

## The Alysiinae collection (Hymenoptera: Braconidae) of the Naturhistorisches Museum Basel, Switzerland

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The Alysiinae (Hymenoptera: Braconidae) collection at the Naturhistorisches Museum Basel (Switzerland) is summarized. In total 20 species are deposited. Eight species are recorded for the first time from Switzerland: *Chorebus (Stiphocera) spenceri* Griffiths, 1964, *Dinotrema concinnum* (Haliday, 1838), *D. perlustrandum* (Fischer, 1973), *D. pratense* van Achterberg, 1988, *D. propodeale* (Tobias, 1962), *D. puliciforme* (Fischer, 1973), *D. spitzzickense* (Fischer, 1976), and *Eucoelinidea compressa* Tobias, 1979.

Keywords: parasitoids, faunistics, new records, entomological collections, Switzerland.

### INTRODUCTION

Entomological collections in Natural History Museums house millions of specimens representing the huge biological diversity of the World. Unfortunately, a large part of these insects has not yet been identified and catalogued, resulting in a big loss of information. Continuous work carried out by curatorial staff and voluntary research associates helps improving this situation. With this aim, I am currently revising the Braconidae (Hymenoptera) material deposited in the NMBA.

Alysiinae is a conspicuously diverse subfamily within the Braconidae (Dolphin & Quicke 2001) with 2,000 described species (Yu *et al.* 2012) separated into two large, polymorphic tribes Alysiini and Dacnusini (Shenefelt 1974). Species of Alysiini are parasitoids of a wide range of cyclorrhaphous Diptera, mainly in humid habitats and ephemeral strata (Wharton 2002). In contrast, Dacnusini are almost exclusively specialised on leaf- and stem-mining hosts, predominantly of the dipterous families Agromyzidae, Ephydriidae and Chloropidae (Griffiths 1964, Wharton 2002).

Several studies have been conducted on Alysiinae from countries in Central Europe, mainly carried out by M. Fischer (1962, 1970, 1972, 1973a-d, 1974a, b, 1975, 1976, 1985, 1994, among others). Only one survey focused on Switzerland has been published until now by van Achterberg (2014) who recorded 158 species of Alysiinae. Recently, Peris-Felipo *et al.* (2014) added two new Swiss records of *Dinotrema* species. However, the knowledge on the faunae of neighbouring countries such as Germany or Austria with 337 and 278 species may serve as a starting point for estimates on the Swiss Alysiinae diversity (Yu *et al.* 2012).

The present work provides a faunistic list of the Alysiinae collection deposited in the NMBA.

## MATERIALS AND METHODS

The specimens are conserved in the collection of the Naturhistorisches Museum Basel, Switzerland (NMBA). This collection is rich in entomological groups such as Coleoptera or Psyllidae. However, the Hymenoptera collection is not very rich in Braconidae material. Only few dozens of specimens are present. This situation is comparable with other Swiss Natural History Museums because of the lack of any Braconidae specialists who sampled and worked in Switzerland.

Specimens were identified using the keys by Tobias *et al.* (1986) for the genera and those of Tobias *et al.* (1986) and Peris-Felipo *et al.* (2014) for the species. Classification, nomenclature and the distributional data of Alysinae follow Yu *et al.* (2012).

## TAXONOMIC PART

Hymenoptera: Braconidae: Alysinae  
Alysiini

***Alysia manducator* (Panzer, 1799)**

Material examined: Germany: 2 ♀♀, 2 ♂♂, Würzburg, 5.ix.1941 and 20.vi.1943 (M. Zwecker leg.). Switzerland: 1 ♂, Bern, Biel, 29.vii.1883 (Marshall leg.); 1 ♂, Bern, Lyss, 24.vi.1888 (Dr Th. Steck leg.); 2 ♂♂, Bern, 1.vii.1894 and 1.viii.1894 (Dr Th. Steck leg.); 1 ♀, Hofwil, 11.viii.1895 (Marshall leg.); 1 ♂, Jura, St. Blaise, 18.viii.1912 (Dr Th. Steck leg.); 1 ♀, Bern, Kirchenfeld, 16.x.1912 (Dr Th. Steck leg.).

Distribution: Palaearctic region.

***Alysia (Anarcha) sophia* Haliday, 1838**

Material examined: Switzerland: 1 ♀, Bern, Kirchenfeld, 15.vii.1921 (Dr Th. Steck leg.).

Distribution: Palaearctic region.

***Dinotrema concinnum* (Haliday, 1838) (Fig. 1A)**

Material examined: Switzerland: 1 ♀, Bern, Dählhölzli, 16.ix.1916 (Dr Th. Steck leg.).

Distribution: Western Palaearctic region. Switzerland (new record).

***Dinotrema perlustrandum* (Fischer, 1973) (Fig. 1B)**

Material examined: Switzerland: 1 ♀, Jura, 11.v.1899 (Dr Th. Steck leg.).

Distribution: Western Palaearctic region. Switzerland (new record).

***Dinotrema pratense* van Achterberg, 1988 (Fig. 1C)**

Material examined: Switzerland: 1 ♀, Bern, Kirchenfeld, 6.vii.1916 (Dr Th. Steck leg.).

Distribution: Palaearctic region. Switzerland (new record).

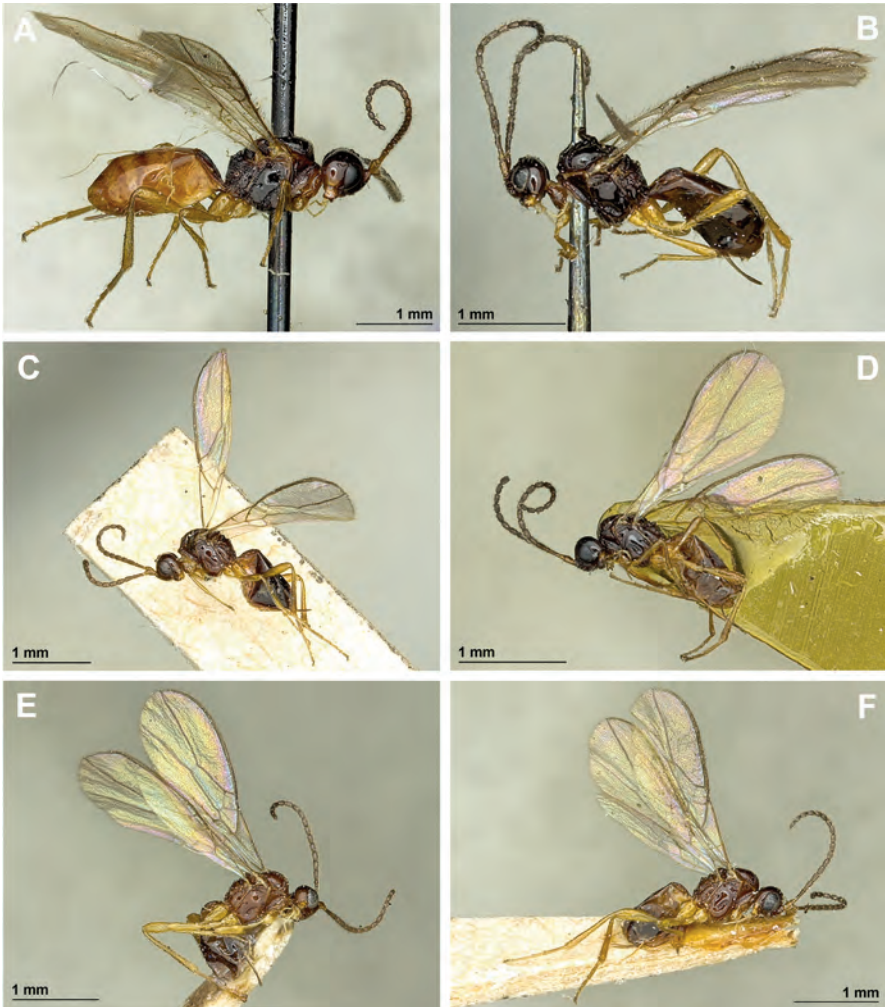


Fig. 1. Habitus lateral view of new Swiss *Dinotrema* records. — A. *Dinotrema concinnum* (Haliday, 1838). — B. *Dinotrema perlustrandum* (Fischer, 1973). — C. *Dinotrema pratense* van Achterberg, 1988. — D. *Dinotrema propodeale* (Tobias, 1962). — E. *Dinotrema puliciforme* (Fischer, 1973). — F. *Dinotrema spitzzickense* (Fischer, 1976).

***Dinotrema propodeale* (Tobias, 1962) (Fig. 1D)**

Material examined: Switzerland: 1 ♀, Bern, Kirchenfeld, 5.vi.1916 (Dr Th. Steck leg.).

Distribution: Palearctic region. Switzerland (new record).

***Dinotrema puliciforme* (Fischer, 1973)** (Fig. 1E)

Material examined: Switzerland: 1 ♀, Bern, Dählhölzli, 8.x.1902 (Dr Th. Steck leg.).

Distribution: Western Palaearctic region. Switzerland (new record).

***Dinotrema spitzzickense* (Fischer, 1976)** (Fig. 1F)

Material examined: Switzerland: 1 ♀, Bern, Kirchenfeld, 7.vii.1915 (Dr Th. Steck leg.).

Distribution: Western Palaearctic region. Switzerland (new record).

***Mesocrina indagatrix* Foerster, 1862**

Material examined: Switzerland: 1 ♀, Freiburg [Fribourg], 6.x.1915 (Dr Th. Steck leg.).

Distribution: Palaearctic region.

***Phaenocarpa livida* (Haliday, 1838)**

Material examined: Switzerland: 1 ♀, Bern, Lyss, 19.v.1914 (Dr Th. Steck leg.).

Distribution: Western Palaearctic region.

***Phaenocarpa ruficeps* (Nees, 1812)**

Material examined: Switzerland: 1 ♀, 2 ♂♂, Bern, Kirchenfeld, 31.viii.1918, 9.ix.1914 and 3.viii.1926 (Dr Th. Steck leg.); 1 ♀, 1 ♂, Bern, 12.v.1901 and 17.v.1915 (Dr Th. Steck leg.); 1 ♂, Bern, Rüfenacht, 23.ix.1915 (Dr Th. Steck leg.).

Distribution: Afrotropical, Nearctic, Oriental and Palaearctic regions.

Dacnusiini

***Chorebus (Phaenolexis) petiolatus* (Nees, 1834)**

Material examined: Switzerland: 1 ♀, Bern, Dählhölzli, 15.vi.1903 (Dr Th. Steck leg.); 1 ♀, Neuchâtel, La Tourne, 20.vii.1977; 1 ♂, Vaud, Château-d'Oex, 3.vii.1916 (Dr Th. Steck leg.).

Distribution: Palaearctic region.

***Chorebus (Stiphocera) spenceri* Griffiths, 1964** (Fig. 2A, 2B)

Material examined: Switzerland: 3 ♀♀, Bern, 31.v.1899 (Dr Th. Steck leg.); 1 ♀, 1 ♂, Bern, 18.vi.1899 (Dr Th. Steck leg.); 1 ♂, Bern, 28.v.1900 (Dr Th. Steck leg.).

Distribution: Palaearctic region. Switzerland (new record).

***Coelinidea gracilis* (Curtis, 1829)**

Material examined: Switzerland: 1 ♀, Bern, 9.vi.1901 (Dr Th. Steck); 1 ♀, Bern, Kirchenfeld, 1.vii.1913 (Dr Th. Steck leg.).

Distribution: Palaearctic region.



Fig. 2. Habitus lateral view of new Swiss Dacnusiini records. — A, B. *Chorebus (Stiphocera) spenceri* Griffiths, 1964 (A: female, B: male). — C, D. *Eucoelinidea compressa* Tobias, 1979 (C: female, D: male).

***Coelinidea ruficollis* (Herrich-Schäffer, 1838)**

Material examined: Germany: 2 ♂♂, Würzburg, 10.v.1943 (M. Zwecker leg.).

Distribution: Palearctic region.

***Coelinus parvulus* (Nees, 1811)**

Material examined: Germany: 1 ♂, Würzburg, 18.viii.1943 (M. Zwecker leg.); 2 ♂♂, Zeubelrieder Moor, 15.vi.1943 and 10.viii.1943 (M. Zwecker leg.). Switzerland: 2 ♂♂, Bern, Bätterkinden, 25.viii.1894 (Dr Th. Steck leg.); 1 ♂, Bern, Biel, 2.vi.1889 (Dr Th. Steck leg.); 1 ♂, Bern, Dählhölzli, 1.ix.1910 (Dr Th. Steck leg.).

Distribution: Western Palearctic region.

***Dacnusa confinis* Ruthe, 1859**

Material examined: Switzerland: 1 ♂, Graubünden, Davos, Wiesen, 1.ix.1987 (D. Haefelfinger leg.).

Distribution: Western Palearctic region.

***Eucoelinidea compressa* Tobias, 1979** (Fig. 2C, 2D)

Material examined: Switzerland: 1 ♀, Bern, Bätterkinden, 25.viii.1894 (Dr Th. Steck leg.); 1 ♂, Bern, Dählhölzli, 10.viii.1909 (Dr Th. Steck leg.).

Distribution: Western Palaearctic region. Switzerland (new record).

***Polemochartus lipare* (Giraud, 1863)**

Material examined: Switzerland: 5 ♀♀, 4 ♂♂, Bern, 17.v.1906, 30.v.1906, 16.vi.1906, 18.v.1911, 1.v.1912, 8.v.1914, 20.v.1914, 23.v.1914, 2.vi.1914 (Dr Th. Steck leg.); 1 ♀, Bern, swept on Schilfgalle, 20.v.1914 (Dr Th. Steck leg.); 1 ♂, Bodmark, 12.vi.1926 (Dr Th. Steck leg.).

Distribution: Western Palaearctic region.

***Polemochartus melas* (Giraud, 1863)**

Material examined: Switzerland: 1 ♂, Bern, 18.v.1935 (Dr Th. Steck leg.).

Distribution: Palaearctic region.

## DISCUSSION

Based on the revision of the Alysiinae material deposited in the Naturhistorisches Museum Basel, eight species are recorded here for the first time from Switzerland: *Chorebus (Stiphocera) spenceri* Griffiths, 1964, *Dinotrema concinnum* (Haliday, 1838), *D. perlustrandum* (Fischer, 1973), *D. pratense* van Achterberg, 1988, *D. propodeale* (Tobias, 1962), *D. puliciforme* (Fischer, 1973), *D. spitzzickense* (Fischer, 1976), and *Eucoelinidea compressa* Tobias, 1979.

With the present work, the number of Alysiinae known from Switzerland is increased to 168 species (Yu *et al.* 2012; van Achterberg 2014). This number is higher compared to that known from Italy (137) and France (73) but distinctly lower than that known from Germany (337 species) and Austria (278), suggesting that the Swiss Alysiinae fauna is still insufficiently known.

The limited number of the known Alysiinae from Switzerland reflects the paucity of research on this group, as well as their relative rarity. Further investigations both on the fauna and host associations of the Swiss Alysiinae are necessary to provide the basis for biological control of the dipterous pests in agricultural and urban landscapes.

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