

1-1-2016

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### Recommended Citation

ÇORUH, SALİHA and ÇALMAŞUR, ÖNDER (2016) "A new and additional records of the Ichneumonidae (Hymenoptera) from Turkey," *Turkish Journal of Zoology*. Vol. 40: No. 4, Article 19. <https://doi.org/10.3906/zoo-1510-10>

Available at: <https://journals.tubitak.gov.tr/zoology/vol40/iss4/19>

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## A new and additional records of the Ichneumonidae (Hymenoptera) from Turkey

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Received: 05.10.2015 • Accepted/Published Online: 22.02.2016 • Final Version: 09.06.2016

**Abstract:** Faunistic data of 13 Ichneumonidae species from Turkey, including Artvin, Bayburt, Erzincan, Erzurum, Kars, and Trabzon, are presented from 2005–2010. A total of 25 specimens belonging to Acaenitinae, Anomaloninae, Banchinae, Campopleginae, Cryptinae, Metopiinae, Ophioninae, Orthocentrinae, Pimplinae, and Tryphoninae have been recorded. *Orthocentrus marginatus* Holmgren is newly added to the Turkish fauna and *Buathra laborator* Thunberg is a new host for *Malacosoma neustria* (L.) in Turkey. New distribution data of 12 known species are added.

**Key words:** Hymenoptera, Ichneumonidae, new records, Orthocentrinae, *Orthocentrus*

Parasitic hymenopterans, a big insect group having wide significance in terrestrial ecosystems (Shaw and Hochberg, 2001), constitute a specialized group of Hymenoptera, one of the mega insect orders (Stevens et al., 2007). Ichneumonidae is the biggest hymenopteran family with 1579 genera and 24,281 described species (Yu et al., 2012). This family is probably the most diverse animal family (Grissell, 1999).

The majority of species are solitary endoparasitoids of endopterygote larvae and pupae, particularly among the Lepidoptera and Symphyta (Gauld and Bolton, 1988). As such, they play a large role in the control of potential pest species and in maintaining the equilibrium of ecosystems in general. Because of their highly specialized life histories, they may also be particularly vulnerable to ecological disturbances (LaSalle and Gauld, 1991; Shaw and Hochberg, 2001). However, despite their abundance and ecological importance, the Ichneumonidae remain relatively unstudied (Shaw and Hochberg, 2001).

Studies on the Ichneumonidae of Turkey have gained acceleration, particularly in the last one and a half decades. With the previous contributions (Çoruh and Kolarov, 2013; Çoruh and Özbek, 2013; Çoruh et al., 2013, 2014a, 2014b, 2014c; Kolarov et al., 2014a, 2014b, 2014c, 2015, 2016; Özdan, 2014; Riedel et al., 2014; Yaman, 2014; Yurtcan and Kolarov, 2015), the numbers of the Ichneumonidae fauna of Turkey reached 1172 species from 287 genera and 21 subfamilies. The number reaches 1173 species with the present paper. The aim of this study is to report new localities of different Ichneumonidae species in Anatolia.

The present study is based mainly in the northeastern part of Anatolia, including Artvin, Bayburt, Erzurum, Erzincan, Kars, and Trabzon provinces, during 2005–2010. The material was collected via various methods: by sweeping vegetation, especially flowering plants, with an insect net; by Malaise trap, which was used in Karakurt (Sarıkamış, Kars Province); and by rearing and collection in laboratory conditions, used for larvae and pupae of Lepidoptera.

The specimens were extracted from traps and nets, maintained in 70% ethanol, and then prepared and sorted to genus and species levels. Specimens were identified and/or confirmed by Janko Kolarov (Plovdiv University, Bulgaria). All specimens were deposited in the insect collection of the Entomology Museum of Erzurum, Turkey (EMET). The following data are included: valid taxa names, distribution, hosts (if available), associated plants (if available), and remarks. The newly recorded species for the fauna of Turkey is indicated by an asterisk in the text. General distributions of the species were taken from Yu et al. (2012).

In total, 13 species in 13 genera of Acaenitinae, Anomaloninae, Banchinae, Campopleginae, Cryptinae, Metopiinae, Ophioninae, Orthocentrinae, Pimplinae, and Tryphoninae were determined. The species list is given below.

### Subfamily Acaenitinae Förster, 1869

#### *Phaenolobus fulvicornis* (Gravenhorst, 1829)

**Material examined.** Bayburt, Köp Mt., 1650 m a.s.l., 16.06.2005, 1♂, Leg. S. Çoruh; Maden, 1650 m a.s.l., 3♀♀, 2♂♂, Leg. S. Çoruh and Ö. Çalmaşur. Erzurum, Atatürk Univ. Campus, 4. Kuyu, 1850 m a.s.l., 16.05.2005, 1♂, Leg.

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S. Çoruh; Şenkaya, Soğanlı Mt., 2350 m a.s.l., 24.06.2005, 1♀, Leg. Ö. Çalmaşur.

**Distribution in Turkey:** Asia Minor (Kolarov, 1995); Erzurum (Kolarov et al., 2002a); Isparta (Gürbüz, 2005); Rize (Kolarov et al., 2016).

**General distribution:** Palearctic.

**Hosts: Coleoptera. Cerambycidae:** *Phytoecia cephalotes* *Phytoecia coerulescens* on *Anthriscus sylvestris*, *Heracleum sphondylium*, *Salvia sylvestris* (Yu et al., 2012).

**Subfamily Anomaloninae Viereck, 1918**

***Therion tarsatum* (Shestakov, 1923)**

**Material examined.** Trabzon, Central, 20 m a.s.l., 10.08.2005, 1♂, Leg. S. Çoruh.

**Distribution in Turkey:** Erzurum (Çoruh et al., 2004).

**General distribution:** Palearctic.

**Subfamily Banchinae Wesmäl, 1845**

***Syzeuctus irrisorius* (Rossi, 1794)**

**Material examined.** Kars, Sarıkamış, Karakurt, 1500 m a.s.l., 1–14.07.2007 (from malaise trap), 1♂.

**Distribution in Turkey:** Kars (Çoruh, 2008).

**General distribution:** Western Palearctic, Europe.

**Hosts: Lepidoptera. Noctuidae:** *Eublemma minutata*, *E. pannonica*; **Sesiidae:** *Sesia apiformis*, *Synanthedon espiformis* on *Peucedanum oreoselinum* (Yu et al., 2012).

***Exetastes adpressorius* (Thunberg, 1822)**

**Material examined.** Erzurum, Oltu, Ayvalı, 800 m a.s.l., 23.10.2006, 1♀, Leg. Ö. Çalmaşur.

**Distribution in Turkey:** Edirne (Kolarov and Beyarslan, 1994); Kırşehir, Ankara, Kırıkkale (Özdemir, 1996); Bayburt, Erzurum (Pekel, 1999); Tunceli (Kolarov et al., 2014c).

**General Distribution:** Palearctic.

**Hosts: Lepidoptera. Geometridae:** *Hydria undulata*; **Noctuidae:** *Caradrina kadenii*, *Hoplodrina ambigua*, *H. octogenaria*, *Lygephila pastinum*; **Notodontidae:** *Thaumetopoea pityocampa* on *Angelica sylvestris*, *Chaerophyllum aromaticum*, *C. bulbosum*, *Corylus avellana*, *Daphne gnidium*, *Daucus carota*, *Euphorbia seguieriana*, *E. virgata*, *Ferula communis*, *Fraxinus excelsior*, *Heracleum sphondylium*, *Juniperus communis*, *Peucedanum oreoselinum*, *Prunus cerasifera*, *Quercus sessiliflora*, *Reseda lutea*, *Rubus idaeus*, *Thapsia villosa* (Yu et al., 2012).

**Subfamily Campopleginae Förster 1869**

***Charops cantator* (Degeer, 1778)**

**Material examined.** Erzincan, Avcılar, 1300 m a.s.l., 25.05.2010, 1♀, Leg. S. Çoruh.

**Distribution in Turkey:** Çanakkale (Kolarov et al., 1997a); Erzurum (Özbek et al., 2000); Afyon, Muğla (Kolarov et al., 2002b); Hatay (Çoruh et al., 2013).

**General distribution:** Afrotropical, Palearctic.

**Hosts: Lepidoptera. Crambidae:** *Ostrinia nubilalis*; **Noctuidae:** *Diloba caeruleocephala*; **Papilionidae:** *Zerynthia polyxena*; **Zygaenidae:** *Theresimima*

*ampellophaga*, *Zygaena angelicae*, *Z. filipendulae*, *Z. laeta*, *Z. loniceriae*, *Z. occitanica*, *Z. punctum*, *Z. trifolii* on *Peucedanum oreoselinum* (L.) (Yu et al., 2012).

**Subfamily Cryptinae Kirby, 1837**

***Buathra laborator* (Thunberg, 1824)**

**Material examined.** Erzurum, Halıcılık, 1850 m a.s.l., 22.07.2010, 1♂, Leg. S. Çoruh.

**Distribution in Turkey:** Erzurum (Çoruh and Çoruh, 2012; Kolarov et al., 2016); Isparta, Burdur (Gürbüz and Kolarov, 2008); Trabzon (Çoruh et al., 2014a).

**General distribution:** Holarctic.

**Hosts: Lepidoptera. Geometridae:** *Melanolophia imitate*; **Noctuidae:** *Acronicta leporine*, *Panolis flammea*, *Rhizedra lutosa*; **Lasiocampidae:** *Malacosoma disstria*, *M. neustria* on *Phragmites australis*, *Polygonum bistorta*, *Mentha longifolia*, *Peucedanum oreoselinum* (Çoruh and Çoruh, 2012; Yu et al., 2012).

**Remark:** One specimen was reared from *Malacosoma neustria* feeding on *Elaeagnus angustifolia* in a garden in Halıcılık. *Malacosoma neustria* (L.) is a new host for this species in Turkey.

**Subfamily Metopiinae Förster, 1869**

***Drepanoctonus tricoloratus* (Sedivy, 1971)**

**Material examined.** Kars, Sarıkamış, Karakurt, 1500 m a.s.l., 19.07–5.08.2007 (from Malaise trap), 1♂.

**Distribution in Turkey:** Kars (Kolarov et al., 2009; Çoruh and Özbek, 2011).

**General distribution:** Palearctic.

**Remark:** *D. tricoloratus* was first recorded from Turkey (Kars) by Kolarov et al. (2009). Interestingly, although many surveys have been conducted by the authors and other researchers in various provinces of the country for collecting Ichneumonidae, particularly since the 1990s, it has been found only in Kars so far. This is therefore probably a very rare species in Turkey.

**Subfamily Ophioninae Shuckard, 1840**

***Enicospilus ramidulus* (Linnaeus, 1758)**

**Material examined.** Erzurum, Atatürk Univ. Campus, 1850 m a.s.l., 10.08.2010, 1♂, Leg. S. Çoruh.

**Distribution in Turkey:** Ankara, Erzurum (Kolarov et al., 2000, 2014c); Isparta (Kolarov and Gürbüz, 2006).

**General distribution:** Afrotropical, Palearctic; Oriental.

**Hosts: Lepidoptera. Arctiidae:** *Hyphantria cunea*; **Lasiocampidae:** *Dendrolimus pini* *Eriogaster lanestris*, *Poecilocampa populi*; **Noctuidae:** *Agrotis segetum*, *Axyليا putris*, *Catocala electa*, *Cucullia absinthii*, *Dypterygia scabriuscula*, *D. scabriuscula*, *Hadena bicurris*, *H. rivularis*, *Lacanobia oleracea*, *L. pisi*, *Melanchnra persicariae*, *Ochropleura praecox*, *Panolis flammea*, *Phlogophora meticulosa*; **Notodontidae:** *Phalera bucephala*; **Sphingidae:** *Hyles euphorbiae*. **Hymenoptera. Tenthredinidae:** *Nematus salicis* on *Seseli libanotis* (Çoruh and Çoruh,

2008); *Alnus glutinosa*, *Carum carvi*, *Oryza sativa*, *Salvia glutinosa* (Yu et al., 2012).

***Ophion obscuratus* Fabricius, 1798**

**Material examined.** Erzurum, 5 km W Horasan, 1650 m a.s.l., 18.05.2006, 1♀, Leg. S. Çoruh.

**Distribution in Turkey:** Erzurum, Muş (Kolarov et al., 2000); Tunceli (Kolarov et al., 2014c).

**General distribution:** Palearctic, Neotropical, Oriental.

**Hosts:** **Lepidoptera.** **Geometridae:** *Agriopis aurantiaria*, *Pseudoterpna pruinata*; **Lasiocampidae:** *Dendrolimus pini*, *Eriogaster lanestris*, *Malacosoma neustria*, *Poecilocampa populi*; **Noctuidae:** *Acrionicta cuspis*, *A. lutea*, *Allophyes oxyacanthae*, *Colocasia coryli*, *Dryobotodes eremita*, *Episema scoriacea*, *Euxoa tritici*, *Graphiphora augur*, *Lycophotia porphyria*, *Mamestra brassicae*, *Mythimna impura*, *M. pallens*, *Noctua comes*, *N. fimbriata*, *Ochropleura praecox*, *Pachetra sagittigera*, *Polymixis lichenea*, *Polyphaenis sericata*, *Xestia agathina*, *X. baja*, *X. c-nigrum*, *X. castanea*. **Notodontidae:** *Cerura felina*, *C. vinula*, *Clostera pigra*, *Drymonia ruficornis*, *Furcula furcula*; **Nymphalidae:** *Melanargia galathea*. **Sesiidae:** *Synanthedon formicaeformis* (Yu et al., 2012).

**Subfamily Orthocentrinae Foerster, 1869**

\****Orthocentrus marginatus* Holmgren, 1858**

**Material examined.** Artvin, Kafkasör, 1300 m a.s.l., 27.07.2005, 1♂, Leg. S. Çoruh.

**Distribution:** Palearctic.

**Subfamily Pimplinae Wesmael, 1845**

***Exeristes roborator* Fabricius, 1973**

**Material examined.** Kars, Sarıkamış, Karakurt, 1500 m a.s.l., 22.07.2007, 1♂, Leg. S. Çoruh.

**Distribution in Turkey:** Ankara, Ardahan, Artvin, Balıkesir, Bayburt, Bilecik, Bingöl, Bitlis, Burdur, Bursa, Çanakkale, Denizli, Edirne, Erzurum, Erzincan, Gümüşhane, Hakkari, Isparta, İstanbul, İçel, Kars, Kırklareli, Muğla, Muş, Rize, Tekirdağ, Tunceli (Özdemir and Kılınçer, 1990; Öncüer, 1991; Kolarov and Beyarslan, 1994; Kolarov, 1995; Kolarov et al., 1997a, 1997b, 1999, 2002b, 2014c; Kolarov and Gürbüz, 2004; Gürbüz, 2005; Çoruh, 2005; Yurtcan, 2007; Çoruh and Kolarov, 2010; Tozlu and Çoruh 2011; Özbek and Çoruh, 2012).

**Distribution:** Afrotropical, Palearctic, Neotropical, Oriental.

**Hosts:** As hosts of this species, in the literature, many species in various families in the orders Coleoptera,

Lepidoptera, and Hymenoptera were indicated (Thompson, 1957; Kolarov, 1997) According to Yu et al. (2012), this species has 81 hosts. In our earlier studies, this species was obtained from **Lepidoptera. Crambidae:** *Cynadea gigentae*; **Lasiocampidae:** *Malacosoma neustria*, *M. franconica*. **Tortricidae:** *Rhyaciona pinicolona* and **Hymenoptera. Cynipidae:** *Diplolepis fructuum* on *Anethum graveolens*, *Chaerophyllum bulbosum*, *Daucus carota*, *Euphorbia virgata*, *Fraxinus excelsior*, *Heracleum sphondylium*, *Pastinaca graveolens*, *Peucedanum oreoselinum*, *Quercus sessiliflora*, *Salvia sylvestris*, *Seseli tortuosum*, *Tamarix* sp. (Çoruh and Özbek, 2008; Tozlu and Çoruh, 2011; Yu et al., 2012; Çoruh et al., 2014c).

**Remark:** This specimen was reared from *C. gigentae* feeding on *Angusta leptofolia* in Karakurt.

**Subfamily Tryphoninae Shuckard, 1840**

***Netelia fuscicornis* (Holmgren, 1860)**

**Material examined.** Erzurum, Aşkale, Pırnakapan, 1950 m a.s.l., 14.10.2008, 3♀♀, Leg. S. Çoruh.

**Distribution in Turkey:** Edirne, Kırklareli (Yurtcan and Beyarslan, 2002); Hatay (Kolarov, 1987); Nevşehir (Kolarov, 1994); Edirne, Elazığ, Kahramanmaraş, Kırklareli, Tekirdağ (Kolarov and Beyarslan, 1994); Kayseri, Konya, Van, Hatay (Kolarov, 1995); Balıkesir, Bursa (Kolarov et al., 1997a, 1997b); Adana, Ankara, Bayburt, Erzurum (Kolarov et al., 1999); Ankara, Eskişehir, Kırşehir, Nevşehir (Özdemir, 2001); Isparta (Kırtay, 2008).

**General distribution:** Palearctic, Oriental.

**Hosts:** **Lepidoptera. Geometridae:** *Lithostege farinata*; **Noctuidae:** *Acrionicta megacephala*, *A. psi*, *Agrotis exclamationis*, *A. segetum*, *Anarta myrtilli*, *Cucullia asteris*, *Leucania obsoleta*; **Notodontidae:** *Cerura vinula*, (Yu et al., 2012).

***Exyston sponsorius* (Fabricius 1781)**

**Material examined.** Erzurum, Tortum, Yedigöller, 1600 m a.s.l., 19.05.2006, 2♀♀, Leg. S. Çoruh.

**Distribution in Turkey:** Edirne (Yurtcan and Beyarslan, 2002).

**General distribution:** Palearctic.

**Host:** **Lepidoptera. Tortricidae:** *Cydia strobilella* on *Picea excelsa* (Yu et al., 2012).

**Acknowledgment**

The authors wish to thank Dr Janko Kolarov (Bulgaria), who determined some species.

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