A checklist of the Ukrainian Xoridinae (Hymenoptera, Ichneumonidae)

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Abstract

The Ukrainian Xoridinae list containing 28 species is reviewed. Four species, Xorides flavotibialis Hilszczanski, 2000, X. hedwigi Clement, 1938, Xorides rufipes (Gravenhorst, 1829), and X. rusticus (Desvignes, 1856) are recorded in the Ukrainian fauna for the first time. Agrilus biguttatus F. is recorded as a host of Ischnoceros caligatus (Gravenhorst, 1829) for the first time.

Keywords

Parasitoids, Ichneumonidae, Xoridinae, Ukraine, checklist, new records

Introduction

The Xoridinae Shuckard, 1840 is a relatively small subfamily of Ichneumonidae, with 220 described species worldwide and 46 species in Europe (Yu et al. 2012), classified into four genera (Townes 1969, Wahl 1997). Three of the genera, Ischnoceros Gravenhorst, 1829, Odontocolon Cushman, 1942 and Xorides Latreille, 1809, occur in Ukraine (Kasparyan 1981, Meyer 1934, Varga 2014a, Varga 2014b).
Xoridines are most commonly encountered in mature forests where they search for larvae of wood-boring Coleoptera. Host records include Cerambycidae and Buprestidae species, associated with coniferous and deciduous forests (Kasparyan 1981, Yu et al. 2012).

The first Ukrainian Xoridinae list, provided by Meyer (1934), included 10 species, mainly recorded from Central and South-Eastern Ukraine. About a half a century later, Kasparyan (1981) provided new data about the distribution of xoridines in Ukraine. In this work, what is today Ukraine was marked as "South" and "South-West" (and "West" together with Belarus) of the European part of the former USSR. In most cases the records are from Eastern Ukraine, but they lack specific locality information (only in some cases the author provided a clear locality name, e.g. Kharkiv). Western Ukraine, especially the Carpathians, remained largely unstudied for xoridines until 2014. Recent research carried out by the author demonstrated high Xoridinae species richness in the region (Varga 2014a, Varga 2014b).

The main goal of this paper is to provide summarized data on the distribution of the subfamily Xoridinae in Ukraine, which will provide a basis for a future revision of this group.

**Materials and methods**

This study is based on specimens collected by sweep netting and Malaise (Fig. 1) and conical traps (Fig. 1) (so-called Tereshkin’s traps, see Tereshkin (1990)). The sampling was done by the author in the Ukrainian Carpathians in 2014 and 2015. The specimens are deposited in the Schmalhausen Institute of Zoology (Kiyv, Ukraine). Material from the Zoological Institute of St Petersburg, Russia, was also studied. The images were taken at the Alexandru Ioan Cuza University (Iasi, Romania) using a Leica stereomicroscope 205A with DFC 500 camera, combined with Zerene® software. The species were identified using keys provided by Kasparyan (1981) and Hilszczanski (2000). The images of most of the species were sent to Jacek Hilszczanski to confirm their identification. General distribution of species follows Yu et al. (2012).

**Taxon treatments**

*Ischnoceros caligatus* (Gravenhorst, 1829)

**Materials**

a. country: Ukraine; stateProvince: Volyn Region; samplingProtocol: reared ex. *Agrilus biguttatus* F.; eventDate: 08/07/1976; individualCount: 1; sex: female; lifeStage: adult; recordedBy: V. Kozak; identifiedBy: O. Varga; dateIdentified: 2013

b. country: Ukraine; stateProvince: Kiyv Region; locality: Batieva Gora; samplingProtocol: sweeping; eventDate: 05/28/2007; individualCount: 1; sex: female; lifeStage: adult; recordedBy: A. Gezun; identifiedBy: O. Varga; dateIdentified: 2013
Distribution

Palaearctic (Yu et al. 2012); Ukraine (Fig. 2): Ivano-Frankivsk Region (Varga 2014a), Volyn and Kyiv Regions.

Figure 1.
Some of the trapping sites in the Carpathians: triangle - Malaise trap in the primeval beech forest near the village of Mala Ugołka; circle - Tereshkin trap on a dead Fagus sylvatica trunk near the village of Kvasy.

Figure 2.
The Ukrainian distribution map of Ischnoceros caligatus (Gravenhorst, 1829) and I. rusticus (Geoffroy, 1785).
Notes

*Agrilus biguttatus* F. (Coleoptera: Buprestidae) is recorded as a host of this species for the first time.

*Ischnoceros rusticus* (Geoffroy, 1785)

**Materials**

a. country: *Ukraine*; stateProvince: *Kiyv Region*; locality: *Hodosovka*; samplingProtocol: *sweeping*; eventDate: 04/24/2004; individualCount: 1; sex: *female*; lifeStage: *adult*; recordedBy: M. Nesterov; identifiedBy: O. Varga; dateIdentified: 2013

b. country: *Ukraine*; stateProvince: *Transcarpathian Region*; county: *Tyachiv District*; locality: *Carpathian Biosphere Reserve, priymeval beech forest near Mala Ugolka*; verbatimElevation: 750 m; verbatimCoordinates: 48°15'39.58"N, 23°37'0.84"E; samplingProtocol: *Malaise trap*; startDayOfYear: 07/17/2014; endDayOfYear: 08/16/2014; individualCount: 1; sex: *female*; lifeStage: *adult*; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2014

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 2): Kherson Region (Kasparyan 1981), Ivano-Frankivsk Region (Varga 2014a), Kyiv and Transcarpathian Regions.

*Odontocolon dentipes* (Gmelin, 1790)

**Materials**

a. country: *Ukraine*; stateProvince: *Kiyv Region*; locality: *Beilitchi*; samplingProtocol: *sweeping*; eventDate: 06/01/2006; individualCount: 1; sex: *male*; lifeStage: *adult*; recordedBy: M. Nesterov; identifiedBy: O. Varga; dateIdentified: 2013

b. country: *Ukraine*; stateProvince: *Kiyv Region*; locality: *Kiyv*; samplingProtocol: *sweeping*; eventDate: 03/21/1924; individualCount: 1; sex: *female*; lifeStage: *adult*; recordedBy: Paramonov; identifiedBy: O. Varga; dateIdentified: 2013

c. country: *Ukraine*; stateProvince: *Transcarpathian Region*; county: *Rakhiv District*; locality: *Carpathian Biosphere Reserve, Chornogora, slopes of m. Sheshul*; verbatimElevation: 1450 m; verbatimCoordinates: 48°09'25.05"N, 24°20'59.53"E; samplingProtocol: *Malaise trap*; eventDate: 2014-06-05/29; individualCount: 1; sex: *male*; lifeStage: *adult*; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2014

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 3): Ivano-Frankivsk Region (Varga 2014a), Kyiv and Transcarpathian Regions.
Odontocolon geniculatum (Kriechbaumer, 1889)

Distribution

Palaearctic (Yu et al. 2012); Ukraine (Fig. 3): Ivano-Frankivsk and Transcarpathian Regions (Varga 2014a).

Odontocolon punctulatum (Thomson, 1877)

Distribution

Western Palaearctic (Yu et al. 2012); Ukraine (Fig. 3): Ivano-Frankivsk Region (Varga 2014a).

Odontocolon quercinum (Thomson, 1877)

Material

a. country: Ukraine; stateProvince: Crimea; county: Balaclava District; locality: Aya Cape; samplingProtocol: sweeping; eventDate: 07/22/1979; individualCount: 1; sex: male; lifeStage: adult; recordedBy: A. Kotenko; identifiedBy: O. Varga; dateIdentified: 2013

Distribution

Western Palaearctic (Yu et al. 2012); Ukraine (Fig. 3): Kherson Region (Kasparyan 1981), Ivano-Frankivsk Region (Varga 2014a), Crimea.
**Odontocolon rufiventris** (Holmgren, 1860)

**Material**

a. country: Ukraine; stateProvince: Transcarpathian Region; county: Tyachiv District; locality: Carpathian Nature Reserve, beech forest, 6.5 km N of Mala Ugolka; verbatimElevation: 750 m; verbatimCoordinates: 48°15'39.58"N, 23°37'0.84"E; samplingProtocol: Malaise trap; eventDate: 2015-05-12/31; individualCount: 1; sex: female; lifeStage: adult; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2015

**Distribution**

Western Palaearctic (Yu et al. 2012); Ukraine (Fig. 4): Ivano-Frankivsk Region (Varga 2014a), Transcarpathian Region.

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**Odontocolon spinipes** (Gravenhorst, 1829)

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 4): Ivano-Frankivsk Region (Varga 2014a).

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**Odontocolon thomsoni** (Clément, 1938)

**Distribution**

Western Palaearctic (Yu et al. 2012); Ukraine (Fig. 4): Kharkiv and Kherson Regions (Kasparyan 1981).
**Xorides alpestris** (Habermehl, 1903)

**Material**

a. country: Ukraine; stateProvince: Kiyv Region; locality: Belitchi; samplingProtocol: sweeping; eventDate: 06/01/2006; individualCount: 1; sex: male; lifeStage: adult; recordedBy: M. Nesterov; identifiedBy: O. Varga; dateIdentified: 2013

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 5): Ivano-Frankivsk Region (Varga 2014b) and Kiyv Region.

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**Xorides annulator** (Fabricius, 1804)

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 5): Crimea (Kasparyan 1981).

**Notes**

There is only one specimen with a very old and illegible label, and it seems to be collected (as the other species in the collection) from South-East Ukraine. Therefore, the data provided is from the literature.
**Xorides ater** (Gravenhorst, 1829)

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 5): South-East Ukraine (Kasparyan 1981), Ivano-Frankivsk Region (Varga 2014b).

**Notes**

There is only specimen with a very old and illegible label, and it seems to be collected (as the other species in the collection) from South-East Ukraine. Therefore, the data provided is from the literature.

**Xorides brachylabis** (Kriechbaumer, 1889)

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 5): Ivano-Frankivsk and Transcarpathian Regions (Varga 2014b).

**Xorides csikii** Clement, 1938

**Material**

a. country: Ukraine; stateProvince: Kiyv Region; locality: Hodosovka; samplingProtocol: sweeping; eventDate: 05/06/2005; individualCount: 1; sex: female; lifeStage: adult; recordedBy: M. Nesterov; identifiedBy: O. Varga; dateIdentified: 2013

Figure 6.
The Ukrainian distribution map of *Xorides csikii* Clement, 1938, *X. ephialtoides* (Kriechbaumer, 1882), *X. filiformis* (Gravenhorst, 1829), and *X. flavotibialis* Hilszczanski, 2000.
Distribution

Western Palaearctic, previously recorded only from France, Germany, Hungary, Poland, Switzerland, and United Kingdom (Yu et al. 2012); Ukraine (Fig. 6): Ivano-Frankivsk and Transcarpathian Regions (Varga 2014b), Kiyv Region.

Xorides ephialtoides (Kriechbaumer, 1882)

Distribution

Palaearctic (Yu et al. 2012); Ukraine (Fig. 6): Kharkiv and Kherson Regions (Kasparyan 1981).

Xorides filiformis (Gravenhorst, 1829)

Material

a. country: Ukraine; stateProvince: Crimea; locality: Karabi Yayla; samplingProtocol: sweeping; eventDate: 2003; individualCount: 1; sex: female; lifeStage: adult; recordedBy: A. Sirenko; identifiedBy: O. Varga; dateIdentified: 2012

Distribution

Western Palaearctic (Yu et al. 2012); Ukraine (Fig. 6): Kharkiv Region (Kasparyan 1981), Crimea.

Xorides flavotibialis Hilszczanski, 2000

Material

a. country: Ukraine; stateProvince: Kyiv Region; locality: Batyeva Gora; samplingProtocol: sweeping; eventDate: 06/10/2007; individualCount: 1; sex: female; lifeStage: adult; recordedBy: A. Gesun; identifiedBy: O. Varga; dateIdentified: 2014

Distribution

This species is known only from Poland (Hilszczanski 2000); Ukraine (Fig. 6): Kiyv Region, new for Ukraine (Fig. 7).

Figure 7.

Xorides flavotibialis Hilszczanski, 2000.
**Xorides gravenhorstii** (Curtis, 1831)

**Material**

- country: Ukraine; stateProvince: Crimea; locality: Kanaka; samplingProtocol: sweeping; eventDate: 05/13/1993; individualCount: 1; sex: male; lifeStage: adult; identifiedBy: O. Varga; dateIdentified: 2013

**Distribution**

Western Palaearctic (Yu et al. 2012); Ukraine (Fig. 8): Crimea, Zaporyzhzhya Region (Kasparyan 1981), Ivano-Frankivsk and Transcarpathian Regions (Varga 2014b).

**Figure 8.**

The Ukrainian distribution map of *Xorides gravenhorstii* (Curtis, 1831), *X. hedwigi* Clement, 1938, *X. indicatorius* (Latreille, 1806), and *X. irrigator* (Fabricius, 1793).

**Xorides hedwigi** (Clement, 1938)

**Material**

- country: Ukraine; stateProvince: Kyiv Region; locality: Novosilky; samplingProtocol: sweeping; eventDate: 06/07/1993; individualCount: 1; sex: female; lifeStage: adult; recordedBy: A. Kotenko; identifiedBy: O. Varga; dateIdentified: 2014

**Distribution**

Palaearctic, recorded only from Austria, China, Czech Republic, former Czechoslovakia, Germany, Hungary, and Poland (Yu et al. 2012); Ukraine (Fig. 8): Kyiv Region, new for Ukraine (Fig. 9).
**Xorides indicatorius** (Latreille, 1806)

**Distribution**

Western Palaearctic (Yu et al. 2012); Ukraine (Fig. 8): Kherson Region (Kasparyan 1981).

**Xorides irrigator** (Fabricius, 1793)

**Material**

a. country: Ukraine; stateProvince: Volyn Region; county: Lyubomlsk District; samplingProtocol: reared ex. *Acanthocinus aedilis* L.; eventDate: 08/01/1975; individualCount: 2; sex: females; lifeStage: adult; identifiedBy: D. Kasparyan; dateIdentified: 1977

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 8): Ivano-Frankivsk Region (Varga 2014b), Volyn Region.

**Xorides niger** (Pfeffer, 1913)

**Distribution**

Western Palaearctic (Yu et al. 2012); Ukraine (Fig. 10): Ivano-Frankivsk Region (Varga 2014b).
**Xorides praecatorius** (Fabricius, 1793)

**Materials**

a. country: Ukraine; stateProvince: Kyiv Region; locality: Novobelitchi; samplingEffort: sweeping; eventDate: 04/30/2010; individualCount: 1; sex: male; lifeStage: adult; recordNumber: A. Prohorov; identifiedBy: Oleksandr Varga; dateIdentified: 2013

b. country: Ukraine; stateProvince: Kyiv Region; locality: Hodosovka; samplingEffort: sweeping; eventDate: 05/06/2005; individualCount: 1; sex: male; lifeStage: adult; recordNumber: M. Nesterov; identifiedBy: Oleksandr Varga; dateIdentified: 2013

c. country: Ukraine; stateProvince: Kyiv Region; locality: Batieva Gora; samplingEffort: sweeping; eventDate: 05/29/2007; individualCount: 1; sex: male; lifeStage: adult; recordNumber: A. Gezun; identifiedBy: Oleksandr Varga; dateIdentified: 2013

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 10): Kherson Region (Kasparyan 1981), Ivano-Frankivsk and Transcarpathian Regions (Varga 2014b), Kyiv Region.

**Xorides propinquus** (Tschek, 1869)

**Material**

a. country: Ukraine; stateProvince: Kyiv Region; locality: Batieva Gora; samplingProtocol: sweeping; eventDate: 05/27/2007; individualCount: 1; sex: female; lifeStage: adult; recordBy: A. Gesun; identifiedBy: O. Varga; dateIdentified: 2014

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 10): Crimea (Kasparyan 1981), Kyiv Region.
**Xorides rufipes** (Gravenhorst, 1829)

**Materials**

a. country: Ukraine; stateProvince: Transcarpathian Region; county: Rakhiv District; locality: Carpathian Biosphere Reserve, Sydovets, beech forest 2-3 km NW of Kvasy; verbatimElevation: 850 m; verbatimCoordinates: 48°09'08.89"N, 24°15'58.35"E; samplingProtocol: Trunk trap; startDayOfYear: 05/07/2014; endDayOfYear: 06/05/2014; individualCount: 2; sex: females; lifeStage: adult; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2014

b. country: Ukraine; stateProvince: Crimea; county: Balaklava District; locality: Aya Cape; samplingProtocol: sweeping; eventDate: 07/22/1979; individualCount: 1; sex: female; lifeStage: adult; recordedBy: A. Kotenko; identifiedBy: O. Varga; dateIdentified: 2014

c. country: Ukraine; stateProvince: Transcarpathian Region; county: Tyachiv District; locality: Carpathian Nature Reserve, beech forest, 6.5 km N of Mala Ugolka; verbatimElevation: 750 m; verbatimCoordinates: 48°15'39.58"N, 23°37'0.84"E; samplingProtocol: near dead Fagus sylvatica trunk; eventDate: 05/31/2015; individualCount: 1; sex: female; lifeStage: adult; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2015

d. country: Ukraine; stateProvince: Transcarpathian Region; county: Vynogradiv District; locality: Carpathian Nature Reserve, Vynogradiv, oak forest, Chorna Gora; verbatimElevation: 500 m; verbatimCoordinates: 48°09'19.70"N, 23°04'22.47"E; samplingProtocol: near dead oak trunk; eventDate: 05/30/2015; individualCount: 2; sex: females; lifeStage: adult; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2015

e. country: Ukraine; stateProvince: Transcarpathian Region; county: Vynogradiv District; locality: Carpathian Nature Reserve, Vynogradiv, oak forest, Chorna Gora; verbatimElevation: 500 m; verbatimCoordinates: 48°09'19.70"N, 23°04'22.47"E; samplingProtocol: near dead oak trunk; eventDate: 05/30/2015; individualCount: 1; sex: male; lifeStage: adult; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2015

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 10): Transcarpathian Region and Crimea, new for Ukraine.

**Xorides rusticus** (Desvignes, 1856)

**Material**

a. country: Ukraine; stateProvince: Kyiv Region; locality: Kyiv, Feofania; samplingProtocol: sweeping; eventDate: 06/19/2002; individualCount: 1; sex: female; lifeStage: adult; recordedBy: A. Kotenko; identifiedBy: O. Varga; dateIdentified: 2014

**Distribution**

Palaearctic, previously recorded only from China, Germany, Poland, and United Kingdom (Yu et al. 2012); Ukraine (Fig. 11): Kyiv Region, new for Ukraine.
Xorides sepulchralis (Holmgren, 1860)

**Materials**

a. country: Ukraine; stateProvince: Volyn Region; locality: Nevyr; samplingProtocol: sweeping; eventDate: 08/03/1960; individualCount: 1; sex: female; lifeStage: adult; recordedBy: A. Ermolenko; identifiedBy: O. Varga; dateIdentified: 2014

b. country: Ukraine; stateProvince: Transcarpathian Region; county: Vynogradiv District; locality: Carpathian Nature Reserve, Vynogradiv, oak forest, Chorna Gora; verbatimElevation: 500 m; verbatimCoordinates: 48°09'19.70"N, 23°04'22.47"E; samplingProtocol: near dead oak trunk; eventDate: 05/30/2015; individualCount: 3; sex: males; lifeStage: adult; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2015

c. country: Ukraine; stateProvince: Transcarpathian Region; county: Tyachiv District; locality: Carpathian Nature Reserve, beech forest, 6.5 km N of Mala Ugolka; verbatimElevation: 750 m; verbatimCoordinates: 48°15'39.58"N, 23°37'0.84"E; samplingProtocol: Malaise trap; eventDate: 2015-05-12/31; individualCount: 1; sex: female; lifeStage: adult; recordedBy: O. Varga; identifiedBy: O. Varga; dateIdentified: 2015

**Distribution**

Palaearctic (Yu et al. 2012); Ukraine (Fig. 11): Kherson Region (Kasparyan 1981), Volyn and Transcarpathian Regions (Fig. 12).

Xorides stepposus Kasparyan, 1981

**Material**

a. country: Ukraine; stateProvince: Kyiv Region; locality: Kyiv, Svyatoshyno; samplingProtocol: sweeping; eventDate: 05/04/2011; individualCount: 1; sex: female; lifeStage: adult; recordedBy: A. Prohorov; identifiedBy: O. Varga; dateIdentified: 2014
Distribution

This species is only known from Ukraine (Fig. 11): Donetsk and Zaporizhzhya Regions (Kasparyan 1981), Kiyv Region (Fig. 13).

Discussion

Before this work, the Ukrainian Xoridinae was a poorly studied group of ichneumonids comprising just 15 species, mainly recorded by Meyer (1934) and Kasparyan (1981). The
main collections were deposited in Russian museums. Unfortunately, Meyer’s collection was lost during the Second World War and now none of these records can be considered valid as there are no voucher specimens available. Thus, *Xorides gracilicornis* (Gravenhorst, 1829) recorded by Meyer (1934) from the Kiyv Region should be excluded from the Ukrainian list. The same is true for another species, *X. fuligator* (Thunberg, 1822), which is known only from a questionable record by Besser (1835) from the Volyn Region. The Ukrainian distribution of the other species recorded by Meyer (1934) were confirmed in a later work (Kasparyan 1981). This latter collection is deposited in the Zoological Institute of St Petersburg, Russia, and comprises specimens collected mainly from the South-Eastern part of Ukraine (Crimea, Kherson and Kharkiv Regions). Up to 2014, there was no separate Xoridinae collection in the Schmalhausen Institute of Zoology in Kiyv. Only a few pinned specimens (identified by Dmitriy R. Kasparyan) were located in a box with “mixed” ichneumonids. After the recent investigation of the Carpathian Xoridinae fauna (Varga 2014a, Varga 2014b), this collection was largely replenished, increasing the number of the Ukrainian xoridines to 24 species. In addition, some unidentified and unpinned specimens (collected by other scientists) deposited in the institute’s collection were also studied by the author. As a result, four new species, *X. flavotibialis* Hilszczanski, 2000, *X. hedwigi* Clement, 1938, *Xorides rufipes* (Gravenhorst, 1829), and *X. rusticus* (Desvignes, 1856) were added to the Ukrainian list.

To conclude, the Ukrainian fauna of the subfamily Xoridinae now contains 28 species, most of which are widespread and common in Europe, but some of them, e.g. *X. csikii* Clement, 1938, *X. flavotibialis* Hilszczanski, 2000, *X. hedwigi* Clement, 1938, and *X. rusticus* (Desvignes, 1856), and *X. stepposus* Kasparyan, 1981, are quite rare.

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