. orientalis* Walker, *O. pomaceus* (Geoffroy), *O. tschami* (Doğanlar), *O. wachtli* Mayr, and *O. yeschilirmaka* (Doğanlar) (Noyes, 2002, 2013). In result of this study, species of *Ormyrus* was added two new records. In addition to new records, *Ecnihops galaticus* and *Echinops pungens* (Asteraceae) were determined as related plants for *Ormyrus cupreus* and *O. tschami*. Gall maker cynipids has been found on the various species belonging to *Ecnihops* genus related to *Ormyrus tschami* and *O. cupreus* (Melika and Gharaei, 2006). *Ormyrus tschami* and *O. cupreus* possibility is parasitoids of gall belong to cynipis on *Echinops*. Such a possibility is strengthen relation with the plants belong to Asteraceae of *Ormyrus* genus.

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