



Ichneumonidae in historical collections from Belgium:

I. Adolphe Crèvecoeur (collected during 1914–1949) [RBINS]

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Abstract

A box with Ichneumonidae collected by the Belgian entomologist Adolphe Crèvecoeur was thoroughly analysed. One hundred and nine specimens from a total of 127 (85%) are identified to species level. Sixty three species are reported, with 12 being new for the Belgian fauna. Rearing records of *Bathyplectes cingulatus* (Brischke, 1880), *Lathrolestes macropygus* (Holmgren, 1857), *Scambus buolianae* (Hartig, 1838) and *Scambus pomorum* (Ratzeburg, 1848) are new for science.

Keywords: biodiversity, Darwin wasps, historical collections, parasitoid wasps, rearing

Samenvatting

Een doos sluipwespen ingezameld door de Belgische entomoloog Adolphe Crèvecoeur werd grondig geanalyseerd. Van de in totaal 127 specimens konden 109 (85%) tot op soort worden gedetermineerd. Drieënzestig soorten worden gemeld, waarvan 12 nieuw voor de Belgische fauna. Kweekrecords van *Bathyplectes cingulatus* (Brischke, 1880), *Lathrolestes macropygus* (Holmgren, 1857), *Scambus buolianae* (Hartig, 1838) en *Scambus pomorum* (Ratzeburg, 1848) zijn nieuw voor de wetenschap.

Résumé

Une collection de 127 spécimens d'Ichneumonidae, collectés par l'entomologiste belge Adolphe Crèvecoeur, a été analysée de manière approfondie. Cette étude a permis d'identifier 109 spécimens (85%) comprenant 63 espèces, dont 12 sont nouvelles pour la faune belge. En outre, les espèces *Bathyplectes cingulatus* (Brischke, 1880), *Lathrolestes macropygus* (Holmgren, 1857), *Scambus buolianae* (Hartig, 1838) et *Scambus pomorum* (Ratzeburg, 1848) issues d'élevage ont permis d'obtenir des données nouvelles pour la science.

Introduction

The Belgian entomologist Adolphe Crèvecoeur (1895-1959) is well known for his work on solitary bees and his work with P. Maréchal on the distribution of several Hymenoptera (DE WALSCHE, 1959; PAULY, 2001). In honour of his person, the Belgian Entomological Society named a prize after him (MARNEF, 1961). Occasionally, Crèvecoeur also collected ichneumonid wasps (Ichneumonidae) or reared them (see below). This part of his collection (IG 22.333) was stored in one box and donated to the Royal Belgian Institute of Natural

Sciences on 7 June 1961 together with the main part of his collection (consisting of in total 9027 identified hymenopterans and 1500 specimens in addition) and associated documentation/archives. Presumably, this box was classified in the taxonomical collection of RBINS as ‘suppléments non identifiés’ shortly after the donation. A few dozen of these wasps were identified by Crèvecoeur and labelled (see “label **” in Results), but the main part remained unidentified up to today.

Material and methods

The condition of the collected specimens is average to good. Some parts (antennae, legs, metasoma) are removed from certain specimens as is sometimes the case in an older collection. The wasps are all well prepared on needles and labelled. Surprisingly, several specimens were preserved with the material they were reared from (galls, cocoons, etc.; Figs 1, 2, 8, 9). This is often done in an excellent and tidy way. It is clear that Crèvecoeur worked meticulously and had a broad perspective on Hymenoptera and their ecology. Additionally, more or less a third of the specimens (45 in total) were explicitly reared and labelled ‘Élev.’ (Élevage) with a pink or orange label with a number. These labels could be traced back to sheets containing the same numbers, which were preserved in the archives of RBINS and contained more details on the rearings. Again, Crèvecoeur’s eye for detail is often remarkable. On sheet ‘268’ for example (see Fig. 11) he mentions how he collected egg sacs of arachnids (presumably Lycosidae) on several plants standing on clayish soil, at a height of 10 to 30 centimetres (or even 40 cm) from this soil. Always mentioned are the collection date and plant, hosts and the insects which emerged (dates, identifications) with their correct amount. Most rearings confirm known rearing records from important contemporaries specialised in rearing Parasitica (for example Habermehl and Meyer). However, four records are new for science (see also YU *et al.*, 2012 for the known relations). All rearing information was integrated in the Results section and summarized in Table 1.

Of course, the biggest share of the specimens was collected and/or reared by Crèvecoeur himself. However, at least ten specimens were gifts from other entomologists mainly specialised in Lepidoptera: Lucien Frennet (8 specimens), P.J. Roelofs (at least 1, possibly 6 specimens; only one specimen labelled with its origin) and Abel Dufrane (1 specimen).

Overall 109 from the 127 specimens (85%) could be identified to species level. The remaining 18 specimens could be identified to genus or subfamily, except for one specimen which was too badly damaged. Unidentified specimens are also present because the existing keys are insufficient and reference material is often absent (*Alexeter*, *Exochus*, *Mesochorus*, *Plectiscus*, *Stenomacrus* and *Scambus* spp., Ctenopelmatinae and Phygadeuontinae indet.) and/or because the specimen was not well prepared (*Probles/Tersilochus* sp.). Some identifications are uncertain because the material is damaged, reference material is missing or because the taxonomical status is unclear (marked with ‘?’). Nonetheless, we integrated all specimens in the Results section to facilitate future research. Twelve species were new for the Belgian fauna and officially reported in another paper (VERHEYDE *et al.*, 2021; for examples see Figs 6, 10).

Next to several more random observations, there are two main regions where Crèvecoeur was active. One is centred around Brussels or neighbouring cities, where he was born and where he lived (for example Bosvoorde, Dilbeek, Elsene, Oppem, Stokkel, Sterrebeek, Ukkel and Wezembeek). Especially the Sonian Forest was often visited. The second region was centred around Bruges (see also DE WALSCHE, 1959). This is a bit more interesting because data from this period is scarce in West-Flanders. Many observations were done in Sint-Andries (near the current nature reserve Beisbroek), some in Assebroek and Oostkamp. On some of the abovementioned sheets Crèvecoeur mentions a chapel and garden near Sint-Andries.

The material formatting follows the European guidances on taxonomy from CETAF (BÉNICHOU *et al.*, 2018). Taxonomical hierarchy and integration of tribes and genera is based on BROAD *et al.* (2018). Species new for the Belgian fauna are marked with *.

ABBREVIATIONS

Provinces

AN	=	Antwerp
BW	=	Walloon Brabant
BR	=	Brussels
HA	=	Hainaut
LIB	=	Limburg (Belgium)
LG	=	Liège
LX	=	Luxembourg
NA	=	Namur
OVL	=	East Flanders
VB	=	Flemish Brabant
WVL	=	West Flanders

Table 1. Rearing records labelled as such in the collection (more details see Results).

Nr.	Emergence date	Host	Collection date	Parasitoid wasp
268	15/06/1932	<i>Arachnida (Lycosidae?)</i>	14/06/1932	<i>Bathythrix collaris</i>
268	17/06/1932	<i>Arachnida (Lycosidae?)</i>	14/06/1932	<i>Bathythrix collaris</i>
268	4/07/1932	<i>Arachnida (Lycosidae?)</i>	14/06/1932	<i>Thaumtogelis audax</i>
268	3/05/1933	<i>Arachnida (Lycosidae?)</i>	14/06/1932	<i>Ichneumonidae indet.</i>
268	3/05/1933	<i>Arachnida (Lycosidae?)</i>	14/06/1932	<i>Orthizema triannulatum</i>
268	17/06/1932	<i>Arachnida (Lycosidae?)</i>	14/06/1932	<i>Orthizema triannulatum</i>
309	14/05/1933		1/01/1933	<i>Cratocryptus subpetiolatus</i>
309	25/05/1933		1/01/1933	<i>Cratichneumon culex</i>
311	30/04/1933	<i>Lipara</i>	29/01/1933	<i>Endromopoda detrita</i>
391	10/04/1937	<i>Gymnomerus (Odynerus) laevipes</i>	12/09/1936	<i>Xylophrurus augustus</i>
391	10/04/1937	<i>Gymnomerus (Odynerus) laevipes</i>	12/09/1936	<i>Xylophrurus augustus</i>
416	23/04/1937	<i>Gymnomerus (Odynerus) laevipes</i>	26/12/1936	<i>Mesochorus sp.</i>
448	24/03/1938	<i>Gymnomerus (Odynerus) laevipes</i>	6/02/1938	<i>Xylophrurus augustus</i>
450	23/03/1938	<i>Gymnomerus (Odynerus) laevipes</i>	6/02/1938	<i>Xylophrurus augustus</i>
450	23/03/1938	<i>Gymnomerus (Odynerus) laevipes</i>	6/02/1938	<i>Xylophrurus augustus</i>
450	23/03/1938	<i>Gymnomerus (Odynerus) laevipes</i>	6/02/1938	<i>Xylophrurus augustus</i>
450	29/03/1938	<i>Gymnomerus (Odynerus) laevipes</i>	6/02/1938	<i>Bathyplectes cingulatus</i>
463	3/05/1939	<i>Diplolepis (Rhodites) rosae</i>	2/10/1938	<i>Orthopelma mediator</i>
463	3/05/1939	<i>Diplolepis (Rhodites) rosae</i>	2/10/1938	<i>Orthopelma mediator</i>
463	5/06/1939	<i>Diplolepis (Rhodites) rosae</i>	2/10/1938	<i>Orthopelma mediator</i>

Nr.	Emergence date	Host	Collection date	Parasitoid wasp
464	16/05/1939	<i>Diplolepis (Rhodites) rosae</i>	2/10/1938	<i>Orthopelma mediator</i>
487	26/04/1939	<i>Orellia (Chaetostomella) cylindrica</i>	*/03/1939	<i>Scambus brevicornis</i>
546	22/05/1941	<i>Diplolepis (Rhodites) eglanteriae</i>	15/10/1940	<i>Orthopelma mediator</i>
547	5/06/1941	<i>Diplolepis (Rhodites) rosae</i>	15/10/1940	<i>Orthopelma mediator</i>
547	5/06/1941	<i>Diplolepis (Rhodites) rosae</i>	15/10/1940	<i>Orthopelma mediator</i>
547	5/06/1941	<i>Diplolepis (Rhodites) rosae</i>	15/10/1940	<i>Orthopelma mediator</i>
547	14/06/1941	<i>Diplolepis (Rhodites) rosae</i>	15/10/1940	<i>Orthopelma mediator</i>
561	30/05/1941	<i>Tischeria ekebladella (complanella)</i>	29/10/1940	<i>Scambus sp.</i>
588	30/07/1941	<i>Syrphidae</i>	21/07/1941	<i>Phygadeuontinae indet.</i>
610	8/05/1942	<i>Fenusa dohrnii</i>	4/10/1941	<i>Lathrolestes macropygus</i>
619	30/08/1942	<i>Heterarthrus (Phyllotoma) vagans</i>	2/11/1941	<i>Dolophron pedella</i>
619	*/08/1942	<i>Heterarthrus (Phyllotoma) vagans</i>	2/11/1941	<i>Dolophron pedella</i>
624	24/05/1942		25/12/1941	<i>Perithous divinator</i>
632	8/05/1942		26/12/1941	<i>Perithous divinator</i>
632	15/05/1942		26/12/1941	<i>Perithous divinator</i>
632	15/05/1942		26/12/1941	<i>Perithous divinator</i>
632a	10/05/1942		26/12/1941	<i>Perithous divinator</i>
632b	16/05/1942	<i>Pemphredon</i>	26/12/1941	<i>Perithous divinator</i>
680	26/09/1943	<i>Pontania</i>	13/09/1943	<i>Scambus pomorum</i>
692	22/04/1944	<i>Diprion (Lophyrus) pini</i>	22/10/1943	<i>Olesicampe macellator</i>
698a	30/03/1944	<i>Orellia (Chaetostomella) cylindrica</i>	3/01/1944	<i>Scambus buolianae</i>
700a	15/05/1944	<i>Cranura (Dicranura) vinula</i>	*/02/1944	<i>Netelia vinulae</i>
700a	21/05/1944	<i>Cranura (Dicranura) vinula</i>	*/02/1944	<i>Netelia vinulae</i>
700a	27/05/1944	<i>Cranura (Dicranura) vinula</i>	*/02/1944	<i>Netelia vinulae</i>
700	24/05/1944	<i>Cranura (Dicranura) vinula</i>	*/02/1944	<i>Netelia vinulae</i>

Results

Order Hymenoptera Linnaeus, 1758
Suborder Apocrita Gerstaecker, 1867
Superfamily Ichneumonoidea Latreille, 1802
Family Ichneumonidae Latreille, 1802
Subfamily Anomaloniinae Viereck, 1918
Tribe Gravenhorstiini Enderlein, 1912

Agrypon canaliculatum (Ratzeburg, 1844)

BELGIUM: • 1 ♀; Sint-Andries (WVL); 6.vi.1938; A. Crèvecoeur leg., F. Verheyde det.

***Heteropelma megarthrum* (Ratzeburg, 1848)**

BELGIUM: • 1 ♀; Blankenberge (WVL); 13.vi.1920; label 'Therion circumflexum sl'; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Sint-Andries (WVL); 14.vii.1941; label '*Heteropelma calicator*'; A. Crèvecoeur leg.; F. Verheyde det.

***Therion circumflexum* s.l. (Linnaeus, 1758)**

BELGIUM: • 2 ♀♀; Bauche (NA); vi.1945; L. Frennet leg.; F. Verheyde det.

Subfamily Campopleginae Förster, 1869***Bathyplectes cingulatus* (Brischke, 1880) (Fig. 1)**

BELGIUM: • 1 ♂; Oppem (VB); 29.iii.1938; preserved with cocoon; A. Crèvecoeur leg.; S. Klopstein & F. Verheyde det.; élev. N° 450; reared from *Gymnomerus (Odynerus) laevipes* (Apocrita: Vespidae), collected on 6.ii.1938.

***Dolophron pedella* (Holmgren, 1860) (Fig. 2)**

BELGIUM: • 1 ♀; Sint-Andries (WVL); 30.viii.1942; preserved with host material; A. Crèvecoeur leg.; F. Verheyde det.; reared from *Heterarthrus vagans* (Symphyta: Tenthredinidae), collected on 2.xi.1941. • 1 ♂; Sint-Andries (WVL); viii.1942; A. Crèvecoeur leg.; F. Verheyde det.; Élev. N° 619; reared from *Heterarthrus vagans*, collected on 2.xi.1941.

***Dusona confusa* (Förster, 1868)**

BELGIUM: • 1 ♀; Sint-Andries (WVL); 27.vi.1936; A. Crèvecoeur leg.; F. Verheyde det.; specimen measuring 14 mm with 55 flagellomeres.

***Dusona falcator* (Fabricius, 1775) (?)**

BELGIUM: • 1 ♀; Sint-Andries (WVL); 14.viii.1925; A. Crèvecoeur leg.; label '*Campoplex falcator*'; F. Verheyde det.; specimen without metasoma.

***Dusona flagellator* (Fabricius, 1793)**

BELGIUM: • 1 ♀; Wezembeek (VB); 3.ix.1945; A. Crèvecoeur leg.; F. Verheyde det.; specimen measuring 8 mm with 44 flagellomeres.

***Dusona leptogaster* (Holmgren, 1860) (Fig. 3)**

BELGIUM: • 1 ♀; Brussel, Zoniënwood (BR); 21.v.1933; A. Crèvecoeur leg.; F. Verheyde det.; specimen measuring 7 mm with 41 flagellomeres.

****Dusona rossica* Hinz, 1979 (?)**

BELGIUM: • 1 ♀; Malmedy (LG); vii.1938; L. Frennet leg.; F. Verheyde det.; specimen measuring 14 mm with 57 flagellomeres.

****Olesicampe macellator* (Thunberg, 1822)**

BELGIUM: • 1 ♂; Rijmenam (AN); 22.iv.1944; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 692; reared from *Diprion (Lophyrus) pini* (Symphyta: Diprionidae), collected on 22.x.1943 on *Pinus sylvestris*.

Subfamily Collyriinae Cushman, 1924***Collyria coxator* (Villers, 1789)**

BELGIUM: • 1 ♀; Bertem (VB); 9.vi.1946; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Oudenaarde (OVL); vi.1948; L. Frennet leg.; F. Verheyde det.



Fig. 1. *Bathyplectes curculionis* ♂ (Thomson, 1887), Oppem, 24.III.1938. © Fons Verheyde.

Fig. 2. *Dolophron pedella* ♀ (Holmgren, 1860), Sint-Andries, 30.VIII.1942. © Fons Verheyde.

Fig. 3. *Dusona leptogaster* ♀ (Holmgren, 1860), Brussels (Sonian Forest), 21.V.1933. © Fons Verheyde.

Fig. 4. *Cryptus spinosus* ♀ (Gravenhorst, 1829), Ukkel, 8.VI.1946. © Fons Verheyde.

Fig. 5. *Ctenopelma nigrum* ♀ Holmgren, 1857, Brussels (Sonian Forest), 21.V.1933. © Fons Verheyde.

Fig. 6. **Hadrodactylus nigrifemur* ♂ Thomson, 1883, Bosvoorde, 15.V.1932. © Fons Verheyde.

Subfamily Cryptinae Kirby, 1837

Tribe Aptesini Smith and Shenefelt 1955

Aptesis nigrocincta (Gravenhorst, 1815)

BELGIUM: • 1 ♀; Bauche (NA); vi.1945; L. Frennet leg.; F. Verheyde det.

Cratocryptus subpetiolatus (Gravenhorst, 1829)

BELGIUM: • 1 ♀; Varsenare (WVL); 14.v.1933; A. Crèvecoeur leg.; H. Meijer & F. Verheyde det.; élev. N° 309; possibly reared from stems in a bee-hotel, collected on 1.i.1933.

Tribe Cryptini Kirby, 1837

Agrothereutes abbreviatus (Fabricius, 1794)

BELGIUM: • 1 ♀; Lokeren (OVL); ix.1914; label '*Hemiteles* sp.'; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Mechelen (AN); 8.v.1938; L. Frennet leg.; F. Verheyde det.

Agrothereutes leucorhaeus (Donovan, 1810)

BELGIUM: • 1 ♀; Sint-Andries (WVL); 8.x.1941; A. Crèvecoeur leg.; F. Verheyde det.

Buathra laborator (Thunberg, 1822)

BELGIUM: • 1 ♀; Stokkel (BR); 14.v.1941; A. Crèvecoeur leg.; F. Verheyde det.

Cryptus spinosus (Gravenhorst, 1829) (Fig. 4)

BELGIUM: • 1 ♀; Ukkel (BR); 1.vii.1916; label '*Cryptus spinosus*'; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Ukkel (BR); 8.vi.1946; A. Crèvecoeur leg.; F. Verheyde det.; Fig. 4.

Stenarella domator (Poda, 1761)

BELGIUM: • 1 ♀; Bierbeek (VB); 3.vii.1926; label '*Mesostenus gladiator*'; A. Crèvecoeur leg.; F. Verheyde det.

Xylophrurus augustus (Dalman, 1823)

BELGIUM: • 1 ♀; Sterrebeek (VB); 28.viii.1936; label '*Kaltenbachia apum*'; A. Crèvecoeur leg.; F. Verheyde det. • 2 ♀♀; Sterrebeek (VB); 10.iv.1937; label '*Kaltenbachia apum*'; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 391; reared from *Gymnomerus (Odynerus) laevipes* (Apocrita: Vespidae), collected on 12.ix.1936. • 4 ♀♀; Oppem (VB); 23.iii.1938; label '*Kaltenbachia apum*'; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 448 & 450; reared from *Gymnomerus (Odynerus) laevipes*, collected on 6.ii.1938.

Tribe Ctenopelmatini Förster, 1869

Ctenopelma nigrum Holmgren, 1857 (Fig. 5)

BELGIUM: • 1 ♀; Brussel, Zoniënwood (BR); 21.v.1933; A. Crèvecoeur leg.; F. Verheyde det.

Tribe Euryproctini Thomson, 1883

**Hadrodactylus nigrifemur* Thomson, 1883 (Fig. 6)

BELGIUM: • 1 ♂; Bosvoorde (BR); 15.v.1932; A. Crèvecoeur leg.; F. Verheyde det.; specimen measuring 9 mm with 45 flagellomeres.

Tribe Mesoleiini Thomson, 1883***Alexeter* sp.**

BELGIUM: • 1 ♀; Sint-Andries (WVL); 4.x.1941; A. Crèvecoeur leg.; M. Storey & F. Verheyde det.

Tribe Perilissini Thomson, 1883***Lathrolestes macropygus* (Holmgren, 1857)**

BELGIUM: • 1 ♂; Sint-Andries (WVL); 8.v.1942; A. Crèvecoeur leg.; H. Meijer & F. Verheyde det.; Élev. N° 610; reared from *Fenusa dohrnii* (Symphyta: Tenthredinidae), collected on 4.x.1941.

***Opheltes glaucopterus* (Linnaeus, 1758)**

BELGIUM: • 1 ex.; Porcheresse (LX); ix.1945; L. Frennet leg.; F. Verheyde det. • 1 ex.; Java (NA); 26.ix.1946; L. Frennet leg.; F. Verheyde det.

****Perilissus albitarsis* Thomson, 1883**

BELGIUM: • 1 ♂; Brussel, Zoniënwood (BR); 20.iv.1934; A. Crèvecoeur leg.; T. Vandaudenard & F. Verheyde det.

Tribe Pionini Smith & Shenefelt, 1955***Pion fortipes* (Gravenhorst, 1829) (Fig. 7)**

BELGIUM: • 1 ♂; Brussel, Zoniënwood (BR); 21.v.1933; A. Crèvecoeur leg.; F. Verheyde, W. Penigot, L. Bendixen & H. Meijer det.

Ctenopelmatinae indet.

BELGIUM: • 1 ♀; Ukkel (BR); 29.iv.1933; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♂; Bosvoorde (BR); 4.vi.1933; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♂; Ukkel (BR); 2.vii.1933; A. Crèvecoeur leg.; F. Verheyde det.

Subfamily Cylloceriinae Wahl, 1990****Cylloceria caligata* (Gravenhorst, 1829)**

BELGIUM: • 1 ♀; Sint-Andries (WVL); 14.viii.1940; A. Crèvecoeur leg.; F. Verheyde det.

Subfamily Ichneumoninae Latreille 1802**Tribe Ichneumonini Latreille, 1802*****Cratichneumon culex* (Müller, 1776)**

BELGIUM: • 1 ♂; Varsenare (WVL); 25.v.1933; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 309; possibly reared from stems in a bee-hotel, collected on 1.i.1933.

Tribe Phaeogenini Förster, 1869***Hemichneumon subdolus* Wesmael, 1857**

BELGIUM: • 2 ♀♀, 2 ♂♂; 1949; A. Dufrane leg.; F. Verheyde det.; reared from *Taleporia tubulosa* (Lepidoptera: Psychidae).

Subfamily Mesochorinae Förster 1869

Mesochorus sp.

BELGIUM: • 1 ♀; Oostkamp (WVL); 23.iv.1937; preserved with cocoon; A. Crèvecoeur leg.; F. Verheyde det.; Élev. N° 416; reared from *Gymnomerus (Odynerus) laevipes*, collected on 26.xii.1936.

Subfamily Metopiinae Förster, 1869

Exochus sp.

BELGIUM: • 1 ♂; Sterrebeek (VB); 6.v.1937; A. Crèvecoeur leg.; F. Verheyde det.

Metopius dentatus (Fabricius, 1779)

BELGIUM: • 1 ♂; Kraainem (VB); [1914-1949]; label '*Metopius micratorius*'; A. Crèvecoeur leg.; F. Verheyde det.

Subfamily Ophioninae Fabricius, 1798

**Ophion inclinans* Johansson, 2019

BELGIUM: • 1 ♂; Oppem (VB); 1.viii.1944; A. Crèvecoeur leg.; T. Vandaudenard & N. Johansson det.; specimen with 54 flagellomeres.

Ophion luteus (Linnaeus, 1758)

BELGIUM: • 1 ♂; Sint-Andries (WVL); 10.viii.1925; label '*Ophion luteus*'; A. Crèvecoeur leg.; F. Verheyde det.; specimen with antennae broken off.

**Ophion slaviceki* Johansson & Cederberg, 2019

BELGIUM: • 1 ♂; Sterrebeek (VB); 30.vii.1936; A. Crèvecoeur leg.; T. Vandaudenard & N. Johansson det.; specimen with 62 flagellomeres.

Subfamily Orthocentrinae Förster, 1869

Plectiscus sp.

BELGIUM: • 1 ♂; Overijse (VB); 25.v.1929; P. Roelofs or A. Crèvecoeur leg.; A. Humala & F. Verheyde det.; specimen measuring 33 mm with 22 flagellomeres.

Stenomacrus sp. [possibly *S. merula*, see below]

BELGIUM: • 1 ♂; Rijmenam (AN); 24.v.1931; P. Roelofs or A. Crèvecoeur leg.; A. Humala & F. Verheyde det.

Stenomacrus merula (Gravenhorst, 1829)

BELGIUM: • 1 ♀; Rijmenam (AN); 24.v.1931; P. Roelofs or A. Crèvecoeur leg.; A. Humala & F. Verheyde det.

Subfamily Orthopelmatinae Schmiedeknecht, 1910

Orthopelma mediator (Thunberg, 1822)

BELGIUM: • 1 ♀ 1 ♂; Ukkel (BR); 3.v.1939; label '*Orthopelma luteolator*'; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 463; reared from *Diplolepis (Rhodites) rosae* (Apocrita: Cynipidae), collected on 2.x.1938. • 1 ♂; Ukkel (BR); 16.v.1939; label '*Orthopelma luteolator*'; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 464; reared from *Diplolepis (Rhodites) rosae*, collected on 2.x.1938. • 1 ♂; Ukkel (BR); 5.vi.1939; label '*Orthopelma*

luteolator’; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 463; reared from *Diplolepis (Rhodites) rosae*, collected on 2.x.1938. • 1 ♂; Ukkel (BR); 22.v.1941; preserved with several host galls; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 546; reared from *Diplolepis (Rhodites) eglanteriae* (Apocrita: Cynipidae), collected on 15.x.1940. • 2 ♀♀ 1 ♂; Ukkel (BR); 5.vi.1941; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 547; reared from *Diplolepis (Rhodites) rosae*, collected on 15.x.1940. • 1 ♂; Ukkel (BR); 14.vi.1941; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 547; reared from *Diplolepis (Rhodites) rosae*, collected on 15.x.1940.

Subfamily Phygadeuontinae Förster, 1869

**Bathythrix collaris* (Thomson, 1889)

BELGIUM: • 2 ♀♀; Stokkel (BR); 15 & 17.vi.1932; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 268; reared from egg sacs of Arachnida (possibly Lycosidae), collected on 14.vi.1932; specimens measuring 5.5 mm with 25 flagellomeres.

**Endasys analis* (Thomson, 1883)

BELGIUM: • 1 ♂; Brussel, Zoniënwood (BR); 21.v.1933; A. Crèvecoeur leg.; F. Verheyde det.

Gelis agilis (Fabricius, 1775)

BELGIUM: • 1 ♀; Sint-Andries (WVL); 6.vii.1926; label ‘*Pezomachus* sp.’; A. Crèvecoeur leg.; M. Schwarz det.

Gelis areator s.l. (Panzer, 1804)

BELGIUM: • ♂; Schoten (AN); viii.1933; P. Roelofs leg.; F. Verheyde det.

Gelis bicolor s.l. (Villers, 1789)

BELGIUM: • 1 ♀; Bosvoorde (BR); 7.vi.1930; A. Crèvecoeur leg.; M. Schwarz det.

Gelis festinans (Fabricius, 1798)

BELGIUM: • 1 ♂; Sint-Andries (WVL); 21.vii.1937; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♂; Wezembeek (VB); 18.ix.1948; A. Crèvecoeur leg.; F. Verheyde det.

Orthizema triannulatum (Thomson, 1884)

BELGIUM: • 1 ♀; Stokkel (BR); 17.vi.1932; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Stokkel (BR); 3.v.1933; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 268; reared from egg sacs of Arachnida (possibly Lycosidae), collected on 14.vi.1932.

**Thaumatogelis audax* (Olivier, 1792)

BELGIUM: • 1 ♀; Stokkel (BR); 4.vii.1932; A. Crèvecoeur leg.; F. Verheyde det.; élev. 268; reared from egg sacs of Arachnida (possibly Lycosidae), collected on 14.vi.1932.

Phygadeuontinae indet.

BELGIUM: • 1 ♀; Schoten (AN); xi.1931; P. Roelofs or A. Crèvecoeur leg.; F. Verheyde det. • 1 ♂; Bosvoorde (BR); 21.v.1932; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♂; Sterrebeek (VB); 29.v.1932; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♂; Ukkel (BR); 29.iv.1933; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♂; Sterrebeek (BR); 19.vi.1938; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Sint-Andries (WVL); 30.vii.1941; preserved with host pupa of Syrphidae indet.; A. Crèvecoeur leg.; F. Verheyde det.; Élev. N° 588; reared from Syrphidae, collected on 21.vii.1941; Fig. 8.

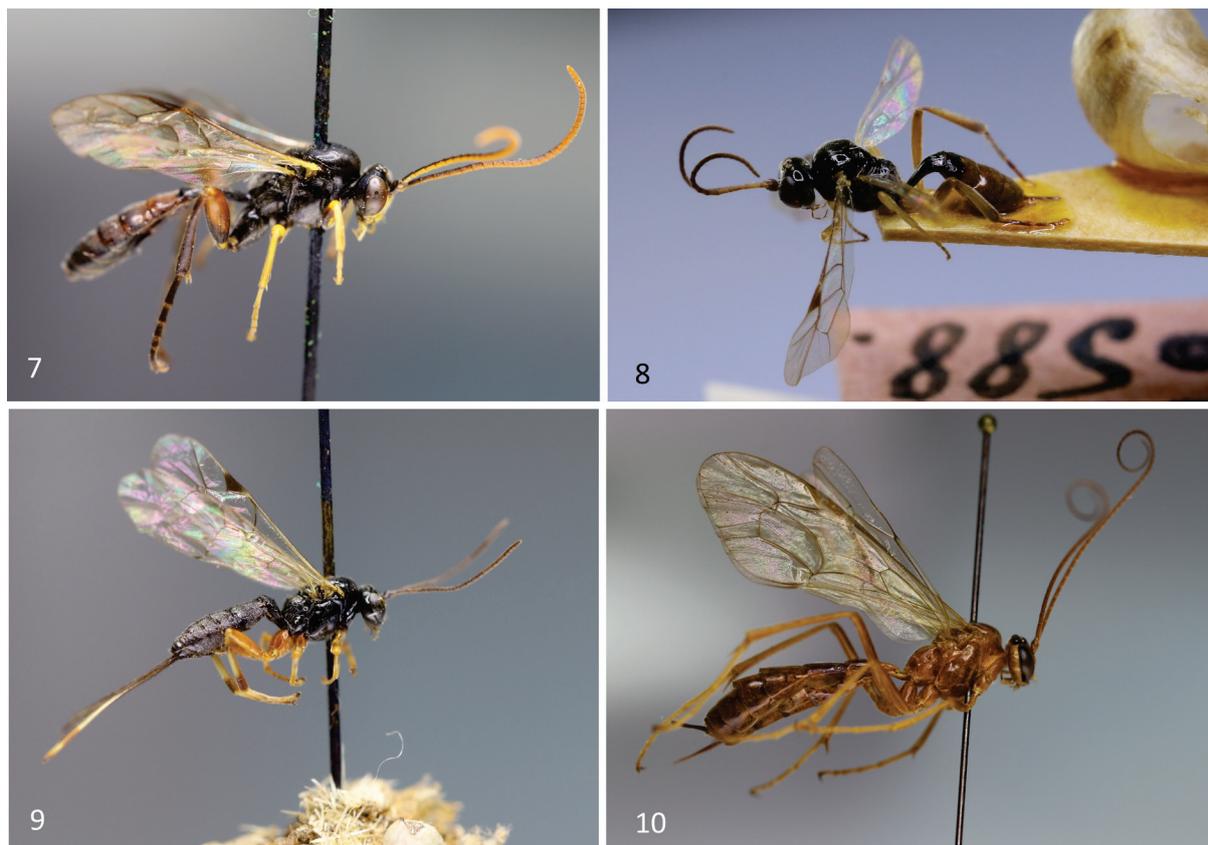


Fig. 7. *Pion fortipes* ♂ (Gravenhorst, 1829), Brussels (Sonian Forest) 21.V.1933. © Fons Verheyde.

Fig. 8. Phygadeuontinae indet. ♀, Sint-Andries, 30.VII.1941. © Fons Verheyde.

Fig. 9. *Scambus buolianae* ♀ (Hartig, 1838), Sint-Andries, 30.III.1944. © Fons Verheyde.

Fig. 10. **Netelia vinulae* ♀ (Scopoli, 1763), Brussels (Sonian Forest), 27.V.1944. © Fons Verheyde.

Subfamily Pimplinae Wesmael, 1845

Tribe Delomeristini Hellén, 1915

Perithous divinator (Rossi, 1790)

BELGIUM: • 1 ♂; Assebroek (WVL); 8.v.1942; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 632; possibly reared from stems in a bee-hotel, collected on 26.xii.1941. • 1 ♂; Assebroek (WVL); 10.v.1942; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 632a; possibly reared from stems in a bee-hotel, collected on 26.xii.1941. • 2 ♀♀; Assebroek (WVL); 15.v.1942; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 632; possibly reared from stems in a bee-hotel, collected on 26.xii.1941. • 1 ♂; Assebroek (WVL); 16.v.1942; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 632b; reared from *Pemphredon* sp. (Apocrita: Crabronidae), collected on 26.xii.1941. • 1 ♀; Sint-Andries (WVL); 24.v.1942; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 624; possibly reared from stems in a bee-hotel, collected on 25.xii.1941.

Tribe Ephialtini Hellén, 1915

Endromopoda detrita (Holmgren, 1860)

BELGIUM: • 1 ♀; Stokkel (BR); 30.iv.1933; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 311; reared from *Lipara*, (Diptera: Chloropidae), collected on *Phragmites communis* on 29.i.1933.

***Scambus* sp.**

BELGIUM: • 1 ♂; Sint-Andries (WVL); 30.v.1941; A. Crèvecoeur leg.; F. Verheyde det.; élev. N° 561; reared from *Tischeria ekebladella* (*complanella*) (Lepidoptera: Tischeridae), collected on 29.x.1940.

***Scambus brevicornis* (Gravenhorst, 1829)**

BELGIUM: • 1 ♀; Sint-Andries (WVL); 26.iv.1939; A. Crèvecoeur leg.; O. Varga & F. Verheyde det.; Élev. N° 487; reared from *Orellia* (*Chaetostomella*) *cylindrica* (Diptera: Tephritidae), collected on *Centaurea jacea* in iii.1939.

***Scambus buoliana* (Hartig, 1838) (Fig. 9)**

BELGIUM: • 1 ♀; Sint-Andries (WVL); 30.iii.1944; preserved with host pupae; A. Crèvecoeur leg.; O. Varga & F. Verheyde det.; Élev. N° 698a; reared from *Orellia* (*Chaetostomella*) *cylindrica*, collected on *Centaurea jacea* on 3.i.1944.

***Scambus pomorum* (Ratzeburg, 1848)**

BELGIUM: • 1 ♀; Brussel, Zoniënwood (BR); 26.ix.1943; A. Crèvecoeur leg.; F. Verheyde det.; Élev. N° 680; reared from *Pontania* (Symphyta: Tenthredinidae), collected on galls of *Salix aurita/caprea* on 13.ix.1939.

Tribe Pimplini Wesmael, 1845***Apechthis compunctor* (Linnaeus, 1758)**

BELGIUM: • 1 ♂; Sint-Andries (WVL); 9.viii.1925; label '*Pimpla brassicae*'; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Sint-Andries (WVL); 14.vii.1941; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Sint-Andries (WVL); 4.x.1941; A. Crèvecoeur leg.; F. Verheyde det.

***Apechthis rufata* (Gmelin, 1790)**

BELGIUM: • 1 ♀; Brussel, Zoniënwood (BR); 14.vii.1945; A. Crèvecoeur leg.; F. Verheyde det.

***Itopectis alternans* (Gravenhorst, 1829)**

BELGIUM: • 1 ♀; Elsene (BR); 2.vii.1933; A. Crèvecoeur leg.; F. Verheyde det.

***Itopectis maculator* (Fabricius, 1775)**

BELGIUM: • 1 ♀; Stokkel (BR); 22.iv.1934; A. Crèvecoeur leg.; F. Verheyde det.

***Pimpla rufipes* (Miller, 1759)**

BELGIUM: • 1 ♀; Ukkel (BR); 7.x.1925; label '*Pimpla instigator*'; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Stokkel (BR); 1.ix.1940; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Sint-Andries (WVL); 6.x.1941; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♂; Sint-Andries (WVL); 27.iv.1943; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Elsene (BR); 10.x.1943; label '*Pimpla* sp.'; L. Frennet leg.; F. Verheyde det.

***Pimpla spuria* Gravenhorst, 1829**

BELGIUM: • 1 ♀; Rixensart (WB); 22.vi.1938; A. Crèvecoeur leg.; F. Verheyde det.

***Zatypota percontatoria* (Müller, 1776)**

BELGIUM: • 1 ♀; Schoten (AN); xi.1931; P. Roelofs or A. Crèvecoeur leg.; O. Varga & F. Verheyde det.

Subfamily Tersilochinae Schmiedeknecht, 1910

**Aneuclis brevicauda* (Thomson, 1889)

BELGIUM: • 1 ♀; Ukkel (BR); 6.viii.1933; label '*Cryptinae*'; A. Crèvecoeur leg.; H. Meijer & F. Verheyde det.

Probles/Tersilochus sp.

BELGIUM: • 1 ♀; Bosvoorde (BR); 22.v.1932; A. Crèvecoeur leg.; F. Verheyde det.; specimen measuring 3 mm with 21 flagellomeres. • 1 ♂; Ukkel (BR); 16.v.1936; A. Crèvecoeur leg.; F. Verheyde det.

Subfamily Tryphoninae Shuckard, 1840

Tribe Phytodietini Hellén, 1915

Netelia inedita (Kokujev, 1899)

BELGIUM: • 1 ♀; Sint-Andries (WVL); 11.vi.1943; A. Crèvecoeur leg.; T. Vandaudenard det.

**Netelia vinulae* (Scopoli, 1763) (Fig. 10)

BELGIUM: • 1 ♂; Brussel, Zoniënwood (BR); 15.v.1944; A. Crèvecoeur leg.; T. Vandaudenard, G. Broad & F. Verheyde det.; élev. N° 700a; reared from *Cranura (Dicranura) vinula* (Lepidoptera: Notodontidae), collected on *Populus* sp. in February 1944 • 1 ♀; Brussel, Zoniënwood (BR); 21.v.1944; A. Crèvecoeur leg.; T. Vandaudenard & F. Verheyde det.; élev. N° 700a; reared from *Cranura (Dicranura) vinula*, collected on *Populus* sp. in February 1944. • 1 ♀; Brussel, Zoniënwood (BR); 24.v.1944; A. Crèvecoeur leg.; T. Vandaudenard, G. Broad & F. Verheyde det.; élev. N° 700; reared from *Cranura (Dicranura) vinula*, collected on *Populus* sp. in February 1944; specimen with 52 flagellomeres. • 1 ♀; Brussel, Zoniënwood (BR); 27.v.1944; label '*Paniscus testaceus*'; A. Crèvecoeur leg.; T. Vandaudenard, G. Broad & F. Verheyde det.; élev. N° 700a; reared from *Cranura (Dicranura) vinula*, collected on *Populus* sp. in February 1944; Fig. 10.

Tribe Tryphonini Shuckard, 1840

**Cosmoconus meridionator* Aubert, 1963

BELGIUM: • 1 ♀; Sterrebeek (VB); 12.ix.1936; A. Crèvecoeur leg.; F. Verheyde det.

Tryphon atriceps Stephens, 1835

BELGIUM: • 1 ♀; Leefdaal (VB); 8.vi.1934; A. Crèvecoeur leg.; F. Verheyde det.

Tryphon relator (Thunberg, 1822)

BELGIUM: • 2 ♀ 1 ♂; Noville-sur-Mehaigne (NA); 28.vi.1937; A. Crèvecoeur leg.; F. Verheyde det.

Tryphon rutilator (Linnaeus, 1761)

BELGIUM: • 1 ♀; Bertem (VB); 9.vi.1946; A. Crèvecoeur leg.; F. Verheyde det. • 1 ♀; Dilbeek (VB); 6.vi.1949; A. Crèvecoeur leg.; F. Verheyde det.

Subfamily Xoridinae, Shuckard 1840

Xorides irrigator (Fabricius, 1793)

BELGIUM: • 3 ♀♀; Sint-Andries (WVL); 13.viii.1936; A. Crèvecoeur leg.; F. Verheyde det.

Ichneumonidae indet.

BELGIUM: • 1 ♀; Stokkel (BR); 3.v.1933; A. Crèvecoeur leg.; F. Verheyde det.; elev. N° 268; reared from egg sacs of Arachnida (possibly Lycosidae), collected on 14.vi.1932; specimen with antennae broken off.

Lycosides? et leurs parasites... 268 - 111 - 4
 (la 268 est un autre Lycosidae)
 (br. 268)

Stokkel, 14-VI-32

cellules ovoïdes en trois files près sur
 les plantes les plus denses : graminées,
 germandrées, ronces, arbustes etc. à de hautes
 branches de 10 à 20 ou même 40 cent. de
 sol.

Ovoïde quelquesunes : ou complètement avec deux
 globularités (d'araignée) ou complètement une ou
 deux avec probabl. de parasites. L'origine de
 la cellule recense en forme un cocon incolore
 blanc.

Le 15-VI-32 Col. 1 Toluennens, prépar. (268).
 17-VI-32 " 2 " " "
 22-VI-32 " 4 " " " en table 268 a

En 268 b les cellules perforées d'où sont sortis
 les parasites.
 En 268 c, les araignées dont plusieurs à perles alignées
 sur les cellules à la non être distinguées.

Fig. 11. Sheet 268 from Crèvecoeur's archive. © Wouter Dekoninck/KBIN.

Discussion

As mentioned in the introduction, twelve of the identified species were new for the Belgian fauna and separately reported and integrated in VERHEYDE *et al.* (2021): *Aneuclis brevicauda* (Thomson, 1889); *Bathythrix collaris* (Thomson, 1889); *Cosmoconus meridionator* Aubert, 1963; *Cylloceria caligata* (Gravenhorst, 1829); *Netelia vinulae* (Scopoli, 1763); *Endasys analis* (Thomson, 1883); *Hadrodactylus nigrifemur* Thomson, 1883; *Olesicampe macellator* (Thunberg, 1822); *Ophion inclinans* Johansson, 2019; *Ophion slaviceki* Kriechbaumer, 1892; *Perilissus albitarsis* Thomson, 1883; *Thaumatogelis audax* (Olivier, 1792), However, we want to highlight some of these findings.

Although it is difficult to say something about tendencies and abundance of ichneumonid wasps, the species first reported in the abovementioned publication seem to be rather common and their presence could be expected comparing their distribution in neighbouring countries. For most of them, the existence of revised new keys was crucial and hence other and more recent records were found (see VERHEYDE *et al.*, 2021). Species wise, most ichneumonid species here seem to be connected to forest areas, which is no surprise knowing Crèvecoeur often went to the Sonian Forest. More surprisingly, three species are connected to sawfly hosts on conifers (*B. collaris*, *E. analis* & *O. macellator*). *Cylloceria caligata* on the other hand has been rediscovered in a recent project around Beisbroek (Sint-Andries) in Bruges, near the same locality. More than fifty specimens were caught, particularly with pitfall and yellow pan traps in the moorlands (VERHEYDE, 2021, *in prep.*). This provides a glimpse of how local populations can live, and how they are able to survive over a long period of time (± 75 years). Its hosts are mainly crane-flies (Tipulidae).

Concerning the rearing records, four of them have not been reported before. *Bathyplectes cingulatus* (Brischke, 1880) was reared on cells of the vespid *Gymnomerus (Odynerus) laevipes*. The pupa is preserved. This was already recorded from the holotype of its sibling species *B. balteatus* (Thomson 1887) by Habermehl (HORSTMANN, 1974). *Lathrolestes macropygus* (Holmgren, 1857) was reared on the mining sawfly *Fenusa dohrnii*. It has been reported on *F. pusilla*, but not on this species. On the other hand, *Lathrolestes nigricollis* (Thomson, 1883) and *L. pictillis* (Holmgren, 1857) have indeed been reared on *F. dohrnii*. From the tephritid fly *Orellia (Chaetostomella) cylindrica* the ichneumonid wasp *Scambus buoliana* (Hartig, 1838) was reared. The pupa was preserved as well. This was known from *Scambus brevicornis* (Gravenhorst, 1829), for which we also have a rearing record from Crèvecoeur on the same host, but not for this species. Lastly, *Scambus pomorum* (Ratzeburg, 1848) was reared on unidentified sawfly galls (*Pontania* sp.) collected on *Salix aurita/caprea*. Several other *Scambus* spp. are known to parasitize *Pontania* spp. Hypothetically and with regard to the host plant, abundance and phenology, *Pontania pedunculi* (Hartig, 1837) seems to be the most plausible candidate here (YU *et al.*, 2012).

Conclusively, this case study both demonstrates the importance of well-preserved collections and the importance of archiving personal documents associated with those collections. Without the preserved sheets, we would not have been able to say much on the rearing records and important information — new for science — would have been lost.

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References

- BÉNICHOU L., GÉRARD I., LAUREYS É. & PRICE M., 2018. - Consortium of European Taxonomic Facilities (CETAF) best practices in electronic publishing in taxonomy. *European Journal of Taxonomy*, 475: 1–37. <https://doi.org/10.5852/ejt.2018.475>
- BROAD G.R., SHAW M.R. & FITTON M.G., 2018. - Ichneumonid Wasps (Hymenoptera: Ichneumonidae): Their Classification and Biology. *Handbooks for the identification of British insects*, 7(12): 1–418.
- DE WALSCHE J., 1959. - In Memoriam Adolphe Crèvecoeur 1895–1959. *Bulletin S.R.B.E./K.B.V.E.*, 95(9–10): 257–262.
- HORSTMANN K., 1974. - Revision der westpaläarktischen Arten der Schlupfwespen-Gattungen *Bathyplectes* und *Biolysia* (Hymenoptera: Ichneumonidae). *Entomologica Germanica*, 1(1): 58–81.
- MARNEF L., 1961. - Prix Adolphe Crèvecoeur. *Bulletin S.R.B.E./K.B.V.E.*, 97(11–12): 313–314.
- PAULY A., 2001. - Bibliographie des Hyménoptères de Belgique précédée de notices biographiques (1827–2000): Première partie. *Notes fauniques de Gembloux*, 44: 37–84. http://zoologie.umons.ac.be/hymenoptera/biblio/01000/Pauly_2001_bibliographie_part1.pdf
- YU D.S., VAN ACHTERBERG C. & HORSTMANN K., 2012. - *World Ichneumonoidea 2011: Taxonomy, Biology, Morphology and Distribution*. DVD/CD. *Taxapad*. Vancouver.
- VERHEYDE F., HOEKSTRA P., LIBERT P.-N., MEIJER H., DE KETELAERE A., VANDAUDENARD T., BELGERS D. & BROSENS E., 2021. - Two hundred ichneumonid wasps first reported in Belgium and the Netherlands (Hymenoptera: Ichneumonidae). *Belgian Journal of Entomology*, 122: 1–142.
- VERHEYDE F., *in prep.* - Trapping Hymenoptera in Western Europe: I. Parasitica of the moorlands of Bruges (2014–2020). *Bulletin S.R.B.E./K.B.V.E.*
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