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Identification of the Ukrainian *Megarhyssa* species (Hymenoptera, Ichneumonidae, Rhyssinae), with notes on the Romanian fauna

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Varga, O. Identification of the Ukrainian *Megarhyssa* species (Hymenoptera, Ichneumonidae, Rhyssinae), with notes on the Romanian fauna. Summary. New distributional data on the genus *Megarhyssa* Ashmead, 1900 in Ukraine and notes on the Romanian species are provided. An illustrated identification key to species is provided.

Key words: Ichneumonidae, Rhyssinae, *Megarhyssa*, new records, key, Ukraine, Romania.

Варга, О. Ідентифікація українських видів *Megarhyssa* (Hymenoptera, Ichneumonidae, Rhyssinae), з нотатками про фауну Румунії. Резюме. Наведено нові дані щодо поширення роду *Megarhyssa* Ashmead, 1900 в Україні та Румунії, а також підготовлено ілюстровану таблицю для визначення видів.

Ключові слова: Ichneumonidae, Rhyssinae, *Megarhyssa*, нові знахідки, визначник, Україна, Румунія.

Introduction

The genus *Megarhyssa* Ashmead, 1900 is a moderately small group of rhyssine parasitoids numbering 36 species worldwide, of which only four are reported from Europe (Yu et al., 2016). The Ukrainian and Romanian faunas of the genus were revised by Kasparyan (1981) and Constantineanu & Pisica (1977), respectively. Later, the European species of the genus *Megarhyssa* were an object of nomenclatural changes in Horstmann's revision (1998). This is probably the main reason of numerous mistakes in species identification found by the author in Ukrainian (Varga, 2018) and Romanian (see below) collections. The main aim of this paper is to provide well illustrated key to

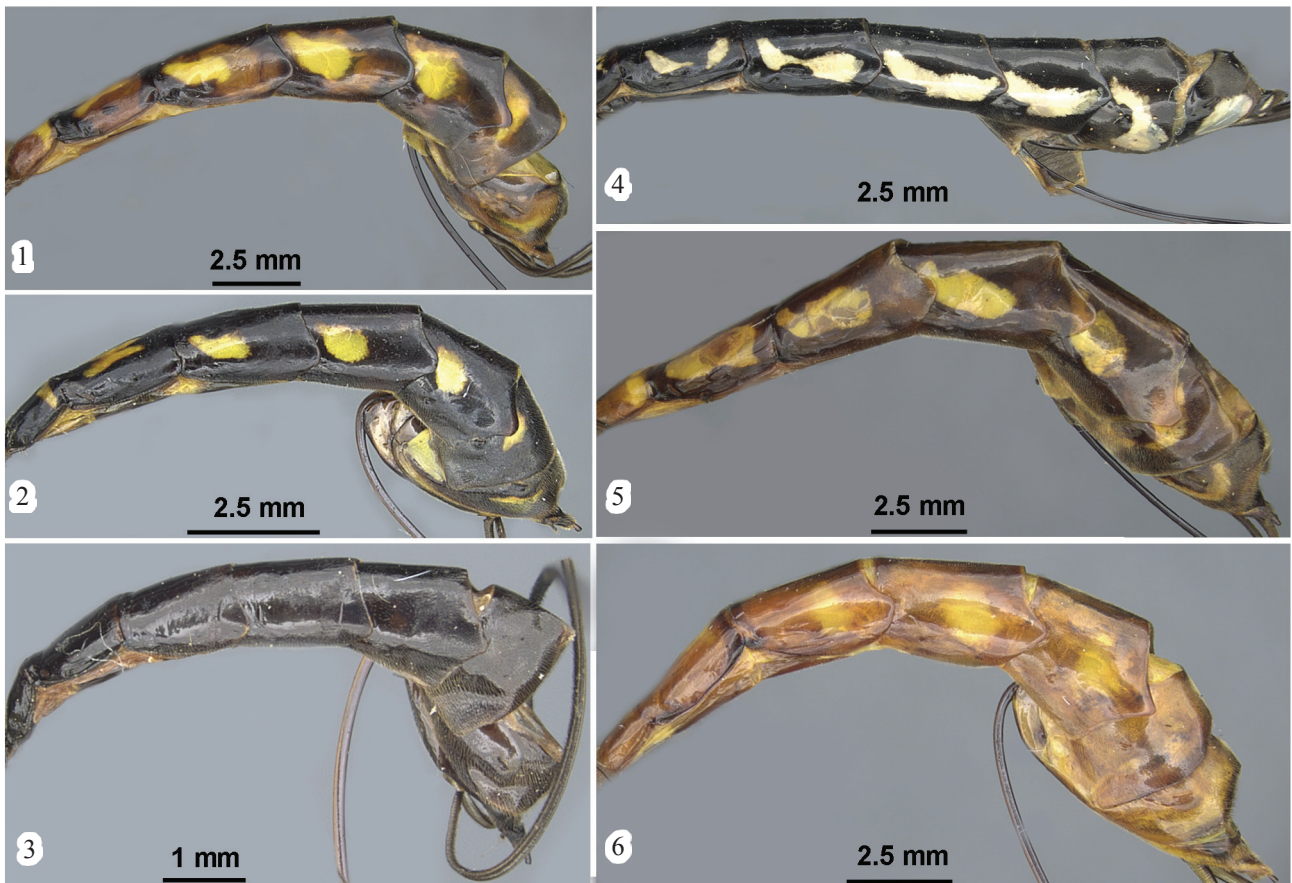
Ukrainian species of the genus and notes on the distribution of the genus in Romania.

Material and Methods

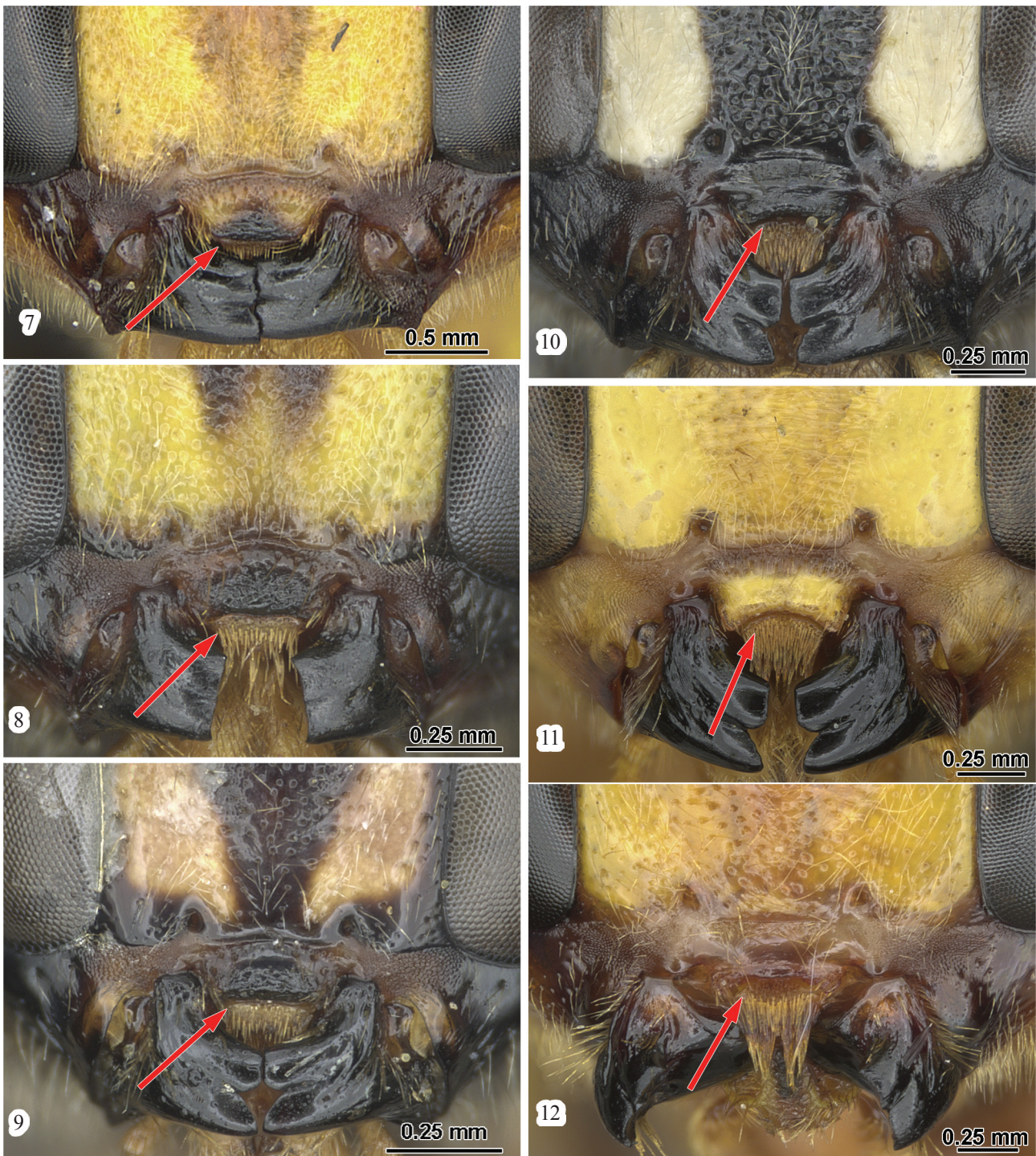
The study is based on specimens collected by the author during field trips in Western Ukraine and Romania in 2011–2018 and materials deposited in the collections of the I.I.Schmalhausen Institute of Zoology, Kyiv (SIZK) and the Alexandru Ioan Cuza University of Iasi, Iasi (UAIC). Images were taken with a Leica Z16 APO microscope equipped with Leica DFC 450 camera and processed by LAS Core software at SIZK.

Key to the Ukrainian species of the genus *Megarhyssa*

1. Females 2
 — Males. 5
2. Metasoma black AND with whitish spots (Fig. 4). Clypeus entirely black (Fig. 10). *M. rixator*
 — Metasoma entirely black OR with yellow spots. Clypeus at least dark brown basally and laterally. 3
3. Clypeus yellow apically (Fig. 11). Spots on tergites long, situated on proximal part of tergites (Fig. 5). Generally, lighter species with abundant yellow and orange colouration. *M. perlata*
 — Clypeus darker, from brown to black apically. Darker species with body colouration often from brownish to black. 4
4. Clypeus more-or-less uniformly brown to dark brown (Fig. 12). Metasomal tergites with round spots, situated on distal part of tergite (Fig. 6). *M. vagatoria*
 — Clypeus with apical black patch, which can extend in dark specimens almost to its base (Figs 7–9). Metasoma from uniformly black to brownish with yellow spots, which are situated on proximal part of tergite (Figs 1–3).
 *M. superba*
5. Paramere apically with an elliptic sclerotized area (Figs 13–14). 6
 — Paramere apically with a horseshoe-like sclerotized area (Figs 15–16). 7
6. Clypeus yellow apically. Sclerotized area descend into a groove almost reaching the base of paramere (Fig. 16).
 *M. perlata*
 — Clypeus at least with a central dark patch. Sclerotized area not descend into a groove (Fig. 15).
 *M. superba*
7. Clypeus and metasoma black. Second metasomal tergite marked with whitish. *M. rixator*
 — Clypeus and metasoma brownish. Second metasomal tergite marked with yellow. *M. vagatoria*



Figs 1–6. *Megarhyssa* spp., lateral view of female metasoma: 1–3 – *M. superba*, 4 – *M. rixator*, 5 – *M. perlata*, 6 – *M. vagatoria*.



Figs 7–12. *Megarhyssa* spp., frontal view of female clypeus: 7–9 – *M. superba*, 10 – *M. rixator*, 11 – *M. perlata*, 12 – *M. vagatoria*.

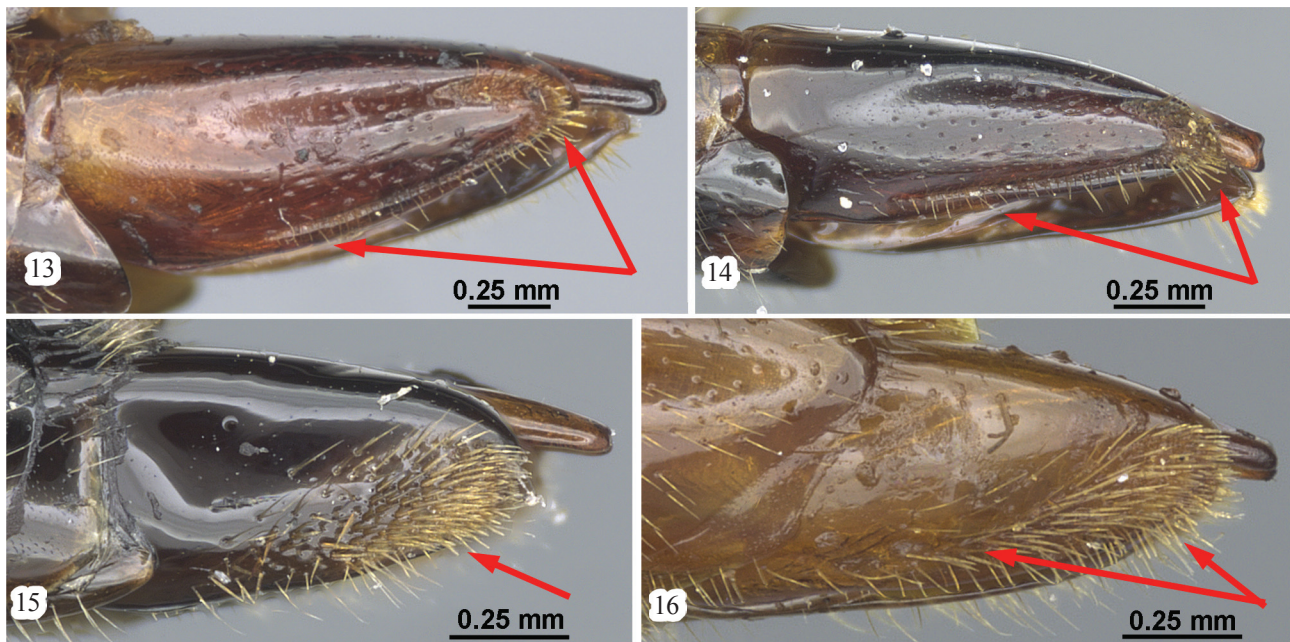
Taxonomy

***Megarhyssa perlata* (Christ, 1791) (Figs 5, 11, 16)**

Material examined. UKRAINE: Donetsk Region, Khomutovskyi Steppe Reserve, 24.06.1979, ♂ (Kotenko); Transcarpathian Region, Vynogradiv Distr., Chorna Gora, 280 m, 48.138338 N, 23.073689 E, 3.05.2018, 6 ♂ observed on dead *Fagus sylvatica* trunk; idem, 29.05.2018, 2 ♀ ovipositing in the same trunk (Varga).

Distribution. Palaearctic and Oriental Regions (Yu et al., 2016); Ukraine: Cherkasy, Kyiv, Lugansk, Odesa, Transcarpathian (Varga, 2018), Donetsk (present study), and Rivne (Zhuravchak, 2019) Regions.

Notes. For data on distribution in Romania see *M. vagatoria*.



Figs 13–16. *Megarhyssa* spp., lateral view of male paramere: 13 – *M. vagatoria*, 14 – *M. rixator*, 15 – *M. superba*, 16 – *M. perlata*.

***Megarhyssa rixator* (Schellenberg, 1802) (Figs 4, 10, 14)**

Material examined. UKRAINE: Kharkiv Region, Vasyscheve, 4.05.2014, ♀ (Shekhovtsov). ROMANIA: Bacău County, Oituz Pass, 6.07.1995, ♂; Neamt County, Ceahlău, Duruitoarea, 11.07.1964, ♂; idem, 12.07.1964, ♂; Cheile Bicazului, 15.07.1959, ♀ (Pisica).

Distribution. Palaearctic Region (Yu et al., 2016); Ukraine: Ivano-Frankivsk, Kyiv (Varga, 2018) and Kharkiv (present study) Regions. Romania: Arges, Baneasa, Buzau, Maramures, Neamt, Sibiu, and Suceava Counties.

***Megarhyssa superba* (Schrank, 1781) (Figs. 1–3, 7–9, 15)**

Material examined. ROMANIA: Sibiu County, Magura, 07.1992, ♀ (Scolka).

Distribution. Palaearctic Region (Yu et al., 2016); Ukraine: Chernigiv and Kyiv Regions (Varga, 2018). Romania: Sibiu County (present study).

Notes. This species in Romania is reported from Arges, Ilfov, Sibiu, and Caraș-Severin Counties (Pisica & Popescu, 2009). The only available specimen published in that study was examined during my visit in UAIC and found to be misidentified by C. Pisica as *M. vagatoria*. It is possible, that all the data on distribution of this species actually belong to *M. vagatoria*. Thus, the only record from Sibiu County can be considered as valid.

***Megarhyssa vagatoria* (Fabricius, 1793) (Figs. 6, 12–13)**

Material examined. UKRAINE: Kharkiv Region, Liubotyn, 26.06.2013, ♀; Krasnokutsk, 21.05.2017, ♀ (Shekhovtsov); Transcarpathian Region, Vynogradiv District, Chorna Gora, 280 m, oak forest,

48.138338 N, 23.073689 E, trunk trap on dead *Fagus sylvatica*, 29.05–3.07.2018, 2 ♂ (Varga). ROMANIA: Iasi County, Barnova, 3.09.1958, ♂; Iasi, reared 20.02.1963, ♀ (Pisica); Sibiu County, Magura, 07.1992, ♂ (Scolka); Mehedinti County, Orsova, 12.06.2017, ♀ (Varga).

Distribution. Palaearctic Region (Yu et al., 2016); Ukraine: Chernigiv, Kherson, Kyiv (Varga, 2018), Kharkiv, and Transcarpathian (present study) Regions. Romania: Constanta, Iasi, Sibiu (Pisica & Popescu, 2009), Mehedinti (present study) Counties.

Notes. *Megarhyssa perlata* was reported from Iasi and Bucuresti Counties by Pisica & Popescu (2009). The only available material is from Iasi County deposited at UAIC. Both *M. perlata* specimens were misidentified by C. Pisica and actually belong to *M. vagatoria*. Thus, due to lack of specimens the distribution of *M. perlata* in Romania remains questionable.

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