

THE CATALOGUE OF ICHNEUMON WASPS OF SLOVAKIA (*HYMENOPTERA: ICHNEUMONIDAE*) PART I: A CHECKLIST OF THE SUBFAMILY CRYPTINAE WITH 32 NEW RECORDS

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Abstract

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The subfamily *Cryptinae* Kirby, 1837 is considered the largest group in the *Ichneumonidae* with more than 400 described genera including around 4500 species. The subfamily has a worldwide distribution and its members play a key role in the biological control as parasitoids of many important pests. The study provides a new and updated overview of the Slovakian ichneumonid fauna after 28 years. So far over 750 species of *Ichneumonidae* have been reported from Slovakia, including around 150 species in the subfamily *Cryptinae*. Our study presents a complete checklist of *Cryptinae* and adds 32 species to the Slovakian fauna.

Keywords: *Cryptinae*, *Hymenoptera*, *Ichneumonidae*, parasitoids, Slovakia

INTRODUCTION

The subfamily *Cryptinae* Kirby, 1837 is considered the largest groups in the *Ichneumonidae* with more than 400 described genera including around 4500 species (Yu and Horstman, 1997). The subfamily has a worldwide distribution, however, it is recognised to be non-monophyletic (Laurenne *et al.*, 2006). Similar to other ichneumonid groups, *Cryptinae* has various hosts and specialisations, from idiobiont ectoparasitoids to endoparasitoids of Diptera and Lepidoptera, and pseudohyperparasitoids of Hymenoptera including *Ichneumonidae* (Quicke, 2014). Many interesting features have appeared in the biology of this subfamily since the Upper Cretaceous, when the evolution and diversification of ichneumonid wasps began, e.g. aptery (brachyptery), predatorism (Fitton *et al.*,

1987), semiaquaticism (Frohne, 1939), and even echolocation (Quicke, 2014). So far over 750 species of *Ichneumonidae* have been reported from Slovakia, including around 150 species in the subfamily *Cryptinae* (Šedivý, 1989). Our study provides a new and updated overview of the Slovakian ichneumonid fauna after 28 years.

MATERIAL AND METHODS

We combined knowledge from published (and revised) records (Holý, 2016; Horstmann, 2010; Lukáš, 1998; Schwarz, 1990; Schwarz, 1998; Schwarz, 2001; Schwarz, 2002; Schwarz, 2003; Schwarz, 2005; Schwarz, 2007; Schwarz, 2015; Schwarz and Holý, 2015; Šedivý, 1989; Zeman, 2003) and our own extensive material collected all over the country. The material was collected

randomly and using different methods (Malaise and yellow traps, sweeping, etc.) for several decades and contains thousands of specimens. It was identified by authors (Zeman V., Rindoš M.) and compared with the published checklists by Šedivý (1989) and Holý (2016). The material is deposited in collection of J. Lukáš with an exception of *G. fuscicornis*, which is deposited in collection of M. Rindoš. The nomenclature used in our checklist follows Yu *et al.* (2012).

RESULTS

A list of species previously recorded from the territory of Slovakia divided into three main tribes forming the subfamily Cryptinae:

Cryptini Kirby 1837

Agrothereutes abbreviatus (Fabricius, 1794); *A. adustus* (Gravenhorst, 1829); *A. fumipennis* (Gravenhorst, 1829); *A. mandator* (Linnaeus, 1758); *A. mansuetor* (Tschek, 1871); *Apsilops aquaticus* (Thomson, 1874); *A. cinctorius* (Fabricius, 1775); *Aritranis director* (Thunberg, 1822); *A. nigrifemur* (Szépligeti, 1916); *A. nigripes* (Gravenhorst, 1829); *A. occisor* (Gravenhorst, 1829); *Caenocryptus polytomi* (Tschek, 1872); *Cryptus armator* Fabricius, 1804; *C. diana* Gravenhorst, 1829; *C. inculcator* (Linnaeus, 1758); *C. macellus* Tschek, 1871; *C. moschator* (Fabricius, 1787); *C. obscuripes* Zetterstedt, 1838; *C. spinosus* Gravenhorst, 1829; *C. spiralis* (Geoffroy, 1785); *C. subspinosus* Smits van Burgst, 1913; *C. triguttatus* Gravenhorst, 1829; *C. tuberculatus* Gravenhorst, 1829; *C. viduatorius* Fabricius, 1804; *Gambrus bipunctatus* (Tschek, 1872); *G. carnifex* (Gravenhorst, 1829); *G. tricolor* (Gravenhorst, 1829); *Hidryta fusiventris* (Thomson, 1873); *H. simplex* (Tschek, 1871); *Hoplocryptus bellosus* (Curtis, 1837); *H. heliophilus* (Tschek, 1871); *H. melanocephalus* (Gravenhorst, 1829); *H. murarius* (Börner, 1782); *H. quadriguttatus* (Gravenhorst, 1829); *Idiolispa analis* (Gravenhorst, 1807); *I. grossa* (Gravenhorst, 1829); *I. hungarica* (Szepligeti, 1916); *Ischnus facialis* (Szépligeti, 1916); *I. inquisitorius* (Müller, 1776); *I. migrator* (Fabricius, 1775); *Latibulus argiolus* (Rossi, 1790); *Listrognathus firmator* (Fabricius, 1798); *L. furax* (Tschek, 1871); *L. helvetica* (Horstmann, 1968); *L. mactator* (Thunberg, 1822); *L. obnoxius* (Gravenhorst, 1829); *L. pubescens* (Fonscolombe, 1850); *Meringopus attentorius* (Panzer, 1804); *Mesostenus albinotatus* Gravenhorst, 1829; *M. crassifemur* Thomson, 1888; *M. funebris* Gravenhorst, 1829; *M. transfuga* Gravenhorst, 1829; *Myrmeleonostenus italicus* (Gravenhorst, 1829); *Nematopodius formosus* Gravenhorst, 1829; *Nippocryptus vittatorius* (Jurine, 1807); *Pycnocryptodes insinuator* (Gravenhorst, 1829); *Schreineria cingulipes* (Förster, 1888); *Sphecophaga vesparum* (Curtis, 1828); *Stenarella domator* (Poda, 1761); *Synechocryptus mactator* (Tschek, 1871); *Thrybius brevispina* (Thomson, 1896); *T. praedator* (Rossi, 1792); *Trychosis ambigua* (Tschek, 1871); *T. neglecta* (Tschek, 1871); *T. priesneri* Rossem, 1971; *T. tristator* (Tschek, 1871); *Xylophrurus lancifer* (Gravenhorst, 1829)

Hemigastrini Ashmead, 1900

Aconias tarsatus (Bridgman, 1881); *Aptesis flagitator* (Rossi, 1794); *A. gravipes* (Gravenhorst, 1829); *Colocnema rufina* (Gravenhorst, 1829); *Cubocephalus nigriiventris* (Thomson, 1874); *Echthrus reluctator* (Linnaeus, 1758); *Listrocryptus spatulatus* Brauns, 1905; *Megaplectes monticola* (Gravenhorst, 1829); *Oresbius subguttatus* (Gravenhorst, 1829); *Pleolophus basizonus* (Gravenhorst, 1829); *P. brachypterus* (Gravenhorst, 1815); *P. micropterus* (Gravenhorst, 1815); *Polytribax perspicillator* (Gravenhorst, 1807); *Schenkia scopulifer* (Obrtel, 1953)

Phygadeuontini Förster, 1869

Bathythrix argentata (Gravenhorst, 1829); *B. claviger* (Taschenberg, 1865); *B. collaris* (Thomson, 1896) [syn. *ornatus* Křístek & Obrtel, 1958]; *B. fragilis* (Gravenhorst, 1829); *B. lamina* (Thomson, 1884); *B. pellucidator* (Gravenhorst, 1829); *B. thomsoni* (Kerrich, 1942); *Blapsidotes vicinus* (Gravenhorst, 1829); *Diaglyptellodes sculpturator* (Aubert, 1977); *Diaglyptidea conformis* (Gmelin, 1790); *Dichrogaster aestivalis* (Gravenhorst, 1829); *D. liostylus* (Thomson, 1885); *Encrateola laevigata* (Ratzeburg, 1848); *Ethelurgus sodalis* (Taschenberg, 1865); *Eudelus scabriculus* (Thomson, 1884); *Gelis agilis* (Fabricius, 1775); *G. albicinctus* (Ruthe, 1859); *G. areator* (Panzer, 1804); *G. balteatus* (Thomson, 1885); *G. brevithorax* Roman, 1936; *G. cayennator* (Thunberg, 1822); *G. cinctus* (Linnaeus, 1758); *G. cursitans* (Fabricius, 1775); *G. cyanurus* (Förster, 1850); *G. hortensis* (Christ, 1791); *G. melanocephalus* (Schränk, 1781); *G. mutillatus* (Gmelin, 1790); *G. proximus* (Förster, 1850); *G. pulicarius* (Fabricius, 1793); *G. recens* Schwarz, 2002; *G. rufogaster* Thunberg, 1827; *G. spurius* (Förster, 1850); *G. stevenii* (Gravenhorst, 1829); *Glyphicnemis profligator* (Fabricius, 1775); *G. vagabunda* (Gravenhorst, 1829); *Helcostizus restaurator* (Fabricius, 1775); *Hemiteles bipunctator* (Thunberg, 1822); *Charitopes gastricus* (Holmgren, 1868); *Chirotica decorator* (Villers, 1789); *Ch. insignis* (Gravenhorst, 1829); *Ch. maculipennis* (Gravenhorst, 1829); *Isadelphus inimicus* (Gravenhorst, 1829); *Lysibia nana* (Gravenhorst, 1829); *Mastrus sordipes* (Gravenhorst, 1829); *Medophron afflictor* (Gravenhorst, 1829); *Megacara vagans* (Gravenhorst, 1829); *Obisiphaga stenoptera* (Marshall, 1868); *Phygadeuon dubius* (Gravenhorst, 1829); *P. interstitialis* (Schmiedeknecht, 1897); *Polyaulon paradoxus* (Zetterstedt, 1838); *P. stiavnicensis* (Čapek, 1956); *Rhembobius quadrispinus* (Gravenhorst, 1829); *Stibeutes rozsypli* (Gregor, 1941); *Stilpnus blandus* Gravenhorst, 1829; *S. gagates* (Gravenhorst, 1807); *S. tenebricosus* (Gravenhorst, 1829); *Thaumtogelis lichtensteini* (Pfankuch, 1913); *T. sylbicola* (Förster, 1850); *Theroscopus esenbeckii* (Gravenhorst, 1815); *T. hemipteron* (Riche, 1791); *Tropistes falcatus* (Thomson, 1884); *T. nitidipennis* Gravenhorst, 1829; *Xenolytus bitinctus* (Gmelin, 1790)

Newly recorded species for the territory of Slovakia:

- Acroricnus stylator* (Thunberg, 1822) – 1F, Kopáč, 21.7.2006, lgt. J. Lukáš
- Agrothereutes aterrimus* (Gravenhorst, 1829) – 1M 1F, Kopáč, 31.5.2005, lgt. J. Lukáš
- A. hospes* (Tschek, 1871) – 1F, Mníchová Lehota, 24.10.1984, lgt. J. Lukáš
- A. leucorhaeus* (Donovan, 1810) – 1F, Kopáč, 24.6.2006, lgt. J. Lukáš
- Aritranis claviventhris* (Kriechbaumer, 1894) – 1F, Šúr, 4.8.2008, lgt. O. Majzlan
- A. explorator* (Tschek, 1871) – 1F, Kopáč, 10.7.2007, lgt. J. Lukáš
- Buathra laborator* (Thunberg, 1822) – 1F, Devínska Kobyla, 6.6.1994, lgt. O. Majzlan
- B. tarsoleucos* (Schränk, 1781) – 2F, Devínska Kobyla, 26.7.2001, lgt. J. Lukáš
- Cryptus incisus* (Tschek, 1871) – 1F, Kopáč, 10.7.2006, lgt. J. Lukáš
- C. titubator* (Thunberg, 1822) – 1F, Devínska Kobyla, 1.7.1994, lgt. O. Majzlan
- Enclisis vindex* (Tschek, 1871) – 1F, Devínska Kobyla, 15.5.1994, lgt. O. Majzlan
- Gambrus ornatus* (Gravenhorst, 1829) – 1F, Kopáč, 10.7.2006, lgt. J. Lukáš
- Gelis fuscicornis* (Retzius, 1783) – 1F, Bajč, 10.5.2013, lgt. M. Rindoš
- Hoplocryptus confector* (Gravenhorst, 1829) – 1F, Kopáč, 10.7.2006, lgt. J. Lukáš
- H. coxator* (Tschek, 1871) – 1F, Kopáč, 22.8.2006, lgt. J. Lukáš
- Hidryta sordida* (Tschek, 1871) – 1F, Kopáč, 31.5.2005, lgt. J. Lukáš
- Ischnus alternator* (Gravenhorst, 1829) – 1F, Kopáč, 11.7.2005, lgt. J. Lukáš
- Mastrus deminuens* (Hartig, 1838) – 1F, Devínska Kobyla, 21.8.2001, lgt. J. Lukáš
- M. ridibundus* (Gravenhorst, 1829) – 1F, Šúr, 28.7.2008, lgt. O. Majzlan
- M. varicoxis* (Taschenberg, 1865) – 1F, Devínska Kobyla, 21.8.2001, lgt. J. Lukáš
- Meringopus nigerrimus* (Fonscolombe, 1850) – 1F, Kopáč, 17.7.2005, lgt. J. Lukáš
- M. pseudonymus* (Tschek, 1872) – 1F, Kopáč, 10.7.2006, lgt. J. Lukáš
- Phygadeuon clypearis* Strobl, 1901 – 1F, Kopáč, 10.7.2006, lgt. J. Lukáš
- P. elegans* (Foerster, 1850) – 1F, Oravská Polhora, 10.1.2008, lgt. D. Hrubjaková
- P. rugulosus* Gravenhorst, 1829 – 2F, Šúr, 12.8.2008, lgt. L. Vidlička
- P. subtilis* Gravenhorst, 1829 – 1F, Kopáč, 19.6.2005, lgt. J. Lukáš
- P. vexator* (Thunberg, 1822) – 1F, Šúr, 1.7.2008, lgt. O. Majzlan
- Picardiella melanoleuca* (Gravenhorst, 1829) – 1F, Kopáč, 12.6.2005, lgt. J. Lukáš
- Trychosis atripes* (Gravenhorst, 1829) – 1F, Kopáč, 10.7.2006, lgt. J. Lukáš
- T. legator* (Thunberg, 1822) – 2F, Devínska Kobyla, 14.6.1994, lgt. O. Majzlan
- T. pauper* (Tschek, 1871) – 1F, Devínska Kobyla, 24.6.1994, lgt. O. Majzlan
- Xiphulcus floricator* (Gravenhorst, 1807) – 1F, Kopáč, 25.5.2009, lgt. M. Rindoš

DISCUSSION

Our study presents a checklist of over 150 currently known species of Cryptinae from Slovakia with an additional 32 newly recorded from the country. It has undoubtedly extended our knowledge about the distribution of this subfamily in Europe. The relatively high number of so far unrecorded species confirms the lack of knowledge about the biodiversity of Ichneumonidae in Slovakia. Another problem could be caused by geopolitical changes in our region, where many records were published from Upper Hungary (Mocsáry, 1897) or Czechoslovakia (e.g. Schwarz, 1990) and the real location of these species may be currently situated in territory of Slovakia. Many of these newly added species have wide distributional ranges. They are known also from other Central European countries (Yu *et al.*, 2012). Considering the diversity of Ichneumonidae in Europe and climate changes, we assume that more species could be present, but they are still overlooked in the territory of Slovakia. Cryptinae as parasitoids play key role in the biological control of many important pests (Gould, 1991). Thus it represents the most important reason why we should study their diversity and biology.

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