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Sawflies (Hymenoptera) collected
in Tent Window Traps at Delémont,
Canton Jura, Switzerland,
by Professor H. Pschorn-Walcher

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1. Introduction

HERTING (1969) describes the design and operation of his Tent Window Trap, which he used with considerable success to collect Tachinidae (Diptera) in the grounds of the Commonwealth Institute of Biological Control's European Station, near Delémont in the Swiss Jura. In early 1981, Prof. Dr. H. Pschorn-Walcher (Kiel) enabled me to determine a collection of sawflies obtained from the same traps at Delémont, mainly during the years 1975-1978, with a few specimens from 1973.

The position of the traps is briefly described by HERTING (l. c.). These remained in the same position during the period when sawflies were collected (Pschorn-Walcher, pers. comm.). I quote HERTING : "At a distance of only 20-50 metres from the institute building I had now a very favourable site for setting up these tent window traps. This is on the southern edge of a large area of mixed forest consisting mainly of beech (*Fagus sylvatica*), fir (*Abies alba*) and spruce (*Picea abies*) with a few pines (*Pinus sylvestris*) and maples (*Acer pseudoplatanus*). Along the edge of the wood there is a single row of oak (*Quercus robur*) with an undergrowth of bushes (*Corylus*, *Carpinus*, *Crataegus*, *Cornus*, *Rosa*, *Rubus*, *Euonymus*). The grassy strip in front of this is reasonably level, but the wood slopes above and behind this to protect the site from northerly winds. The altitude of the site is 510 m, about 100 m higher than the bottom of the Delémont valley. The crest of the mountain ridge behind rises to 980 m".

About 900 specimens of Symphyta were examined from Delémont, mainly removed from the traps by H. Pschorn-Walcher, but by E. and J. Hüttinger in a few cases. Most carry printed labels, which read "SCHWEIZ-Jura, Delémont, Fangzelt, (handwritten date of collection), leg. H. Pschorn-Walcher". This label data is not repeated in the list below, except for the few specimens which are otherwise labelled. No trapping was done during any July.

148 species were determined in this material and another 3 remain undetermined but may be separately discussed later. This is a very large number considering the small area of not more than 0.4 hectares in which the traps were placed, and the ability of larger and more active species to escape easily from this type of trap. The success of trapping is probably because of the long period of trap operation and the large number of potential plant host species in the surrounding vegetation.

2. List of Species Trapped

PAMPHILIIDAE

Cephalcia arvensis (PANZER)

1 ♂, 6.6.1978.

Pamphilius sylvaticus (L.)

1 ♀, 6.6.1978.

CEPHIDAE

Cephus cultratus EVERSMANN

1 ♀, 17.5.1976 ; 1 ♂, 11.6.76.

Not previously recorded in Switzerland ! Distributed in most of Europe and Asia to Siberia. Larva in grass stems, including *Phleum pratense* L. and *Dactylis glomerata* L.

Cephus nigrinus THOMSON

1 ♂, 18.5.1975 ; 1 ♂, 8.5.76.

Cephus pygmeus (L.)

1 ♂, 12.6.1978.

Janus compressus (F.)

1 ♂, 16.5.1976.

Janus luteipes (LEPELETIER)

1 ♀, 13.7.1978.

Not previously recorded in Switzerland ! Distributed in Europe and North Africa. Larva in twigs of *Salix*, *Populus* and *Viburnum*.

Hartigia nigra (HARRIS)

1 ♂, 17.5.1975 ; 1 ♀, 21.5.75.

DIPRIONIDAE

Gilpinia frutetorum (F.)

1 ♀, 6.6.1978.

ARGIDAE

Sterictiphora furcata VILLERS)

1 ♂, 12.5.1975.

Sterictiphora geminata (GMELIN)

1 ♀, 13.5.1975 ; 1 ♂, 15.5.75 ; 1 ♀, 16.5.75 ; 1 ♂, 19.4.76 ; 1 ♂, 21.4.76 ; 1 ♂, 5.5.76.

Not previously recorded in Switzerland, except for a specimen in the Dodero collection without any proper data (ZOMBORI, 1980). A Euro-siberian species. Larva on *Rosa* and *Rumex*.

Arge berberidis (KLUG)

1 ♂, 21.4.1976 ; 1 ♀, 17.5.75 ; 1 ♀ 1 ♂, 18.5.76 ; 1 ♀, 8.8.76 ; 1 ♀, 17.8.76 ; 1 ♂, 8.78 (Hüttinger).

Arge gracilicornis (KLUG)

1 ♂, 18.5.1976 ; 1 ♂, 5.8.76 ; 12.6.78 ; 2 ♀ ♀, 12.8.78 ; 1 ♂, 25.8.78.

Arge nigripes (RETZIUS)

1 ♂, 22.5.1975.

Confirmed by genitalia preparation (see CHEVIN, 1975a).

Arge pagana (PANZER)

1 ♂, 25.8.1978.

CIMBICIDAE

Zaraea fasciata (L.)

1 ♀, 12.6.1978.

TENTHREDINIDAE

Selandriinae

Strombocerus delicatulus (FALLÉN)

1 ♀, 17.5.1976.

This species has until now been collected exclusively at subalpine and low alpine levels in Switzerland (LISTON, 1980 ; LISTON & PETER, 1981, 1982).

Strongylogaster macula (KLUG)

1 ♀, 18.5.1975.

The first three localities for *S. macula*, in Cantons Luzern and Zug, were discovered by PETER (1981).

Loderus gilvipes (KLUG)

1 ♂, 16.5.1975.

Perhaps a boreo-montane species (LISTON, 1982).

Loderus vestigialis (KLUG)

1 ♀, 3.6.1973 ; 1 ♂, 18.5.75 ; 1 ♀, 22.5.75.

Dolerus aeneus HARTIG

1 ♀, 3.6.1973 ; 1 ♂, 1.5.75 ; 1 ♂, 10.5.75 ; 1 ♂, 15.5.75 ; 3 ♂ ♂, 16.5.75 ; 2 ♂ ♂, 18.5.75 ; 1 ♀, 7.6.75 ; 1 ♀, 3.4.76 ; 1 ♂, 18.4.76.

Dolerus anthracinus KLUG

1 ♂, 4.3.1977 ; 1 ♂, 5.3.77.

Dolerus asper ZADDACH

1 ♂, 1.4.1976.

Dolerus gonager (F.)

1 ♀, 24.4.1975 ; 1 ♂, 3.4.76 ; 1 ♀, 13.4.76.

Dolerus haematodes (SCHRANK)

1 ♂, 16.5.1973 ; 1 ♂, 20.5.75 ; 1 ♂, 22.5.75 ; 1 ♂, 26.5.75 ; 4 ♀ ♀, 1.4.76 ; 1 ♂, 3.4.76.

Dolerus liogaster THOMSON

1 ♀, 19.4.1975 ; 1 ♂, 23.4.75 ; 1 ♀, 13.5.75 ; 1 ♀, 31.3.76 ; 1 ♂, 1.4.76 ; 1 ♂, 3.4.76.

All of these specimens are of the black-legged form.

Dolerus niger (L.)

1 ♀, 17.5.1975 ; 1 ♀, 21.5.75.

Dolerus nigratus MÜLLER

2 ♂ ♂, 20.4.1975 ; 1 ♂, 24.4.75 ; 1 ♂, 2.4.76 ; 1 ♂, 3.4.76.

Dolerus picipes (KLUG)

1 ♀, 20.5.1973.

Dolerus sanguinicollis KLUG

1 ♀, 3.6.1973.

Birka annulitarsis (THOMSON)

1 ♂, 21.5.76.

A rare and poorly known species, closely related to the following one. Only previously recorded from the Valais (BENSON, 1955), from alpine meadows. MUCHE (1969) uses different characters from ZOMBORI (1976) in keying species of *Birka* and *Neoselandria*, and I am unconvinced that MUCHE had examined the real *annulitarsis*. Published records exist for Fennoscandia, the area of Leipzig, Leistadt (Pfalz) and Austria. ZIRNGIEBL (1954) suggests that *Rubus* may be the host plant.

Birka cineiripes (KLUG)

1 ♂, 16.5.1975 ; 1 ♂, 5.8.76 ; 1 ♀, 11.8.76.

Blennocampinae

Athalia cordata (LEPELETIER)

1 ♀, 13.5.1975 ; 1 ♀, 7.5.76 ; 1 ♀, 18.5.76 ; 1 ♀, 1.8.78.

Athalia circularis (KLUG)

1 ♂, 16.5.1975 ; 1 ♂, 8.5.76 ; 1 ♀, 8.8.76.

Athalia cornubiae BENSON

1 ♀, 2.5.1976.

Empria alector BENSON

1 ♂, 21.4.1975 ; 1 ♀, 15.5.75 ; 1 ♀, 18.5.75 ; 1 ♂, 29.5.75 ; 1 ♂, 8.5.76 ; 1 ♀, 17.5.76.

Introduced as a Swiss species by PETER (1981) from several areas.

Empria baltica CONDE

1 ♂, 15.5.1975 ; 1 ♀, 20.5.75 ; 1 ♀, 22.5.75 ; 1 ♂, 6.5.76 ; 1 ♀, 18.5.76 ; 1 ♀, 21.5.76.

Previously recorded in Cantons Zürich and Luzern by PETER (l. c.)

Empria excisa (THOMSON)

1 ♂, 8.5.1975 ; 1 ♂, 12.5.75 ; 1 ♂, 16.5.75 ; 1 ♂, 2.5.76 ; 2 ♂♂, 7.5.76 ; 1 ♂, 10.5.76 ; 1 ♂, 17.5.76.

Empria klugii (STEPHENS)

1 ♂, 1.5.1975 ; 1 ♂, 7.5.75 ; 1 ♂, 9.5.75 ; 1 ♂, 13.5.75 ; 1 ♂, 14.5.75 ; 2 ♂♂, 15.5.75 ; 2 ♂♂, 16.5.75 ; 1 ♀, 18.5.75 ; 1 ♂, 19.5.75 ; 1 ♀, 22.5.75 ; 1 ♀, 23.5.75 ; 1 ♀, 3.5.76 ; 1 ♀, 7.5.76.

Empria liturata GMELIN)

1 ♂, 1.5.1975 ; 1 ♀, 10.5.75 ; 1 ♀, 16.5.75 ; 1 ♀, 21.5.75.

Empria longicornis (THOMSON)

1 ♂, 21.4.1975 ; 1 ♂, 4.5.76.

Empria parvula (KONOW)

1 ♂, 9.5.1975 ; 1 ♂, 12.5.75 ; 1 ♂, 13.5.75 ; 1 ♂, 14.5.75 ; 1 ♀, 16.5.75 ; 1 ♀, 18.5.75 ; 1 ♂, 3.5.76 ; 1 ♂, 6.5.76 ; 1 ♂, 10.5.76 ; 1 ♂, 21.5.76.

LISTON & PETER (1981) record this species for Cantons Zürich, Zug and Obwalden.

Empria pumila (KONOW)

1 ♂, 14.5.75 ; 1 ♂, 16.5.75 ; 1 ♂, 10.5.76 ; 1 ♂, 16.5.76 ; 1 ♂, 17.5.76.

PETER (l. c.) found *pumila* in Cantons Zürich and Luzern.

Empria tridens (KONOW)

1 ♂, 26.4.1975 ; 1 ♂, 27.4.75 ; 3 ♀ ♀, 2.5.75 ; 1 ♀, 13.5.75 ; 1 ♀, 29.5.75 ; 1 ♂, 10.5.76 ; 1 ♀, 17.5.76.

Ametastegia equiseti (FALLÉN)

1 ♂, 15.5.1975 ; 1 ♂, 2.5.76 ; 1 ♂, 6.5.76 ; 1 ♀, 8.8.76 ; 1 ♀, 14.8.76 ; 1 ♀ 1 ♂, 17.8.76 ; 1 ♀, 25.8.78.

Protemphytus carpini (HARTIG)

1 ♂, 16.5.1975 ; 1 ♀, 5.8.76.

Protemphytus tener (FALLÉN)

1 ♂, 8.8.1976.

Taxonus agrorum (FALLÉN)

1 ♂, 16.5.1975 ; 1 ♂, 17.5.75 ; 1 ♂, 22.5.75 ; 1 ♂, 23.5.75.

Allantus calceatus (KLUG)

1 ♀, 17.5.1975 ; 1 ♀, 14.8.76.

Allantus cinctus (L.)

1 ♂, 22.5.1975 ; 1 ♂, 4.9.75 ; 1 ♀, 18.4.76 ; 1 ♂, 19.4.76 ; 1 ♂, 3.5.76 ; 2 ♂ ♂, 4.5.76 ; 1 ♀, 8.6.76 ; 1 ♀, 7.8.76 ; 1 ♂, 11.8.76 ; 1 ♀, 13.8.76 ; 1 ♂, 17.8.76 ; 1 ♂, 6.6.78 ; 1 ♀, 12.6.78 ; 1 ♀ 1 ♂, 1.8.78 ; 2 ♂ ♂, 1 ♀ 4.8.78 ; 1 ♂, 15.9.78.

Allantus cingulatus (SCOPOLI)

1 ♂, 18.5.1975 ; 2 ♀ ♀, 22.5.1975 ; 1 ♂, 6.6.75 ; 2 ♂ ♂, 14.5.76 ; 1 ♀ 1 ♂, 16.5.76 ; 1 ♀ 2 ♂ ♂, 17.5.76 ; 1 ♂, 21.5.76 ; 1 ♂, 7.6.76.

Not previously recorded in Switzerland! Distributed in Europe, Transcaucasus and Siberia. A species characteristic of warm, dry areas in Europe. Larva on *Rosa* and *Fragaria*.

Allantus rufocinctus (RETZIUS)

1 ♂, 14.5.1975 ; 1 ♂, 16.5.75 ; 1 ♀, 18.5.75 ; 1 ♀, 19.5.75 ; 1 ♀, 21.5.75 ; 1 ♂, 21.4.76 ; 1 ♂, 3.5.76 ; 1 ♂, 6.5.76 ; 1 ♂, 7.5.76 ; 3 ♂ ♂, 9.5.76 ; 1 ♀, 2 ♂ ♂, 10.5.76 ; 1 ♀, 1 ♂, 14.5.76 ; 2 ♀ ♀, 18.5.76 ; 1 ♀, 7.8.76 ; 1 ♂, 8.8.76 ; 1 ♂, 11.8.76 ; 1 ♀, 12.6.78 ; 1 ♀, 8.8.78.

Allantus truncatus (KLUG)

1 ♂, 18.5.1975 ; 1 ♂, 9.5.76 ; 1 ♂, 1.8.78.

Apethymus braccatus (GMELIN)

1 ♂, 25.8.78 ; 2 ♀ ♀, 7 ♂ ♂, 11.9.78 ; 1 ♂, 13.9.78 (Hüttinger) ; 7 ♂ ♂, 15.9.78 ; 2 ♂ ♂, 6.10.78 ; 1 ♀, 7.10.78.

Endelomyia aethiops (F.)

1 ♂, 21.4.1975.

Caliroa annulipes (KLUG)

1 ♂, 1.8.78.

Caliroa cerasi (L.)

1 ♀, 7.8.1974 (E. Hüttinger); 1 ♀, 16.8.76; 1 ♀, 12.8.78.

Eutomostethus ephippium (PANZER)

1 ♀, 27.6.1973; 2 ♀ ♀, 13.5.75; 1 ♀, 19.5.75; 2 ♀ ♀, 21.5.75; 1 ♀, 3.5.76; 1 ♀, 12.6.78.

Eutomostethus punctatus (KONOW)

1 ♀, 21.5.1975.

All previous records from Switzerland are listed in LISTON & PETER (1981).

Rhadinoceraea micans (KLUG)

1 ♀, 7.6.1976.

Paracharactus gracilicornis (ZADDACH)

1 ♀, 10.5.1976.

Placed in *Paracharactus* MacGILLIVRAY following SMITH (1969).

Ardis brunniventris (HARTIG)

1 ♀, 16.5.1975.

Paraeophora pruni (L.)

1 ♀, 17.5.1975; 1 ♀, 21.5.75; 3 ♀ ♀, 16.5.76; 1 ♂, 18.5.76.

Cladardis elongatula (KLUG)

1 ♂, 9.5.75; 1 ♂, 14.5.75; 1 ♀, 4 ♂ ♂, 16.5.75; 2 ♂ ♂, 17.5.75; 1 ♂, 19.5.75; 1 ♀, 20.5.75; 1 ♀, 21.5.75; 1 ♂, 5.5.76; 1 ♂, 6.5.76; 1 ♂, 7.5.76; 2 ♂ ♂, 10.5.76; 1 ♂, 14.5.76; 1 ♂, 17.5.76; 2 ♂ ♂, 21.5.76; 1 ♂, 8.6.76; 1 ♂, 12.6.76.

Blennocampa pusilla (KLUG)

1 ♂, 14.5.1975; 1 ♂, 16.5.75; 3 ♂ ♂, 17.5.75; 1 ♂, 18.5.75; 2 ♂ ♂, 21.5.75; 2 ♂ ♂, 22.5.75; 1 ♀, 9.6.75; 1 ♂, 4.5.76; 1 ♂, 6.5.76; 1 ♂, 7.5.76; 2 ♂ ♂, 17.5.76; 2 ♂ ♂, 18.5.76; 3 ♂ ♂, 6.6.78.

One of the specimens taken on 17.5.76 has cells 1R1 and 1RS fused in both forewings.

Monophadnus pallescens (GMELIN)

1 ♀, 16.5.1975.

Monophadnoides alternipes (KLUG)

1 ♂, 21.4.75; 1 ♂, 17.5.75; 1 ♀, 8.5.76; 1 ♀, 1 ♂, 10.5.76; 1 ♂, 14.5.76.

Monophadnoides puncticeps (KONOW)

1 ♂, 13.5.75; 1 ♂, 17.5.75; 1 ♂, 4.4.76; 1 ♂, 16.4.76; 1 ♂, 17.4.76; 2 ♂ ♂, 20.4.76; 1 ♂, 2.5.76; 1 ♂, 5.5.76.

Monophadnoides ruficruris (BRULLÉ)

1 ♀, 22.4.75.

Monophadnoides waldheimii (GIMMERTHAL)

1 ♀, 20.5.1975 ; 1 ♂, 22.5.75.

Halidamia affinis (FALLÉN)

1 ♀, 16.5.1975 ; 2 ♀ ♀, 22.5.75 ; 1 ♀, 4.5.76 ; 1 ♀, 6.5.76.

Not previously recorded in Switzerland ! Distributed in Europe, Asia and North America. Larva on *Galium* spp.

Profenusa pygmaea (KLUG)

1 ♀, 19.5.1975 ; 1 ♀, 21.5.75.

Not previously recorded in Switzerland ! Distributed in Europe and Turkey. Larva is a leaf-miner in *Quercus* spp.

Tenthredininae

Eriocampa ovata (L.)

1 ♀, 13.5.1975 ; 1 ♀, 1.8.78 ; 1 ♀, 25.8.78.

Aglaostigma fulvipes (SCOPOLI)

2 ♀ ♀, 12.5.1975 ; 2 ♂ ♂, 17.5.75 ; 2 ♀ ♀, 8.5.78 ; 2 ♀ ♀, 6.6.78.

Tenthredopsis nassata (L.)

1 ♂, 29.6.1973 ; 1 ♂, 12.5.75 ; 2 ♂ ♂, 13.5.75 ; 1 ♀, 14.5.75 ; 2 ♂ ♂, 15.5.75 ; 2 ♂ ♂, 16.5.75 ; 1 ♂, 17.5.75 ; 1 ♂, 19.5.75 ; 1 ♂, 20.5.75 ; 1 ♀, 21.5.75 ; 2 ♂ ♂, 22.5.75 ; 1 ♀, 10.6.76.

Tenthredo livida L.

1 ♀, 11.6.1976 ; 3 ♀ ♀, 12.6.78 ; 1 ♂, 1.8.78.

Tenthredo schaefferi f. *perkinsi* MORICE

1 ♀, 1.8.1978 ; 1 ♀, 4.8.78.

Tenthredo solitaria SCOPOLI

1 ♀, 1 ♂, 17.5.1975 ; 1 ♂, 19.5.75 ; 1 ♂, 18.5.76 ; 1 ♀, 7.6.76.

Tenthredo temula SCOPOLI

1 ♀, 7.6.1976 ; 1 ♀, 12.6.76 ; 2 ♂ ♂, 12.6.78.

Tenthredo zonula KLUG

2 ♀ ♀, 21.5.1975 ; 1 ♀, 22.5.75 ; 1 ♀, 15.6.75 ; 1 ♀, 14.5.76 ; 1 ♀, 12.6.76 ; 1 ♀, 6.6.78 ; 1 ♀, 12.6.78.

Pachyprotasis rapae (L.)

1 ♂, 29.6.1973 ; 1 ♂, 29.4.75 ; 2 ♂ ♂, 16.5.75 ; 1 ♂, 18.5.75 ; 1 ♂, 3.5.76 (E. Hüttinger) ; 1 ♂, 10.5.76 ; 1 ♀, 11.6.76 ; 1 ♂, 6.6.78 ; 1 ♀, 12.6.78 ; 1 ♀, 4.8.78 ; 1 ♀, 15.9.78.

Pachyprotasis simulans (KLUG)

1 ♀, 15.5.1975 ; 1 ♀, 16.5.75.

Not previously recorded in Switzerland ! Distributed in North and Central Europe, to Siberia and China. Larva on *Scrophularia*, *Solidago* and *Senecio*.

Macrophya albicincta (SCHRANK)

1 ♂, 17.5.1975 ; 1 ♀, 18.5.76.

This and the following species are biologically distinct (CHEVIN, 1975b), but not easily separated as adults. *M. albicincta* adults are on the wing later than those of *alboannulata*, if a long series of both is checked, but in May large numbers of both species are active as adults (LISTON, 1983).

Macrophya alboannulata COSTA

1 ♂, 21.5.1975.

Macrophya ligata (O. F. MÜLLER) (= *annulata* GEOFFROY)

1 ♂, 16.5.1975.

Macrophya montana (SCOPOLI)

1 ♀, 10.6.1975 ; 1 ♂, 10.6.76 ; 1 ♀, 12.6.76 ; 1 ♀, 6.6.78 ; 1 ♀, 1 ♂, 12.6.78.

Macrophya sanguinolenta (GMELIN)

1 ♀, 5.6.1975 ; 1 ♂, 17.5.76.

Nematinae

Trichiocampus viminalis (FALLÉN)

1 ♀, 16.6.1975 (Hüttinger).

Cladius difformis (PANZER)

1 ♂, 23.4.1975 ; 1 ♀, 5.6.75 ; 1 ♀, 31.3.76 ; 1 ♀, 1 ♂, 2.4.76 ; 1 ♂, 3.4.76 ; 1 ♂, 4.4.76 ; 1 ♂, 5.4.76 ; 1 ♂, 20.4.76 ; 1 ♀, 1 ♂, 21.4.76 ; 2 ♂♂, 8.5.76 ; 1 ♀, 17.5.76 ; 1 ♂, 18.5.76 ; 3 ♂♂, 8.6.76 ; 1 ♂, 10.6.76 ; 1 ♀, 2.8.76 ; 1 ♀, 11.8.76 ; 2 ♀♀, 17.8.76 ; 2 ♀♀, 1 ♂, 4.8.78.

Cladius pectinicornis (L.)

1 ♂, 15.5.1975 ; 1 ♂, 16.5.75 ; 1 ♀, 5.8.75 ; 2 ♂♂, 3.4.76 ; 1 ♂, 20.4.76 ; 1 ♀, 1 ♂, 7.5.76 ; 1 ♂, 10.5.76 ; 1 ♂, 21.5.76 ; 1 ♂, 10.6.76 ; 1 ♂, 5.8.76 ; 3 ♂♂, 8.8.76 ; 1 ♀, 11.8.76 ; 2 ♀♀, 14.8.76 ; 1 ♂, 16.8.76 ; 4 ♀♀, 17.8.76 ; 1 ♀, 1 ♂, 1.8.78 ; 1 ♂, 4.8.78 ; 2 ♂♂, 25.8.78 ; 1 ♂, 11.9.78.

Priophorus morio (LEPELETIER)

1 ♂, 18.5.1975 ; 1 ♀, 5.8.76 ; 1 ♂, 8.8.76 ; 1 ♀, 1 ♂, 11.8.76 ; 1 ♂, 4.8.78.

Priophorus pallipes (LEPELETIER)

1 ♂, 16.5.1975 ; 1 ♂, 17.5.75 ; 1 ♂, 16.4.76 ; 1 ♂, 17.4.76 ; 1 ♂, 7.5.76 ; 1 ♀, 21.5.76 ; 1 ♂, 2.8.76 ; 1 ♀, 8.8.76 ; 2 ♂♂, 11.8.76 ; 2 ♀♀, 14.8.76 ; 3 ♀♀, 1 ♂, 17.8.76 ; 5 ♂♂, 1.8.78 ; 2 ♂♂, 4.8.78 ; 3 ♂♂, 12.8.78.

Priophorus pilicornis (CURTIS)

1 ♂, 20.4.1975 ; 1 ♂, 7.5.75 ; 1 ♂, 15.5.75 (Hüttinger) ; 2 ♂♂, 17.5.75 ; 1 ♂, 20.5.75 ; 1 ♂, 21.5.75 ; 1 ♂, 25.5.75 ; 3 ♂♂, 16.4.76 ; 1 ♂, 19.4.76 ; 1 ♂, 21.4.76 ; 1 ♂, 8.5.76 ; 1 ♂, 16.5.76 ; 2 ♂♂, 5.8.76 ; 1 ♂, 8.8.76 ; 1 ♂, 16.8.76 ; 1 ♂, 17.8.76.

Hoplocampa crataegi (KLUG)

1 ♀, 21.5.1975.

Hoplocampa pectoralis THOMSON

1 ♀, 9.5.1976.

Not previously recorded in Switzerland ! Europe, Transcaucasus and N. Iran. Larva in the developing fruit of *Crataegus*. Though a small genus, several other species of *Hoplocampa* probably await discovery in Switzerland. All species complete larval development in the fruits of various Rosaceae.

Pseudodineura heringi (ENSLIN)

1 ♀, 16.3.1977.

Occurs in Switzerland according to BEIGER (1982), but I cannot trace the original record. This is a very rarely found species, otherwise known only from Poland, Czechoslovakia and both Germanies. The larva is a leaf-miner in *Anemone silvestris* L., the mine being similar to that of *Endophytus anemones* (HERING) which uses *Anemone nemorosa* L. as a host.

Dineura stilata (KLUG)

1 ♂, 22.5.1975.

Mesoneura opaca (KLUG)

1 ♀, 15.5.1973 ; 1 ♀, 16.5.75.

Hemichroa australis (LEPELETIER)

1 ♀, 8.8.76.

Pristiphora abietina (CHRIST)

1 ♂, 16.5.1973 ; 1 ♂, 19.5.75 ; 1 ♂, 21.5.75 ; 1 ♀, 22.5.75 ; 1 ♀, 1 ♂, 3.5.76 ; 1 ♂, 6.5.76 ; 1 ♀, 9.5.76 ; 1 ♀, 18.5.76.

Pristiphora alpestris (KONOW)

1 ♀, 6.5.1976.

Described from specimens captured in Switzerland, but there are no more recent records. Localities for this species in South England and also for *P. pseudocoactula* (LINDQVIST) indicate that both are not only characteristic of northern subarctic regions. *Betula* is recorded as the larval host.

Pristiphora aquilegiae VOLLENHOVEN

1 ♂, 17.5.1975.

Pristiphora bifida HELLÉN

1 ♀, 6.6.1978.

Not previously recorded from Switzerland! Known from Finnish Lapland, Scotland, Austrian Tirol, France (Côte d'Or) and Czechoslovakia (Central Bohemia). Larva on *Salix* spp.

Pristiphora compressa (HARTIG)

1 ♀, 18.5.1975 ; 2 ♀ ♀, 1 ♀, 19.5.75 ; 3 ♀ ♀, 1 ♂, 20.5.75 ; 5 ♀ ♀, 1 ♂, 21.5.75 ; 1 ♂, 22.5.75 ; 2 ♂ ♂, 23.5.75 ; 1 ♂, 24.5.75 ; 1 ♀, 27.5.75 ; 2 ♀ ♀, 17.5.76 ; 1 ♀, 6.6.78 ; 1 ♂, 12.8.78.

Pristiphora crassicornis (HARTIG)

1 ♂, 18.5.1975 ; 2 ♂ ♂, 19.5.75 ; 1 ♂, 21.5.75 ; 1 ♂, 22.5.75 ; 1 ♂, 8.5.76 ; 1 ♀, 2 ♂ ♂, 17.8.76 ; 1 ♂, 4.8.78.

Pristiphora decipiens (ENSLIN)

2 ♀ ♀, 21.5.1975.

The only previous record of *decipiens* in Switzerland is based on one male from Canton Luzern (PETER, 1981).

Pristiphora fulvipes (FALLÉN)

1 ♂, 16.5.1975 ; 1 ♀, 1 ♂, 22.5.75 ; 1 ♂, 15.8.75 ; 1 ♀, 10.6.76 ; 1 ♀, 5.8.76 ; 1 ♀, 13.8.76 ; 1 ♀, 17.8.76 ; 1 ♀, 18.8.76.

The male of *fulvipes* is rarely found, and may not occur at-all in northern parts of Europe.

Pristiphora geniculata (HARTIG)

1 ♂, 18.5.1975 ; 5 ♀ ♀, 17.5.76.

Pristiphora laricis (HARTIG)

1 ♂, 21.4.1976 ; 1 ♂, 5.5.76 ; 1 ♂, 17.8.76.

Pristiphora melanocarpa (HARTIG)

1 ♂, 12.5.1975 ; 1 ♂, 17.5.75 ; 1 ♂, 21.5.75 ; 5 ♂ ♂, 17.5.76 ; 2 ♂ ♂, 18.5.76 ; 1 ♂, 11.6.76 ; 1 ♂, 4.8.78.

Pristiphora moesta (ZADDACH)

2 ♂ ♂, 30.4.1975 ; 1 ♀, 13.5.75 ; 1 ♀, 15.5.75 (Hüttinger) ; 1 ♀,

16.5.75 ; 1 ♀, 18.5.75 ; 1 ♀, 22.5.75 ; 1 ♀, 26.4.76 ; 1 ♀, 9.5.76 ; 1 ♀, 10.5.76.

Pristiphora monogyniae (HARTIG)

1 ♀, 21.4.1976.

Pristiphora paedida (KONOW)

1 ♂, 22.4.1975 ; 1 ♂, 26.4.75 ; 1 ♂, 28.4.75 ; 1 ♂, 30.4.75 ; 1 ♂, 1.5.75 ; 1 ♂, 7.5.75 ; 1 ♂, 16.5.75 ; 1 ♂, 17.5.75 ; 1 ♂, 21.5.75 ; 1 ♂, 19.4.76 ; 1 ♂, 21.4.76 ; 1 ♂, 2.5.76 ; 2 ♀ ♀, 1 ♂, 4.5.76 ; 2 ♀ ♀, 1 ♂, 8.5.76.

Male of *paedida* is normally considered rare. Larva feeds on *Rosa* (CHAMBERS, 1961).

Pristiphora pallidiventris (FALLÉN)

1 ♀, 13.5.1975 ; 1 ♀, 17.5.75 ; 1 ♀, 4.9.75 ; 2 ♀ ♀, 8.5.76 ; 1 ♀, 10.5.76 ; 1 ♀, 14.5.76 ; 3 ♀ ♀, 17.5.76 ; 1 ♀, 11.6.76 ; 1 ♀, 8.8.76 ; 3 ♀ ♀, 17.8.76 ; 1 ♂, 4.8.78 ; 1 ♀, 15.9.78.

The male of this widespread and often abundant species has not previously been found. It, like the female *pallidiventris*, does not differ morphologically from *P. denudata* KONOW, the males of which are common. Colouration of the male *pallidiventris* trapped at Delémont is exactly the same as in a typical female. Only the lateral margins of the abdominal tergites are pale.

Pristiphora pallipes LEPELETIER

1 ♀, 21.4.1976 ; 1 ♀, 9.5.76 ; 1 ♀, 1.8.78.

Pristiphora pseudocoactula (LINDQVIST)

1 ♂, 27.4.1975 ; 1 ♂, 16.5.75.

Not previously recorded in Switzerland ! A Holarctic species, known elsewhere in Europe from Finland and Great Britain. *P. pseudocoactula* is very closely related to *P. alpestris* and easily confused with it. Larva on *Betula*.

Pristiphora pseudodecipiens BENEŠ & KŘÍSTEK, 1976

1 ♀, 22.5.1975 ; 1 ♀, 23.5.75.

Not previously recorded in Switzerland ! Only recently distinguished from other very similar species of the *abietina* group, *pseudodecipiens* is known to be widely distributed in Northern and Central Europe. *Picea abies* L. is the host.

Pristiphora puncticeps THOMSON

1 ♀, 17.5.1973 ; 1 ♀, 19.4.76.

Pristiphora retusa THOMSON

1 ♂, 8.5.1975.

Not previously recorded in Switzerland ! Very few records of this species are published. I know of reliable recorded localities in Sweden, Scotland, Latvia and Germany. The nearest other sites for this species are in Baden-Württemberg (STRITT, 1952). Larva feeds on *Prunus padus* L., the flowers of which the adults visit.

Pristiphora punctifrons (THOMSON)

1 ♂, 20.5.1975 ; 2 ♀ ♀, 8.6.75 ; 1 ♀, 27.4.76 ; 1 ♀, 10.6.76.

Previously recorded in Switzerland only in Cantons Nidwalden and Zug.

Pristiphora saxesenii (HARTIG)

1 ♂, 16.5.1975 ; 2 ♂ ♂, 17.5.75 ; 2 ♂ ♂, 18.5.75 ; 2 ♂ ♂, 20.5.75 ; 2 ♀ ♀, 21.5.75 ; 1 ♀, 22.5.75 ; 1 ♂, 8.5.76 ; 1 ♂, 9.5.76 ; 2 ♀ ♀, 17.5.76 ; 1 ♀, 21.5.76 ; 1 ♀, 11.6.76.

Pristiphora subarctica (FORSSLUND)

1 ♂, 20.5.1975.

Not previously recorded in Switzerland ! Distributed in Scandinavia, England, and recently discovered in Finland and Czechoslovakia (BENEŠ & KRÍSTEK, 1979). Larva on *Picea*.

Pristiphora subbifida THOMSON

1 ♀, 12.5.1975 ; 1 ♀, 9.5.76.

Pristiphora testacea (JURINE)

1 ♂, 1.8.1978.

Phyllocolpa leucosticta (HARTIG)

1 ♀, 18.5.1976.

Nematinus abdominalis (PANZER)

1 ♂, 16.5.1975 ; 1 ♀, 18.5.75.

Nematus bergmanni DAHLBOM

1 ♂, 21.4.1976.

Nematus bipartitus LEPELETIER

1 ♂, 10.6.1976 ; 1 ♀, 13.6.76.

Nematus coeruleocarpus HARTIG

1 ♂, 14.5.1975 ; 1 ♂, 15.5.75 ; 2 ♂ ♂, 17.5.75 ; 1 ♂, 19.5.75 ; 1 ♂, 7.5.76.

Nematus crassus (FALLÉN)

1 ♂, 14.5.1975 ; 1 ♂, 16.5.75 ; 3 ♂ ♂, 17.5.75 ; 2 ♂ ♂, 18.5.75 ; 2 ♂ ♂, 20.5.75 ; 1 ♂, 21.5.76 ; 1 ♀, 10.6.76 ; 1 ♀, 30.7.76 ; 1 ♀, 7.8.76 ; 1 ♀, 13.8.76 ; 1 ♀, 14.8.76 ; 2 ♀ ♀, 17.8.76 ; 1 ♀, 12.6.78 ; 1 ♀, 4.8.78.

Nematus fagi ZADDACH

1 ♀, 5.8.1975.

Nematus frenalis THOMSON

1 ♀, 20.5.1975.

LISTON & PETER (1982) first found this species in Switzerland at an alpine site in Unterwalden. The taxonomy of the green coloured *Nematus* species requires intensive study.

Nematus incompletus FÖRSTER

1 ♂, 8.5.1975 ; 1 ♀, 17.5.75 ; 1 ♀, 8.5.76 ; 1 ♀, 9.5.76 ; 1 ♀, 14.8.76 ; 1 ♀, 6.6.78 ; 1 ♂, 10.7.78.

Nematus lucidus (PANZER)

1 ♀, 18.5.1975 ; 1 ♂, 6.5.76 ; 1 ♂, 16.5.76 ; 1 ♂, 11.8.76 ; 1 ♂, 10.7.78 (Hüttinger).

Nematus melanaspis HARTIG

1 ♂, 14.5.1975 ; 1 ♂, 16.5.75 ; 1 ♂, 21.5.76.

Nematus myosotidis (F.)

2 ♂♂, 7.5.1975 ; 1 ♂, 8.5.75 ; 2 ♂♂, 10.5.75 ; 3 ♂♂, 12.5.75 ; 1 ♂, 14.5.75 ; 6 ♂♂, 16.5.75 ; 1 ♀, 22.5.75 ; 1 ♀, 29.5.75 ; 1 ♂, 5.8.75 ; 2 ♂♂, 2.4.76 ; 2 ♂♂, 17.4.76 ; 1 ♀, 3.5.76 ; 1 ♀, 1 ♂, 7.5.76 ; 1 ♂, 9.5.76 ; 1 ♀, 18.5.76 ; 1 ♀, 1 ♂, 10.6.76 ; 1 ♂, 11.6.76 ; 3 ♀♀, 3 ♂♂, 5.8.76 ; 4 ♀♀, 7.8.76 ; 1 ♂, 8.8.76 ; 1 ♀, 17.8.76 ; 1 ♂, 6.6.78 ; 1 ♂, 25.8.78 ; 1 ♀, 1 ♂, 15.9.78.

Nematus nigricornis LEPELETIER

1 ♂, 11.6.1976 ; 1 ♂, 14.8.76.

Nematus oligospilus FÖRSTER

1 ♀, 20.5.1975 ; 1 ♀, 9.6.75.

Nematus pavidus LEPELETIER

1 ♂, 25.5.1975 ; 1 ♀, 12.8.78.

Nematus ribesii (SCOPOLI)

1 ♂, 17.5.1975 ; 1 ♀, 18.5.75 ; 1 ♂, 5.4.76 ; 2 ♂♂, 8.5.76 ; 1 ♂, 12.7.78.

Nematus tibialis NEWMAN

1 ♀, 16.5.1975 ; 2 ♀♀, 9.5.76 ; 1 ♀, 4.8.78.

Nematus viridescens CAMERON

1 ♀, 21.5.1975.

Nematus viridis STEPHENS

1 ♂, 16.5.1975 ; 1 ♂, 1.8.78 ; 1 ♀, 4.8.78.

Pachynematus leucopodius (HARTIG)

1 ♂, 22.5.1975.

Pachynematus nigriceps (HARTIG)

1 ♀, 16.5.1975.

Pachynematus obductus (HARTIG)

1 ♀, 7.8.1976 ; 1 ♀, 4.8.78.

Pachynematus scutellatus (HARTIG)

1 ♂, 13.5.1975.

Pachynematus vagus (FABRICIUS)

1 ♂, 18.5.1976 ; 1 ♀, 10.6.76.

Only one male specimen of *vagus* was previously known, from England (BENSON, 1958).

3. Character of the trapped material

Although no quantitative comparison can be made between the catches of the Tent Window Traps and Malaise Traps with regard to the Symphyta, it seems clear that the former type provides a much smaller number of the species with a body length larger than 10 mm. Particularly the larger sawfly species with active and fast flying adults are poorly represented in the catches examined from Delémont. Certain Cimbicidae and Tenthredininae could probably be collected much more easily from flowerheads, for example.

60 identified species, equalling 41 % of the total species number, belong to the subfamily Nematinae of the Tenthredinidae. This is surprisingly many for a locality in an area of climax woodland at a relatively low altitude. The Nematinae becomes increasingly dominant in sawfly faunas at higher altitudes and in areas where climax forest has not been able to develop. Only 31 % of the total number of Symphyta species recorded in Switzerland belongs to the Nematinae, based on the list in LISTON (1981). I attribute the species richness of the Nematinae trapped by the Tent Window Traps to the generally small size of the adults in this subfamily. The Blennocampinae of the Tenthredinidae is similarly well represented in terms of both species, 26 % of the total number in the catches, and individual specimens. Only 17 % of the species in the total recorded fauna of Switzerland belongs to this subfamily, which contains many species with small and weak-flying adults.

Another striking feature of the sawfly collection assembled from the traps is the unusual predominance of male specimens in some species which are normally collected more frequently as females. Particularly the Nematinae

nae is involved, but also the Argidae and a few Blennocampinae. Good examples are *Cladardis elongatula* (20 ♂♂, 3 ♀♀), *Blennocampa pusilla* (20 ♂♂, 1 ♀), *Pristiphora crassicornis* (9 ♂♂, 1 ♀) and *P. melanocarpa* (12 ♂♂). *Pristiphora fulvipes* (3 ♂♂, 6 ♀♀) and *P. paedida* (14 ♂♂, 4 ♀♀) were considered by BENSON (1958) to have very rare males, whilst the male *Pristiphora pallidiventris* (16 ♀♀, 1 ♂) was previously entirely unrecorded, and that of *Pachynematus vagus* (1 ♀, 1 ♂) only known from a single English specimen. It has been established that populations of some sawfly species may contain a greater proportion of males in more southerly regions than in northerly ones, but in the case of the material from Delémont, one might suspect that the differing behaviour of the sexes in these species had caused the males to be more easily trapped or retained in the Tent Window Traps than the females.

4. Hostplant associations

According to the data of LORENZ & KRAUS (1957), and BENSON (1951, 1952, 1958), larvae of 44 (30%) of the species trapped in Delémont feed on Rosaceae (mainly *Rosa*, *Rubus*, *Prunus spinosa* and *Crataegus*); 32 (22%) on deciduous trees of various families; 22 (15%) on diverse herbaceous plants; 18 (12%) on Gramineae and/or Cyperaceae; 10 (7%) on *Abies* and *Picea*; 6 (4%) on *Sambucus* (2), *Ribes* (2), *Lonicera* or *Berberis* (1 each); 2 each on *Equisetum* or Ferns; 1 each on *Pinus* or *Larix*; while 5 are polyphagous and 5 have unknown foodplants.

The proportion associated with foodplants in the Rosaceae seems unusually high. In most Central European localities the number of sawfly species feeding on rosaceous hosts is similar to the number on herbaceous plants of other families. No-doubt this characteristic of the catches is to be explained by the essentially wooded nature of the trap's immediate area, with a rich flora of *Rubus*, *Rosa* and shrubby Rosaceae around the wood edge. The fairly heavy shade probably precludes the presence of a very rich herbaceous flora. Sawfly adults active on and around the taller trees possibly had fewer possibilities to enter the traps.

5. Faunistic relationships

No previous published records for Switzerland exist for the 13 species listed below:

Cephus cultratus EVERSMANN
Janus luteipes (LEPELETIER)
Sterictiphora geminata (GMELIN)
Allantus cingulatus (SCOPOLI)

Halidamia affinis (FALLÉN)
Profenusa pygmaea (KLUG)
Pachyprotasis simulans (KLUG)
Hoplocampa pectoralis THOMSON
Pristiphora bifida (HELLÉN)
P. pseudocoactula (LINDQVIST)
P. pseudodecipiens BENEŠ & KRÍSTEK
P. retusa THOMSON
P. subarctica (FORSSLUND)

Most of these species have been recorded in one or more areas near Switzerland's border, in France, Germany, Austria or Italy. Only *Pristiphora pseudocoactula* and *P. subarctica* have not been found in neighbouring areas of Central Europe.

A clear majority of species has the European or Eurosiberian type of distribution. The occurrence of 6 species of Cephidae, together with *Athalia cornubiae*, *Tenthredo zonula*, *Pristiphora moesta*, *P. monogyniae*, *P. subbifida*, *P. testacea* and *Nematus fagi*, indicates that a "continental" element is strongly represented in this part of the Jura. These species all seem to require fairly high average summer temperatures. Apart from the species which are restricted to *Abies* and *Picea*, and which therefore occur naturally only in mountainous or northern regions of Europe, several other species trapped at Delémont have been previously thought of as having boreo-montane ranges. *Loderus gilvipes*, *Pristiphora retusa* and *Nematus frenalis* are examples, but they are all rather poorly known taxa which may in some cases not even be distinct from closely related forms. If these species really do belong to the northern/montane group of sawflies, they may have been vagrant from sites at higher altitudes in the nearby Jura Mountains. *Nematus tibialis* is the only clear example of a species not native to the area. It is a North American species which is well established in Europe where its host, *Robinia pseudacacia* L., grows.

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Zusammenfassung

Über die mit Fangzelte von Prof. H. Pschorn-Walcher bei Delémont, Kanton Jura gesammelten Blattwespen.

Etwa 900 Blattwespenstücke waren in der Nähe von Delémont, Jura, in Fangzelte gefangen. Aus diesem Material sind 148 Arten determiniert. Einige Besonderhei-

ten dieser Fangmethode sind diskutiert. Merkwürdig ist eine relativ hohe Zahl von den Männchen einige Arten. Das Männchen von *Pristiphora pallidiventris* war früher unbekannt. Die Unterfamilien Blennocampinae und Nematinae, und anderen kleinen Tieren, waren besser in den Fangzelle vertreten, als man bei anderen Fangmethoden erwarten könnte. 13 Arten sind zum ersten Mal in der Schweiz nachgewiesen.

Summary

About 900 sawfly specimens were collected in the vicinity of Delémont, Canton Jura, with Tent Window Traps. 148 species were identified from this material. Some peculiarities of the catches resulting from this method of collection are discussed. The abnormally high ratio of males to females of some species is remarkable. The male of *Pristiphora pallidiventris* was previously unknown. Blennocampinae, Nematinae and other groups composed of mainly small species were better represented in these traps than one would expect from other collecting methods. 13 species are recorded in Switzerland for the first time.

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