

Ergebnisse der wissenschaftlichen Untersuchungen des schweizerischen Nationalparks
Herausgegeben von der Kommission der **Schweizerischen Naturforschenden Gesellschaft**
zur wissenschaftlichen **Erforschung** des Nationalparks

Résultats des recherches scientifiques entreprises au Parc National Suisse
Publiés par la commission de la **Société Helvétique des Sciences Naturelles** pour les **études**
scientifiques au Parc National

Band VII (Neue Folge)

44.

**THE SAWFLIES (HYMENOPTERA
SYMPHYTA) OF THE SWISS NATIONAL PARK
AND SURROUNDING AREA**

by

ROBERT B. BENSON

British Museum (Natural History)

London

Druck **Lüdin** AG. Liestal 1961

Contents

	Page
Foreword	163
Introduction	164
Acknowledgements	164
Arctic-alpine Species (with table).	166
Boreo-subalpine Species	167
Endemic or eastern subalpine Species	168
Scottish-subalpine Species	169
Collectors and Dates	170
List of Species	170
References.	195

171

Foreword

Page

163

164

164

166

167

168

169

170

170

195

All scientific research in the Swiss National Park is delegated by the Swiss Academy of Sciences to a special commission that is responsible for collecting material and for designating specialists to work in the National **Park**.

In former years nearly **all** basic research has been undertaken by Swiss naturalists but there still remain many difficult groups for which no specialists are available. Rather than wait until such appear upon the somewhat limited scientific horizon of this country, the Commission has agreed to seek outside assistance whenever necessary. **M. BENSON's** report on **Sawflies** is a case to point. Before him, several entomologists have collected **Tenthredinids**, especially Drs. **J. CARL**, **J. DE BEAUMONT** and **CH. FERRIÈRE** who have reported on *Hymenoptera-Aculeata*.

At the instigation of Professor **J. DE BEAUMONT**, Mr. **BENSON** has been entrusted with these collections but was also invited to visit the National Park in order to collect further materials and to take cognizance of the ecological conditions under which the **Sawflies** occur. The ensuing report deals with all the specimens collected from this region that have been identified or the former identification checked by **Dr. BENSON**.

The list of species is of course not complete but may serve as a basis for any future research on **Sawflies**. We are especially **thankful** to Mr. **BENSON** for having written his report in so short a time. We are also grateful to Professor **J. DE BEAUMONT** for reading the manuscript and for checking all the names of the places from which **Sawflies** have been collected; he has also undertaken to prepare the entire collection of **Tenthredinids** in the Nationalpark-Museum in **Chur** for incorporation.

Fully aware that much remains to be discovered, we nonetheless consider it important to publish this first report on **Sawflies**. Since such **faunistical** work is never ended and moreover all research undertaken within the Swiss National Park proceeds continuously from one generation of naturalists to another.

JEAN G. BAER

Introduction

Though, with my wife, I have collected **sawflies** in Switzerland for three **seasons**, 1935, 1959 and 1960, we have collected only in June and early July, and virtually only at the altitude of the subalpine coniferous forests and above. For our purpose has been not so much a survey of Swiss **sawflies** as a whole but studies of the boreo-subalpine species of the coniferous forests as potential pests of British forestry and of the **high** alpine species, especially those with arctic affinities.

The season we spent at **Il Fuorn** (1960) was a poor one. Not only was the weather, almost throughout our stay, wet, cold and unsettled but a general decline in the numbers of **sawflies** throughout most of north-western and central Europe and North America had been characteristic of the preceding decade.

Although 192 species are listed below from the National Park and the surrounding district and **114** (marked with an * in the list below) from within the actual boundaries of the Park itself, 53 of these records are based on **single** occurrences: and this indicates that many more species, that are **actually present** there, have not yet been found. Even so, the **sawfly** fauna of the actual Park itself is unlikely to be very rich in number of species present. The scarcity of surface water in the limestone areas and of hardwood trees, the predominant **sawfly foodplants**, at once restricts their possible habitats: *Alnus*, *Betula*, *Populus*, *Salix* and *Sorbus* are uncommon and there are no glacial moraines carrying *Salix* scrub, a **favorite** habitat for boreal **sawflies** in other parts of Switzerland. **Furthermore** ants of the genus *Formica*, among the greatest enemies of **sawflies**, are very numerous in the forest areas; only the fluvial and high alpine meadows, solifluction slopes and screes are **relatively** free of them.

Acknowledgements

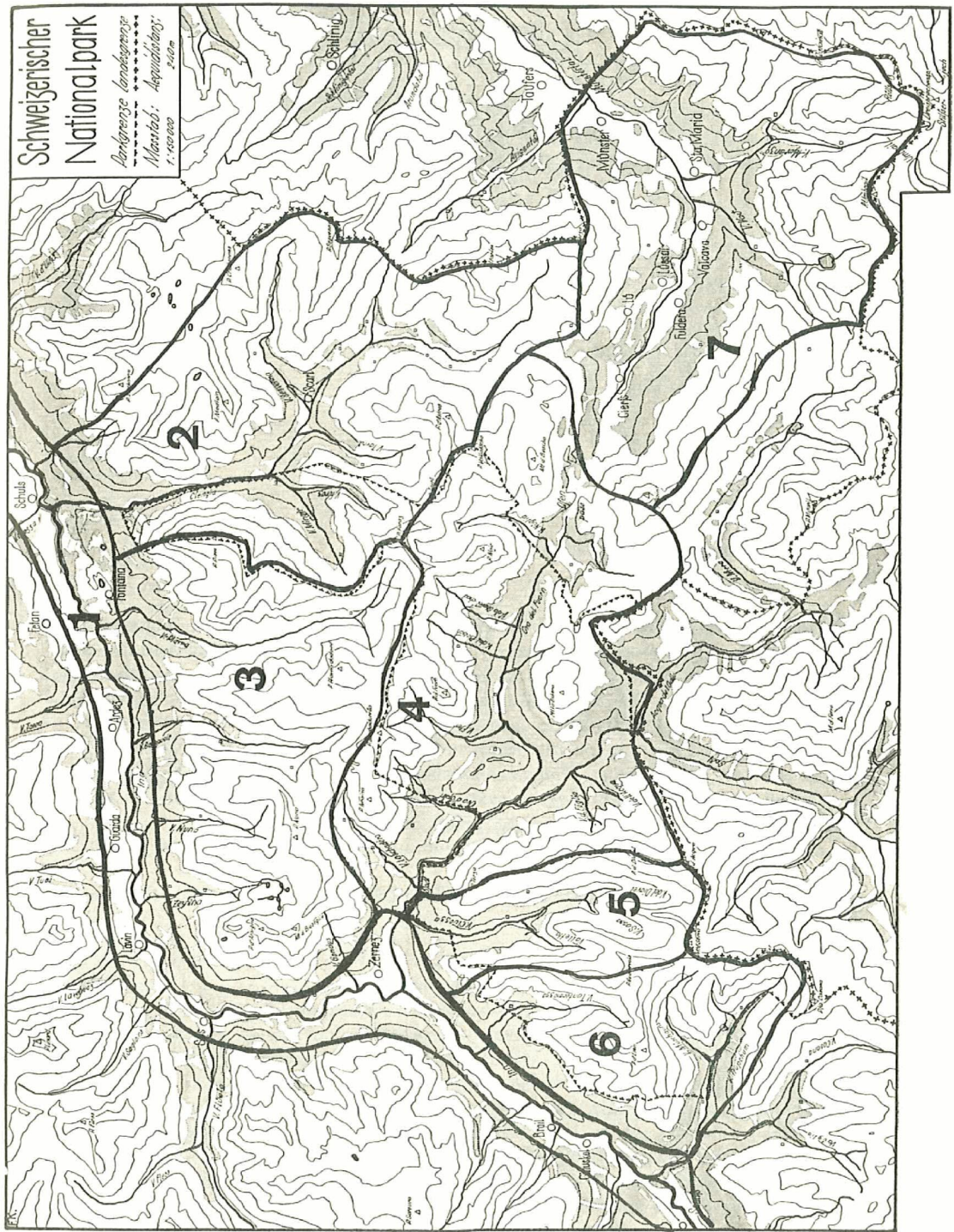
We are specially indebted to Professor Dr. **J. BAER**, Chairman of the "Kommission für wissenschaftliche Erforschung des Nationalparks", to Dr. **N. ZIMMERLI**, secretary of the "Nationalparkkommission" and to Professor Dr. **P. BOVEY**, chairman of the "Zoologische Subkommission", also to Professor Dr. **J. DE BEAUMONT** for sending me the collections of **sawflies** made in the National Park by Dr. **J. AUBERT**, Dr. **J. CARL** (†), Dr. **Ch. FERRIÈRE** and himself, for encouraging me to go there myself, and for helping in the preparation of this manuscript. To Dr. **NADIG** of the Lyceum **Alpinum**, Zuoz, for lending me material collected by himself chiefly about Zernez and Zuoz, and to Professor Dr. **E. HANDSCHIN** of the **Naturhistorisches** Museum, Basel, for sending me material collected in the National Park by himself, Dr. **Th. STECK** (†) and others.

for three seasons,
and virtually only
purpose has been
the boreo-subalpine
ery and of the high

y was the weather,
ecline in the num-
Europe and North

and the surrounding
e actual boundaries
: and this indicates
ot yet been found.
ery rich in number
as and of hardwood
possible habitats:
ere are no glacial
es in other parts of
reatest enemies of
gh alpine meadows,

f the "Kommission
MERLI, secretary of
chairman of the
ONT for sending me
ERT, Dr. J. CARL (†),
elf, and for helping
Alpinum, Zuoz, for
Zuoz, and to Pro-
d, for sending m@
CK (†) and others.



Arctic-alpine Species

Under this head I include 17 species characteristic of high alpine habitats well above the tree-line (which is at about 2,200 m. in the Park) and also beyond or above the tree line in the far north, in Lapland and often also in Canada.

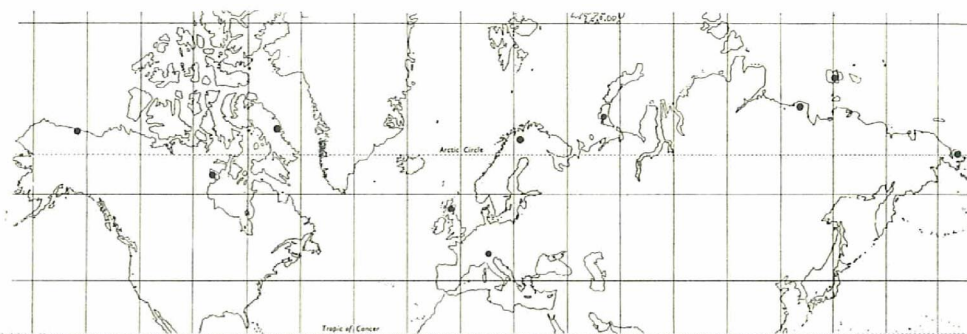


Fig. 1. Distribution of *Amauronematus abnormis*.

Some of them feed as larvae on *Vaccinium* (e.g. *Nematus reticulatus*) and one probably on Cyperaceae (*Pachynematus smithiae*) but the majority are on *Salix*. And the adults of most of them are attracted to the flowering catkins of *Salix* and only here, feeding on nectar and pollen, can they be found in any abundance. Some of them, such as *Amauronematus abnormis*, are high arctic species (fig. 1) and have so far been found only on exposed fell-fields, but some of the others occur also in the willow scrub at the tree-line and in enclaves in the forest. *Pontania dolichura* occurs even in lowland alpine valleys and on the sand hills of the north coast of Holland, whereas *Pachynematus smithiae* was found by BRIDGMAN even on the Norfolk coast of east England.

All except 5 occur also in the Scottish mountains and all except 3 are known also from North America (Table 1).

Purely alpine species that have not been found yet in the arctic include the following (those in brackets are not yet known in Grisons).

Dolerus alpinus
 (*Monopadnus alpicola* Benson)
Paracharactus hyalinus
Pristiphora bensoni
Amauronematus opacipleuris
A. nimbus
 (*Pachynematus omega* Benson)
 and (*Pontania retusae* Benson).

Arctic-alpine Species

	Switzerland		Scotland	Lapland	N. America
	Grisons	Valais			
<i>Empria alpina</i>	+	+	+	+	—
<i>Pristiphora coactula</i>	+	+	+	+	+
<i>Pristiphora lativentris</i>	+	+	+	+	+
<i>Pristiphora breadalbanensis</i>	+	+	+	+	—
<i>Pristiphora borea</i>	+	+	+	+	+
<i>Pristiphora staudingeri</i>	+	+	+	+	+
<i>Pristiphora puncticeps</i>	—	+	—	+	—
<i>Amauronematus polaris</i>	+	+	—	+	+
<i>Amauronematus abnormis</i>	—	+	+	+	+
<i>Amauronematus variator</i>	+	+	—	+	+
<i>Amauronematus hyperboreus</i>	+	+	—	+	+
<i>Amauronematus arctica</i>	+	—	+	+	+
<i>Amauronematus latiserra</i>	—	+	—	+	+
<i>Nematus reticulatus</i>	+	+	+	+	+
<i>Pontania crassipes</i>	+	+	+	+	+
<i>Pontania dolichura</i>	+	+	+	+	+
<i>Pachynematus smithiae</i>	—	+	+	+	+

Boreo-subalpine Species

This is essentially the fauna of the subalpine and **boreal** coniferous forest including, of course, its open **phases** of moor and meadow, bog and swamp. The species included in brackets have not yet been found in Grisons in Switzerland, but only in Valais.

Bog and swamp species include (*Pseudodineurn enslini* Hering) attached to *Trollius europaeus* L., *Dolerus bimaculatus*, *D. gessneri* and *D. yukonensis* all on *Equisetum* (the last two each in a peculiar British-alpine subspecies which will be dealt with later), *D. nitens* on Cyperaceae, and *Tenthredo moniliata* on *Menyanthes trifoliata* L. The willow-scrub species include: *Amauronematus leucolaenus* (*A. viduatus* Zetterstedt), (*A. sagmarius* Konow) and (*A. enslini* Lindqvist), (*Phyllocolpa excavata* [Marlatt]) and *Pontania vesicator*. The moorland species include *Tenthredo obsoleta*, *T. mioceras*, *Pristiphora quercus*, *P. mollis* and *P. carinata*. *Dolerus aeneus*, one of the commonest sawflies in North-western Europe, is attached to Gramineae.

The following are the species in the National Park attached to coniferous trees and therefore potential forestry pests, though it is interesting to note that, apart from the two species of *Anoplonyx*, and *Xyela obscura*, these species are scarce in the Park, and none have ever been found in any destructive abundance: *Xyela obscura*, *X. alpigena*, *Xyelatana helvetica*, *Acantholyda flaviceps*, *A. pumilionis*, *A. laricis*, *Cephalcia alpina*, *C. arvensis*, *Urocerus gigas*, *Gilpinia abieticola*, *G. frutetorum*, *Microdiprion pallipes*, *Neodiprion sertifer*, *Anoplonyx duplex*, *A. ovatus*, *Pristiphora laricis*, *P. saxeseni*, *P. abietina*, *P. compressa*, *P. ambigua*, *Pachynematus imperfectus*, *P. nigriceps*, *P. montanus*, *P. scutellatus* and *P. leucopodius*.

Endemic or eastern subalpine Species

Subalpine species, endemic or with eastern rather than northern affinities, include: *Xyela obscura*, *X. alpigena*, *Xyelatana helvetica*, *Arge pyrenaica* (Fig. 2) (*Arge stecki Benson*) (*Zaraea aurulenta* Sichel) (*Abia fulgens* Zaddach) *Hypargyricus nodicornis*, *Aglaostigma pinguis* (*A. submontanum Benson* etc.) *Tenthredo algoviensis*, *T. stecki*, *T. koehleri*, *Nepionema helvetica* and *Pristiphora friesei*. *Xylea obscura* and *Xylea alpigena* even reach North America.

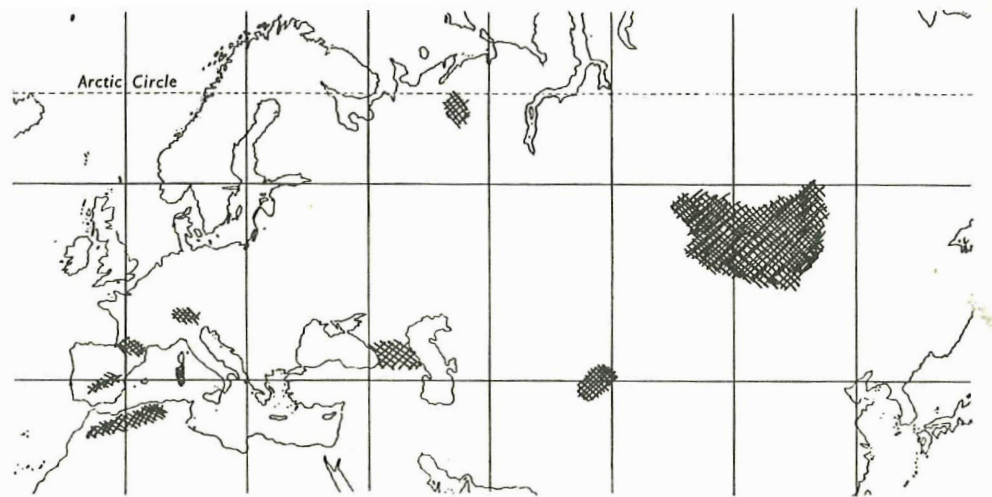


Fig. 2. Distribution of *Arge pyrenaica*.

The following are peculiar forms of lowland European species developed in the high-alps: *Arge nigripes alpina*, *Dolerus nitens* parthenogenetic race, and *Tenthredo arcuata aegra*.

Scottish-subalpine Species

The following four species or subspecies show a remarkable type of distribution which can be described as Scottish-subalpine: they are known only from North Britain and subalpine regions of Central Europe, but not from Scandinavia eastwards.

Dobrus yukonensis scoticus and *D. gessneri gessneri*. Both these are large **melanic** races of boreal holarctic **species**. Both are **replaced** in Scandinavia and **eastwards** across Siberia to Alaska and beyond by normal red-banded races. *D. yukonensis scoticus* is however locally abundant in North Britain but apparently scarce in Central Europe (with only two records from **Valais** and one from **Grisons**) and not known in Ireland (Fig. 3).

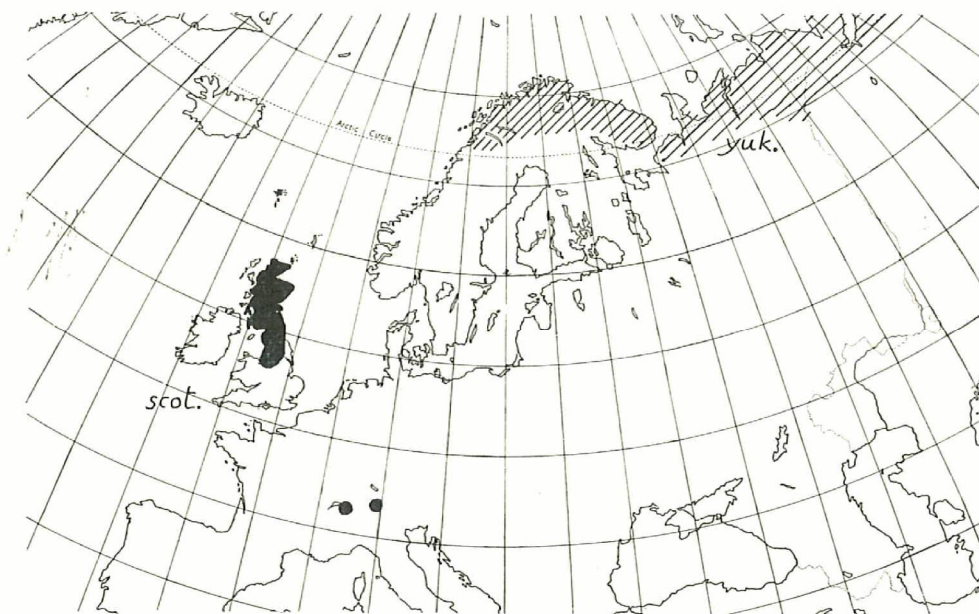


Fig. 3. Distribution of *Dolerus yukonensis scoticus* (black) and *D.y.yukonensis* (cross-hatched) in Europe.

D. gessneri gessneri on the contrary is common in open boggy subalpine habitats throughout North-west and Central Europe and in North-west Britain including Ireland.

Nematinus willigkiae pilosa. The discovery in the low-lying **Müstairtal**, Grisons, South-east of the National Park, of this form previously thought to be an endemic Scottish race, is unaccountable.

Amauronematus godmani. This species, which is the commonest *Amauronematus* on Salix-scrub in subalpine and alpine localities in Switzerland, is known at present to occur in only one northern locality, at Inchnadamph in Sutherland in North-west Scotland, but it has not been found in Scandinavia or anywhere else in arctic or sub-arctic regions.

These four species show a similar distribution in West Europe to that of the butterfly *Erebia epiphron* (Knoch.) and the plants *Alchemilla conjuncta* Bab., *Cherleria sedoides* L., *Gentiana verna* L., and *Homogyne alpina* (L.) Cass. This type of distribution would appear to have come about under conditions similar to those existing during the last Glacial phase when periglacial tundra stretched south of the **Scandinavian** Ice-sheets from South Britain to Central Europe north of the Alps (MOREAU 1955, fig. 4, p. 265).

Collectors and Dates

This list of species of **sawflies** of the National Park was based on the collections made by the **following** collectors during the years specified.

AUBERT, J., 1952-1956. BEAUMONT, J. DE, 1932-1955. BENSON, J.E. and R.B., 1960 (2. vi - 3. vii). CARL, J., 1918-1932. FERRIÈRE, CH., 1919-1925. HANDSCHIN, E., 1933-1957. NADIG, A., 1924-1947.

List of Species

In dealing with the distribution of species in the National Park and its immediate neighbourhood I have adopted the **numbered** zones agreed on by Drs. FERRIÈRE and DE BEAUMONT and the late Dr. CARL, as follows: Zone 1, Vallée de l'Inn; Zone 2, Val S-charl; Zone 3, Zuort-Baselgia, the region between the Vallée de l'Inn, Il Fuorn and the Val S-charl; Zone 4, Il Fuorn, comprising the central part of the National Park; Zone 5, Val Cluozza; Zone 6, Val Tantermozza and Val Trupchum; Zone 7, Val Müstair.

A map **with** these zones marked as given by de Beaumont 1958 is included. In my list I have given the localities in the same order as de Beaumont.

Following the list of localities I have given the **first** and last dates of capture of adults, the range of years in which they were found, the altitudinal range, the known food plants and the **world** geographical distribution, with ecological comment **where** relevant.

XYELIDAE

Xyela Dalman

**Xyela obscura* (Strobl)

Pinicola julii var. *obscura* Strobl, 1895, Wien ent. Z., 14: 277.

Xyela japonica Rohwer, 1910, Pr. U. S. nat. Mus., 39 (3777): 99, syn. nov.

Xyela pini Rohwer, 1913, Pr. U. S. nat. Mus. 45 (1981): 267, syn. nov.

Xyela obscura (Strobl) Benson, 1960, Pr. R. ent. Soc. Lond., 29: 110.

4. In prodigious numbers throughout the pine forest of the Il Fuorn Region and vagrant above.

6.1960. Normally up to 2000 m., but up to 2550 m. on snow on Munt la Schera. *Pinus mugo* Terra and *cembra* L. Subalpine Switzerland and Austria abundantly, and eastwards to Japan and North America.

***Xyela curva** Benson

Xyela curva Benson, 1938, Pr. R. ent. Soc. Lond., 7: 35-36.

4. II Fuorn. 1♀, 15.6.1960. 1800 m.

Subalpine Spain, Switzerland and Austria.

***Xyela alpigena** (Strobl)

Pinicola alpigena Strobl, 1895, Wien ent. Z., 14: 277.

Xyela kamtschatica Gussakovskij, 1935, Chalastogastra 1, Ins. Hym., Faune de l'URSS, 7.11, 1: 363-4, syn. nov.

Xyela alpigena (Strobl) Benson, 1938, Pr. R. ent. Soc. Lond., 7: 35.

Xyela middlekauffi Burdick, 1961, Univ. Calif. Publ., Ent., 17: 343, syn. nov.

4. II Fuorn and Alp Grimmel, scarce.

6.-11.6.1960. 1800-2000 m. *Pinus cembra* L., (and *P. strobus* L.).

Subalpine Switzerland, Austria and eastwards to Kamtchatka, Japan and North America.

Xyelatana Benson

Xyelatana helvetica sp. nov.

♀ **Black** with following parts yellow: mouthparts, front of clypeus laterally, genae, orbits, inter-antennal region, a fleck each side of the post **ocellar** area, front **edge** of **pronotum**, outer edge of tegula, fleck on mesopleura, and each side of mesosternum, fleck on coxa of forelegs, apex and undersides of femora and tibiae and tarsi obscurely, **hypopygium**, anal region and base of ovipositor. Wings fusco-hyaline; stigma and venation brown. Length 3 mm or 5 mm. with ovipositor..

Antenna with **whip** longer than three basal segments as 1.0:0.8. Posterior **ocelli** closer together than from back of head as 1.0:1.4; POL: OOL as 1.0:2.1. Thorax normal. Abdomen with ovipositor shorter than **forewing** as 1.0: 1.3, but longer than the whole insect as 1.0:0.8. Surface sculpture: head and thorax with fine regular coriaceous sculpture.

Switzerland: Grisons, Val Ftur, near II Fuorn, 1900 m., 1 ♀, 23.4. 1953.

(J. AUBERT) (Nationalpark-Museum, Chur.)

This species is distinguished from the other species in the genus by its length of ovipositor which is shorter than in *X. longula* Dalman or *X. piliserra* Thomson. The ovipositor **forewing** ratio in *X. longula* is c. 1.0:1.0 and in *X. piliserra* Thomson is 1.0:1.05, while in *X. lugdunensis* Berland the ovipositor is very much shorter, being little longer than the abdomen and shorter therefore than the whole of the body besides being emarginate below in lateral view.

(c.f. BERLAND, L., 1947. Hyménoptères Tenthredinoides, Faune de France 47: 28, fig. 17.)

PAMPHILIIDAE

Acantholyda A. Costa

***Acantholyda flaviceps (Retzius)**

4. **Gad la Schera**; 5. **Val Cluozza**. 30.5.–9.6.1937–1960. 1800–2300 m. *Pinus*.
North and Central Europe. **Subalpine Switzerland** sparingly.

***A. erythrocephala (L.)**

4. **Val Ftur and Il Fuorn**. 19.5.–26.7.1937–1958. Up to 2000 m. *Pinus*.
North and Central Europe and Siberia. (Introduced into North America.) **Subalpine**
Switzerland.

***A. pumilionis (Giraud)**

4. **La Schera, Il Fuorn, Val Ftur, Ofenstrasse**; 5. **Val Cluozza**. 25.5.–3.8.1919–1960.
2000–2100 m. *Pinus cembra* L.
Alps of Central Europe, **Carpathians and Transylvania**. Switzerland, also in **Valais**
(**Aletschwald**).

?A. laricis (Giraud)

1. **Clüs**; 4. **Il Fuorn**. 20.6.–25.7.1921–1952. 1600–1800 m, *Larix*.
North and Central Europe and Siberia. **Subalpine Switzerland**.

Cephalcia Jurine

***Cephalcia alpina Klug**

4. **Vallée du Spöl and Il Fuorn**. 6.–12.6.1960. 1600–1800 m. *Larix*.
All Europe, subalpine in Switzerland.

***C. arvensis Panzer**

4. **Champlönch, Punt dal Gall and Il Fuorn**. 13.–22.6.1960. 1600–2000 m. *Picea*.
All Europe, subalpine in Switzerland.

Pamphilius Latreille

***Pamphilius pallipes (Zetterstedt)**

1. **Susch**; 2. **Val Tavrü**; 4. **Il Fuorn**. 27.5.–18.7.1919–1932. To 2000 m, *Betula*.
North and Central Europe and Siberia.

***Pamphilius vafer (L.)**

1. **Clüs**; 4. **Punt Periv**; 7. **Sta. Maria**. 23.5.–8.1919–1960. To 1700 m. *Alnus*.
North and Central Europe.

Pamphilius balteatus (Fallén)

1, **Zernez**. 6.1922. 1600 m. *Rosa*.
Europe and Siberia.

MEGALODONTIDAE

Megalodontes Latreille

Megalodontes **spissicornis** Klug

1. Common in Inn Valley about S-chanf, Zernez and Scuol; 7. **Tschierv.**
7.-8.1919-1955. Up to 1750 m. **Umbelliferae** (*Laserpitium*, *Peucedanum*, *Seseli* etc.)
Central and South Europe.

XIPHYDRIIDAE

Xiphydria Latreille

Xiphydria **camelus** (L.)

7. **Sta. Maria**, 14.-23.6.1953-1960. 1400 m. *Alnus* and *Betula*.
Europe, Asia Minor, Siberia to Japan.

SIRICIDAE

Urocerus Geoffroy

***Urocerus gigas gigas** (L.)

1. **Scuol**, Zernez; 4. Alp da Munt; 5. Val Cluozza, Blockhaus; 6. **Sta. Maria**.
25.7.-27.8.1921-1932. To 1900 m. Coniferae.
European **subspecies of holarctic** species.

CEPHIDAE

Hartigia Schiödte

Hartigia **nigra** (Harris)

1. **Ardez**, Zernez. 10.-13.6.1932. To 1500 m. *Rubw.*
Europe and Siberia to North China.

Cephus Latreille

Cephus pygmaeus (L.)

1. Scuol; 6. **Sta. Maria** (abundant). 15.6.-12.7.1921-1960. To 1500 m. Gramineae.
Europe and Mediterranean, Asia Minor, North Persia to Turkestan.

CIMBICIDAE

Trichiosoma Leach

Trichiosoma lucorum (L.)

2. Val **S-charl**, **Val Tavrü**. 5.6.-7.7.1921-1932. To 1900 m. *Betula* and *Salix*.
Europe and Siberia.

Trichiosoma sorbi Hartig

1. **Zuoz**. 6.1947. 1700 m. *Sorbus aucuparia* L.
North and Central Europe.

Zaraea Leach

Zaraea **aurulenta** (Sichel)

1. Zernez; 4. **Il Fuorn**. 25.6.1922. To 1500 m. *Lonicera*.
Mountains of Central Europe.

Zaraea **aenea** (Klug)

7. **Sta. Maria**. 22.5.1953. To 1400 m. *Lonicera* and *Symphoricarpus*.
Central and East Europe.

Abia Leach

**Abia fulgens* (Zaddach)

1. Below **Piz Clünas**, Zernez; 4. **Il Fuorn**. 9.–10.7.1924–1955. 1500–1800 m.
Pyrenées and Mountains of Central and East Europe to Caucasus.

Corynis Thunberg

Corynis obscura (F.)

1. **Val Sinestra**, Scuol, Zernez; 6. **Val Müschauns**. 10.7.–25.8.1919–1955. To ?2000 m.
Geranium sylvaticum L.
Europe to Transcaucasus and Siberia.

Corynis crassicornis (Rossi)

1. **Tarasp**, Ardez. 5.–19.7.1920. To 1450 m.
Central and South Europe to Transcaucasus.

ARGIDAE

Arge Schrank

Arge **ochropus** (Gmelin)

1. Ramosch and Scuol district; 7. **Lii-Liisai**, **Sta. Maria**. 9.6.–26.7.1919–1937. To 1500 m.
Rosa.
Europe, Asia Minor, Caucasus, to North Persia and Siberia.

A. **pyrenaica** (Lepeletier)

1. Scuol, **Ardez-Guarda**. 6.–12.7.1920–1925. 1200–1650 m. *Rosa*.
Boreo-subalpine with discontinuous distribution as follows: Atlas Mountains, Sardinia,
Sierra Morena, Pyrenkes, Switzerland, Caucasus, **Pamirs**, Pechora River about 2° out-
side the arctic circle in North Ural, and the region of Lake **Baikal** including the upper
valleys of the Yenasei and Lena Rivers and the Kentei mountains, but absent from
northern Europe.

A. **pagana** (Panzer)

1. Scuol district, **Lavin**, Susch, Zernez; 7. **Lii-Liisai**, **Sta. Maria**.
25.6.–30.7.1919–1953. Up to 1500 m. *Rosa*.
Europe and Siberia to Japan.

A. cyanocrocea (Forster)

1. Scuol district. 5.7.1920. To 1500 m. *Rubus*.
Europe.

A. ustulata (L.)

1. Scuol; 5. Valetta. 21.7.–1.8.1920–1925. To 1800 m. *Betula* and *Salix*.
Europe and Siberia to Japan.

**Arge nigripes* (Retzius)

Subspec. alpina Konow. 4. God del Fuorn. 17.6.1945. 1800 m. *Rosa*.
Mountains of Switzerland, in coniferous forest.

Subspec. nigripes Retzius

1. Scuol, Ardez, Boscha, Zernez, S-chanf. 25.6.–12.7. Up to 1700 m.
Europe to East Siberia.

Arge berberidis (Schrank)

1. Common in Valley of Inn; 4. Punt Periv; 7. Val Miistair up to about 1800 m. at
Tschier (and may well occur in the Park wherever its foodplant occurs).
28.5.–28.8.1919–1960. *Berberis vulgaris* L.

Central and South Europe, Asia Minor to Caucasus.

DIPRIONIDAE

Monoctenus Dahlbom

**Monoctenus juniperi* (L.)

4. Widespread about II Fuorn. 2.6.–15.6.1960. To 1800 m. *Juniperus communis* L.
North and Central Europe.

**Monoctenus obscuratus* Hartig

4. Vallée du Spol. 13.6.1960. 1800 m. *Juniperus communis* L.
North and Central Europe.

Gilpinia Benson

**Gilpinia frutetorum* (Fabricius)

4. Champlonch, Punt Periv, Val dal Botsch, Val Stabelchod, Munt la Schera on snow
near summit (2575 m.). 5.6.–17.7.1919–1960. To 2000 m. *Pinus*.
Europe.

**Gilpinia abieticola* (Dalla Torre)

4. God la Schera. 4.6.1960. To 1800 m. *Picea*.
Europe and Japan.

Microdiprion Enslin

**Microdiprion pallipes* (Fallén)

Recorded as occurring in the National Park by BARBEY (1932).

Mountains of Central and South-east Europe to Caucasus, also in North and Siberia.
Pinus.

Neodiprion Rohwer***Neodiprion sertifer** (Geoffroy)

Recorded as occurring in the National Park by BARBEY (1932).
North and Central Europe to Caucasus and also in Korea and Japan. *Pinus*.

TENTHREDINIDAE

SELANDRIINAE

Strongylogaster Dahlbom**Strongylogaster lineata** (Christ)

7. Sta. Maria. 14.–27.6.1960. To 1400 m.
Pteridium aquilinum (L.) Kuhn and other Pteridophytes.
Europe and temperate Asia to Japan.

Aneugmenus Hartig

Aneugmenus coronatus Klug

7. Sta. Maria. 14.–27.6.1960. To 1400 m. *Pteridium aquilinum* (L.) Kuhn and other
Pteridophytes.
Europe and Siberia.

Aneugmenus padi (L.)

7. Sta. Maria. (Other details as in preceding species.)

Aneugmenus temporalis Thomson

7. Sta. Maria. 27.6.–20.7.1951–1960. To 1400 m.
Pteridium aquilinum (L.) Kuhn and other Pteridophytes.
Europe and Siberia.

Melisandra Benson*Melisandra morio* (Fabricius)

7. Sta. Maria. 27.6.1960. To 1400 m.
Europe, Asia Minor and Siberia.

Loderus Konow*Loderus evermanni evermanni* Kirby (= *palmatus* Klug)

1. Zernez. 22.–30.5.1932. 1400–1700 m. *Equisetum*.
European subspecies of holarctic species.

L. vestigialis vestigialis (Klug)

1. Scuol; 7. Sta. Maria. 4.6.–14.6.1932–1960. 1200–1500 m. *Equisetum*.
European subspecies of holarctic species.

Dolerus Jurine**Dolerus yukonensis scoticus** Cameron

2. S-charl, **Praditschöl**. 4.-12.7.1907-1920. 1400-1900 m. *Equisetum*.
British subalpine subspecies of boreal **holarctic** species.

***Dolerus gessneri gessneri** Ed. André

1. Zernez-Susch; 4. Punt dal Gall. 27.5.-13.6.1932-1960. 1400-1700 m. *Equisetum*.
West European **subspecies** of boreal holarctic species.

***Dolerus germanicus germanicus** Fabricius

1. Common in the **Im** Valley from Scuol to S-chanf; 4. Il Fuorn.
2.6.-23.7.1920-1960. 1200-1800 m. *Equisetum*.

West European subspecies of **palearctic** species.

The **colony** near the Laboratory at Il Fuorn is exceptionally dark **with** the red on the legs almost confined to the front knees and the second abdominal **tergite** mainly black; but only 1♀ and 4♂ were secured and it is not therefore possible to know whether this is a typical sample of the National Park population needing special taxonomic treatment.

***Dolerus aericeps** Thomson

1. Scuol, **Ardez-Guarda**; 2. **Minger**; 4. Il Fuorn; 7. **Sta. Maria**. 14.6.-15.7.1920-1960.
1200-1800 m. *Equisetum*.
European species.

Dolerus madidus (Klug)

4. Buffalora. 5.1937. 2000 m. *Juncus*.
All Europe.

Dolerus liogaster Thomson

1. **Zernez-Susch**. 5.1932. 1500-1700 m. Gramineae. Europe.

***Dolerus gonager** Fabricius

1. Zernez; 4. God del Fuorn; 7. **Sta. Maria**. 18.5.-14.6.1932-1960. To 1750 m.
Gramineae.
All Europe and Caucasus.

***Dolerus aeneus** Hartig

1. Zernez; 2. S-charl, **Val Tavrü**; 4. Widespread and common about Il Fuorn; 5. Val **Müschauns**; 7. **Sta. Maria**. 5.-5.8.1920-1960. Up to 2680 m. Gramineae.
One of the commonest **sawflies** of boreal, subalpine and alpine Europe.

Dolerus niger (L.)

4. Between Zernez and Ova Spin; 5. **Sta. Maria**. 27.6.-26.7.1919-1960. Up to 1750 m.
Gramineae.
Temperate Europe.

Dolerus picipes Klug

1. **Ardez**, 31.5.1932. 1450 m. Gramineae.
Europe, common.

***Dolerus asper** Zaddach

1. Zernes; 4. **Champlönch**, 27.5.–8.6.1932–1960. 1500–2000 m.
Cyperaceae and Gramineae.
North **palaeartic**.

***Dolerus nitens** Zaddach

Subalpine and alpine races in **Switzerland** differ from boreal form in being **nonmetallic** in colour and parthenogenetic. A similar race has been introduced to North America and become this year very abundant in Illinois.

1. **Zernez-Susch**; 2. **Val Sesvenna**; 4. Common in clearings or above trees about **Il Fuorn**; Champlönch, Val dal Botsch, Val Stabelchod, Munt la Schera, **Buffalora**, Funtana da **S-charl** etc.; 5. **Cluozza-Murtèr**.
27.5.–5.7.1922–1960. 1400–1586 m. Cyperaceae.
European **boreal-subalpine** and Central Europe in very early spring.

***Dolerus alpinus** Benson

Dolerus alpinus Benson, 1947, *Ent. mon. Mgr.*, 83: 63–64, fig. 2.

This species differs from *D. nitens* in the coarse woolly pubescence on its head and thorax in both sexes, the male penisvalve having a dorsal as well as a ventral spine and the female sawsheath with almost straight lateral setae as in *D. niger* (cf. Benson, 1951 to 1958, fig. 202). The male is very scarce and it seems that in the **Engadine** and most parts of **Valais**, where I have studied the species, only parthenogenetic races occur.
4. Val dal Botsch, Munt la Schera, **Buffalora**, Funtana da S-charl.

18.6.–3.7.1960. 2000–2400 m.
High alps of France, **Switzerland** and Austria.

TENTHREDININAE

ATHALIINI

Athalia Leach

Athalia **glabricollis glabricollis** Thomson

1. Scuol, Vulpera, **Tarasp**, Zernez. 3.7.–21.8.1918–1955. 1200–1500 m.
Cruciferae: Diplotaxis, Erysimum, **Raphanus**, **Sinapis** and Sisymbrium.
West and Central Europe, replaced by **subsp. meridiana** Benson in South-east Europe and Asia Minor.

***Athalia cordata** Lepeletier

4. Alp Grimmels; 5. **Cluozza-Murtèr**; 7. **Sta. Maria**. 28.5.–5.7.1922–1945. 1400–2400 m.
Ajuga, **Antirrhinum** and **Plantago**.
Europe, Mediterranean and Asia Minor.

Athalia lineolata Lepeletier

1. Zernez. 1.-12.7.1955. 1500-1700 m. Arctium, *Glechoma* and Veronica.
Europe, Asia Minor, Mountains of Central Asia and Siberia to Japan.

**Athalia rosae rosae* (L.)

1. Strada-Ramosch, Scuol, **Vulpera-Tarasp**, Zernez, **Cinuos-chel**, **S-chanf**; 2. **Val Minger** (**Sur il Foss**), **Minger dadaint** and **Val Tavrü**; 4. Praspol, **Il Fuorn**; 5. **Murtaröl**; 7. **Lü**, **Sta. Maria**. 21.6.-21.8.1918-1954. 1100-2500 m.

Cruciferae: Armoracia, Barbarea, Brassica, Raphanus, Rorippa, *Sinapis* and *Sisymbrium*.
Europe and Asia Minor replaced by other subspecies in East Asia. Common pest on Brassica rapa L. in lowlands, vagrant in mountains.

Athalia cornubiae Benson

1. **Vulpera-Tarasp**. 1 ♀. 8.7.1920. 1400 m. *Sedum album* L.
ALL Europe and Asia Minor to Persia, but scarce.

EMPRIINI

Monosoma MacGillivray

Monosoma pulverata (Retzius)

7. **Sta. Maria**. 26.5.-14.6.1956-1960. 1400 m. Alnus.
Europe, common.

Empria Lepeletier

Empria klugii (Stephens)

7. Tschierv. 26.5.1956. 1700-1850 m. Rosaceae: Geum *rivale* L. etc.
Europe to Caucasus.

Empria alpina Benson

4. Val dal Botsch, Munt la Schera, Alp Buffalora, Funtana da **S-charl**; 6. Val Mülschauns. 16.6.-29.7.1933-1960. 1960-2400 m.
Common at catkins of Salix herbacea L., *reticulata* L., and *retusa* L.
Lapland, North Britain and Switzerland.

**Empria liturata* (Gmelin)

4. Champlonch, Il Fuorn, Val dal Botsch, Alp Buffalora and Funtana da S-charl;
6. Val Miischauns. 6.-29.7.1932-1960. 1750-2400 m. Rosaceae: Geum, Fragaria etc.
Europe and Siberia to Irkutsk.

Empria tridens (Konow)

1. **Zernez-Susch**. 17.5.1932. 1400-1500 m. Rosaceae: Geum, *Rubus* etc.
Europe to Caucasus.

Empria longicornis (Thomson)

1. Zernez. 11.7.1955. To 1700 m. *Rubus idaeus* L.

Ametastegia A. Costa

Ametastegia **albipes** (Thornson)7. Sta. Maria. 14.6.1960. 1400 m. *Populus* and *Salix*.
Europe and Siberia.Ametastegia **tener** (Fallén)1. S-chanf. 30.6.1920. 1650–1800 m. *Rumex*.
Europe and temperate Asia to North America.***Ametastegia** *carpini* (Hartig)4. Il Fuorn. 17.6.1960. 1800 m. *Geranium*.
Europe and temperate Asia.

ALLANTINI

Allantus Panzer**Allantus rufocinctus** (Retzius)1. Ardez-Lavin; 7. Valchava, Sta. Maria. 23.5.–27.6.1932–1960. 1400–1450 m.
Rosa and *Rubus*.
Europe.***Allantus truncatus** Klug6. Val Müschauns. 29.6.1920. 1800–2200 m. Rosaceae: *Potentilla*, *Sanguisorba*, *Rosa* etc.
Europe.**Taxonus** Hartig**Taxonus agrorum** (Fallén)1. Scuol; 7. Sta. Maria. 28.5.–4.6.1932. 1200–1400 m. *Rubus idaeus* L.
Central and North Europe.

CALIROINI

Endelomyia Ashmead

Endelomyia **aethiops** (Fabricius)7. Sta. Maria. 14.6.1960. 1400 m. *Rosa*.
Europe to Caucasus and North America.

BLENNOCAMPINI

Eutomostethus Enslin

Eutomostethus **ephippium** (Panzer)7. Sta. Maria. 22.5.–27.6.1953–1960. 1400 m. Gramineae.
Europe, Asia Minor and mountains of Central Asia to Himalayas.

Hypargyricus MacGillivray

This genus is closely related to *Rhadinoceraea* Konow, but lacks the **post-orbital** pit each side of the head and feeds on **Liliaceae** instead of Iridaceae.

***Hypargyricus nodicornis** (Konow)

4. 11 Fuorn. 15.6.1960. 1800 m. *Veratrum album* L.
Ups of Central Europe.

Paracharactus **MacGillivray*****Paracharactus hyalinus** (Konow)

4. Champlonch, 11 Fuorn, **Buffalora** and Funtana da S-charl.
8.-12.6.1960. 1800-2400 m.
Alps of Central Europe and Apennines of Italy.

Monophadnus Hartig

Monophadnus pallescens (Gmelin)

7. Tschier. 26.5.1956. 1700-1850 m. *Ranunculus*.
Holarctic.

Monophadnoides **Ashmead**Monophadnoides **tenuicornis** (Klug)

7. Tschier. **26.5.1956**. 1700-1850 m. *Filipendula ulmaria* (L.) Maxim.
Europe to Caucasus and Siberia.

***Monophadnoides puncticeps** (Konow)

4. Champlonch, Punt dal Gall, 11 Fuorn and **Stradin**. 4.-12.6.1960. 1700-2000 m.
Poterium sanguisorba (L.) ?etc.
Europe and Siberia.

ERIOCAMPINI

Eriocampa Hartig

Eriocampa **ovata** L.

1. Zernez; 7. **Sta. Maria**. 14.6.-9.8.1924-1960. 1400-1500 m. *Alnus*.
North and Central Europe.

TENTHREDOPSINI

Aglaostigma **Kirby**Aglaostigma **fulvipes** (Scopoli)

1. Ardez-Bos-cha; 7. Valchava, **Sta. Maria**. 28.5.-27.6.1932-1960. 1400-1650 m.
Galium.
Europe and Siberia.

Aglaostigma aucupariae (Klug)

7. Sta. Maria. 28.5.1932. 1400 m. *Galium*.
Europe to East Siberia.

Aglaostigma pinguis (Klug)

1. S-chanf. 8.7.1955. 1650–1800 m.
Alps of Central Europe.

Tenthredopsis A. Costa

***Tenthredopsis nassata** (L.)

1. Scuol, Ardez-Bos-cha, Zernez, S-chanf; 3. Munt Baselgia; 6. Val Miischauns;
7. Sta. Maria. 4.6.–6.7.1922–1960. 1400–2000 m. Gramineae.
Europe and temperate Asia.

TENTHREDININI

Rhogogaster Konow

***Rhogogaster viridis** (L.)

1. Scuol, Zernez, S-chanf; 4. Punt dal Gall; 7. Sta. Maria.
4.6.–1.8.1920–1960. 1200–2200 m. Betula, Alnus, Sorbus etc.
Holarctic.

***Rhogogaster chlorosoma** Benson

1. Scuol and Zernez; 4. Punt dal Gall; 7. Sta. Maria.
4.6.–25.7.1919–1953. 1200–1700 m. Alnus, *Populus*, *Salix* etc.
Europe and Siberia.

***Rhogogaster dryas** Benson

1. Zuoz; 5. Val Cluozza. 23.–24.6.1922–1947. 1700–1900 m. Populus.
Central and Northern Europe.

***Rhogogaster punctulata** Klug

1. S-chanf; 2. S-charl, Val Tavri; 4. Punt dal Gall; 5. Val Cluozza; 7. Tschier, Sta. Maria
13.6.–5.8.1922–1960. Up to 2400 m. Alnus, Betula, Sorbus etc.
Central and North Europe.

Tenthredo L.

***Tenthredo olivacea** Klug

1. Zernez; 2. S-charl, Minger and Val Tavri; 4. Alp la Schera, Il Fuorn, Alp Stabelchod
and Ofenstrasse; 6. Val Miischauns, Val Trupchum, Alp Purcher; 7. Sta. Maria.
17.6.–5.8.1919–1960. 1400–2200 m.
Northern and subalpine holarctic species.

***Tenthredo mesomelas** L.

This extremely variable species is not altogether satisfactorily distinguished from the

two following. It is, however, mainly associated with deciduous forest whereas the two following are **Boreo-subalpine**.

1. Scuol, Zernez; 2. S-charl; 5. Val **Cluozza**; 6. Val Miischauns, Val Trupchum;
7. **Sta. Maria**. 27.6.–5.8.1919–1960. 1400–2000 m. *Arctium*, Polygonum, Ranunculus etc. Europe, Asia Minor to Caucasus and North Asia to Japan.

***Tenthredo mioceras (Enslin)**

1. S-chanf; 2. S-charl, **Minger-dadaint**, Val **Sesvenna**, Alp **Tavrü** and Alp Astras;
 3. Alp Baselgia; 4. Alp **Ivraina**, Praspöl, Alp Stabelchod, Alp la Schera and **Stradin**;
 6. Val Tantermozza, Alp Purcher, Val Trupchum.
- 21.6.–18.8.1920–1960. 1900–2380 m.
Northern and subalpine Eurasia.

***Tenthredo obsoleta Klug**

6. Alp Purcher, Val Trupchum and Val Miischauns.
- 13.7.–6.8.1919–1935. 1900–2200 m.
Northern and subalpine Europe.

Tenthredo temula Scopoli

7. **Sta. Maria**. 20.7.1931. To 1400 m.
Central Europe and Siberia.

Tenthredo campestris L.

1. Scuol. 27.6.–24.7.1919–1924. 1200–1500 m. *Aegopodium podagraria L.*
Central Europe.

Tenthredo albicornis Fabricius

1. Scuol, Zernez, S-chanf and Zuoz; 7. **Sta. Maria**. 4.6.–8.8.1920–1960. 1200–1800 m.
Central Europe.

***Tenthredo atra L.**

1. **Ardez-Lavin**, Zernez, **Val Sinestra** and Zuoz; 2. S-charl, Val **Sesvenna**; 4. Il Fuorn, **Funtana da S-charl**; 6. Val **Trupchum**; 7. **Sta. Maria**.
- 10.6.–24.7.1920–1960. 1400–2400 m. Polyphagous: Brassica, *Lamium*, *Mentha*, *Plantago*, Ranunculus, Sedum, *Solanum*, *Succisa* etc.
Boreal-subalpine holarctic.

***Tenthredo moniliata Klug**

1. Zernez; 2. **Praditschöl**; 4. Prada Laschadura, **Praspöl**; 6. Val Miischauns; 7. **Tschierv**.
- 24.6.–5.8.1919–1951. 1500–2200 m. *Menyanthes trifoliata L.*
Boreal-subalpine Europe and Asia.

***Tenthredo colon Klug**

1. Zernez; 2. S-charl. 6.–3.8.1920–1956. 1400–1900 m.
- Polyphagous:** Circaea, Epilobium, Fuchsia, *Pteridium*, *Salix* etc.
Europe, Asia Minor and Siberia.

***Tenthredo** *velox* Fabricius

2. **S-charl-Praditschöl**, Val Tavrii and Val **Sesvenna**; 3. Alp Baselgia; 4. Alp **Laschadura**, Il Fuorn, Val dal Botsch, Alp Stabelchod and Alp **la Schera**; 5. **Cluozza-Murtèr**; 6. **Val Tantermozza**, **Val Trupchum** and Val **Müschauns**; 7. Tscherv.

Females with red-banded abdomens have been found at: 1. **S-chanf**; 3. **Alp Baselgia**; 4. **Fuorn-Buffalora**, Val dal Botsch and Alp Stabelchod; 5. **Cluozza-Murtèr**.
17.6.–4.8.1919–1960. 1700–2500 m.

Boreal-subalpine Europe and Asia.

Tenthredo *solitaria* Scopoli

1. **Ardez-Bos-cha**. 12.6.1932. 1500–1600 m.
Europe.

***Tenthredo** *balteata* Klug

1. **Zernez**; 4. **Alp Stabelchod**. 10.–25.7.1919–1955. 1500–1900 m. *Hypericum* etc.
Europe.

Tenthredo *ferruginea* Schrank

1. **Zernez**. 8.1919. 1500–1700 m. Polyphagous: *Alnus*, *Filipendula*, Prunus, *Pteridium*, *Salix* etc.
Europe, Asia Minor and Siberia.

Tenthredo *livida* L.

1. **Scuol** and **Zernez**; 7. **Sta. Maria**. 27.6.–27.7.1919–1960. 1200–1700 m.
Polyphagous: *Corylus*, *Epilobium*, *Lonicera*, Rosa, *Salix*, Sorbus, *Viburnum* etc.
Europe and Siberia.

Tenthredo *vespiformis* Schrank

1. **Zernez-Süs**; 7. **Sta. Maria**. 14.–27.6.1953–1960. 1400–1500 m.
Central Europe.

Tenthredo *zonula* Klug

1. **Scuol**, **Tarasp**, **Ardez**, **Ardez-Bos-cha**, **Guarda** and **Zernez**. 7. **Valchava** and **Sta. Maria**.
29.5.–25.7.1922–1955. 1400–1650 m. *Hypericum*.
Europe.

Tenthredo *amoena* Gravenhorst

1. **Scuol**; 7. **Sta. Maria**. 1.7.–25.7.1920–1951. 1200–1500 m. *Hypericum*.
Europe and Asia Minor.

Tenthredo *vespa* Retzius

1. **Scuol**, **Sent**, **Bos-cha** and **Zernez**; 7. **Sta. Maria**. 27.6.–25.7.1919–1951. 1200–1650 m.
Polyphagous: *Fraxinus*, *Jasminum*, *Ligustrum*, *Lonicera*, *Symphoricarpos*, *Syringa* and *Viburnum*.
Europe and Siberia.

***Tenthredo algoviensis** Enslin

1. Scuol, **Ardez**, **Ardez-Lavin**, **S-chanf**; 6. Alp Purcher, Val Trupchum, **Val Miischauns**; 7. Alp **Prasüra**. 29.6.5.8.1919–1955. 1200–2100 m. Central European Alps.

***Tenthredo schaefferi** Klug

1. Strada-Ramosch, many places near Scuol, Zernez, Zernez-Susch, S-chanf and **Zuoz**; 3. Munt Baselgia; 7. **Sta. Maria**. 28.5.–15.8.1919–1960. 1100–2000 m. Central Europe and Siberia.

Tenthredo schaefferi f. **perkinsi** Morice

1. Strada-Ramosch, many places near Scuol, Zernez, Zernez-Susch, S-chanf and Zuoz; 2. S-charl; **Val Sesvenna**; 7. **Tschierv** and **Sta. Maria**. 14.6.–22.7.1919–1960. 1100–1800 m. *Trifolium repens* L. Europe to North Persia.

***Tenthredo arcuata arcuata** Förster

1. Zernez, S-chanf; 4. **Champlösch**, **Il Fuorn**, Pass dal Fuorn; 6. Val Tantermozza, **Val Miischauns**, Val Trupchum; 7. Valchava, **Sta. Maria**. 26.5./6.8.1919–1955. 1500–2100 m. *Trifolium repens* L. Europe, **Siberia** to Japan.

***Tenthredo arcuata aegra** Enslin

2. S-charl, **Praditschöl**, **Val Tavrü**; 4. Alp **Laschadura**, Alp Stabelchod, **Funtana da S-charl**; 5. **Cluozza-Murtèr**; 6. Val Trupchum. 16.6.–5.8.1919–1960. 1700–2500 m. Alps of Central and South-east Europe.

***Tenthredo acerrima** Benson

1. Many places near Scuol. Zernez, S-chanf and Zuoz; 2. S-charl, **Minger dadora**, **Minger dadaint**, **Val Tavrü**, **Sesvenna** and **Praditschöl**. 4. **Laschadura-Ova Spin**, **La Drossa**, **Punt dal Gall**, **Il Fuorn**, **Munt la Schera**, Alp Stabelchod; 5. **Fops**; 6. Val **Tantermozza**, **Val Trupchum** and **Val Miischauns**; 7. **Tschierv**, **Lu-Lusai** and **Sta. Maria**. 14.6.–12.8.1919–1960. 1500–2600 m. *Lotus corniculatus* L. Europe.

Tenthredo bifasciata Müller

1. Scuol, **Ardez-Guarda**, S-chanf; 7. **Sta. Maria**. 27.6.–11.7.1920–1960. 1200–1750 m. Central and South-west Europe.

Tenthredo rossii Panzer

1. Scuol, Zernez. 1.–13.7.1921–1955. 1200–1700 m. *Sonchus*. North and Central Europe and Siberia.

***Tenthredo stecki** (Konow)

1. Scuol-Sent, S-chanf; 2. S-charl, Val Sesvenna; 4. Alp **Laschadura**, **Praspiil**, **Il Fuorn**, **Munt la Schera**; 6. Val Tantermozza. 2.7.–6.8.1919–1955. 1600–2400 m. Alps of Central Europe.

**Tenthredo koehleri* Klug

1. Scuol, **Susch-Lavin** and Zernez; 2. **Praditschöl**; 4. Prada Laschadura; 7. **Sta. Maria**. 9.6.–24.7.1919–1960. 1200–2000 m. Mostly feeding from flowers of *Geranium* spp. Alps of Central and South-east Europe and Asia Minor.

MACROPHYINI

Pachyprotasie Hartig

**Pachyprotasis rapae* (L.)

1. Scuol, Zernez, S-chanf; 2. S-charl; 4. **Champlösch, II Fuorn, Alp Stabelchod**; 7. Tschier, Valchava, **Sta. Maria**. 26.5.–23.7.1922–1960. 1400–2000 m. Antirrhinum, Betonica, Fraxinus, Scrophularia, Solidago, ?etc. Holarctic.

Pachyprotasie *variegata* (Fallén)

1. **Ardez, Zernez-Süs**, S-chanf; 6. Val **Müschauns**; 7. Sta. Maria. 27.6.–14.7.1925–1960. 1400–1800 m. Digitalis, Solanum, ?etc. Europe and North Asia.

Macrophya Dahlbom

Macrophya *montana* (Scopoli)

1. Scuol, **Ardez-Boscha, Ardez-Lavin**. 9.6.–23.7.1919–1932. 1200–1650 m. *Rubus caesius* L. etc. Europe, Mediterranean and Asia Minor to Caucasus.

Macrophya *diversipes* (Schrank)

1. Strada-Ramosch, Zernez. 7.–23.7.1920–1955. 1100–1700 m. Central and South Europe and West Asia.

**Macrophya sanguinolenta* (Gmelin)

1. Scuol, S-chanf; 7 Valchava. 29.5.–25.7.1919–1955. 1450–1800 m. Veronica. Europe. East Siberia and Japan.

Macrophya *albicineta* (Schrank)

1. Scuol, Zernez; 7. **Sta. Maria**. 28.5.–14.6.1932–1960. 1400–1700 m. Sambucus and *Valeriana*. Europe to Caucasus, North Persia and West Siberia.

Macrophya *ribis* (Schrank)

1. Zernez. 1.7.1925. 1500–1700 m. Sambucus. Europe to Caucasus.

Macrophya *carinthiaca* (Klug)

1. Zernez; 7. Tschier. 10.–18.7.1952–1955. 1500–1850 m. Central Europe.

Macrophya **12-punctata** (L.)

7. **Sta. Maria.** 28.5.1932. 1400 m. Cyperaceae and Gramineae.
Europe and Siberia.

Macrophya **annulata** (Geoffroy)

7. **Sta. Maria.** 14.5.1960. 1400 m. *Potentilla*.
Europe to North Persia and Siberia.

NEMATINAE

CLADIINI

Cladius Rossi

Cladius pectinicornis (L.)

7. **Sta. Maria.** 14.6.1960. 1400 m. Rosaceae.
Holarctic.

PSEUDODINEURINI

Pseudodineura Konow

***Pseudodineura fuscula** (Klug)

4. **Champlönch**, Il Fuorn, Munt la Schera, Alp Buffalora and Funtana da S-charl.
6.-24.6.1960. 1800-2400 m. Miner in leaves of terrestrial *Ranunculus* spp.
In the forest and also in alpine meadows above.
North and Central Europe and Siberia.

***Pseudodineura clematidis** (Hering)

4. Punt Praspol (mines). **2.7.1960.** 1600 m. In leaves of one plant of *Clematis alpina* L.
Only **known** in Switzerland and Austria.

NEMATINI

Hemichroa Stephens

Hemichroa australis (Lepelletier)

2. Val **Tavrii.** 15.7.1920. 1900-2000 m. *Alnus* and *Betula*.
Europe and Siberia to Japan.

Nepionema Benson

***Nepionema helvetica** Benson 1960

4. Il Fuorn: God la Drossa and God dal Fuorn. 6.-12.6.1960. 1800 m.
Not known outside Switzerland where I found it at Bettmeralp and Verbier in Valais
in 1959. Specimens were swept from *Rhododendron ferrugineum* L. under *Picea excelsa*
(Lqm.) Link., but would not oviposit in *Rhododendron* in captivity. In Valais I found
the species usually **under Picea** though **occasionally** at *Salix* catkins well above the
tree-line.

Anoplonyx Marlatt***Anoplonyx duplex** (Lepeletier)

1. S-chanf; 4. La Drossa, **Il Fuorn**, Val dal Botsch, Alp la Schera; 7. **Sta. Maria**.
4.6.–8.7.1955–1960. 1400–2200 m. *Larix*.
Europe and Siberia. Very common in Valais 1959 and in the National Park in 1960.

***Anoplonyx ovatus** (Zaddach)

4. **I. Fuorn**; 7. **Sta. Maria**. 6.–17.6.1952–1960. 1400–1900 m. *Larix*.
Europe. As with the preceding species, very common in Valais in 1959.

Pristiphora Latreille***Pristiphora laricis** Hartig

1. **Zernez**; 2. S-charl; 4. **Il Fuorn**; 5. Selva; 7. **Sta. Maria**.
11.6.–22.7.1942–1960. 1400–2200 m. *Larix*.
Europe.

***Pristiphora friesei** (Konow)

4. **Il Fuorn** district common: **Champlönch**, **Il Fuorn**, Val dal Botsch, **Stradin** and **Munt**
la Schera (on snow); 7. **Sta. Maria**.
6.–22.6.1960. 1400–2500 m.
Alps of Central Europe.

***Pristiphora coniceps** Lindqvist

4. **I. Fuorn**. 12.–16.6.1960. 1800–2000 m. *Salix*.
North and Central Europe.

Pristiphora pallidiventris Fallén

7. **Sta. Maria**. 12.6.1960. 1400 m.
Various Rosaceae (*Filipendula*, *Geum*, *Potentilla* and *Rubus*).
North and central Europe to Caucasus.

***Pristiphora quercus** (Hartig)

4. **Champlönch**. 22.6.1960. 2000 m. *Vaccinium* and *Betula*.
Holarctic, boreal-subalpine.

***Pristiphora paedida** (Konow)

4. **Il Fuorn**. 12.6.1960. 1000 m. *Rosa*.
Central Europe.

***Pristiphora staudingeri** (Ruthe)

4. **Champlönch**, Val dal Botsch, Alp **Buffalora**.
16.–30.6.1960. 2000–2400 m. *Salix*.
Circumpolar arctic-alpine.

Pristiphora bensoni Lindqvist

4. **Funtana** da S-charl. 3.7.1960. 2400 m. ?*Salix*.
Swiss, high alpine.

***Pristiphora mollis** (Hartig)

4. La Drossa, **Champlönch**, Il Fuorn, Val dal Botsch, Stabelchod, Munt la Schera;
7. **Sta. Maria**, 4.6.–3.8.1945–1960. 1400–2200 m. *Vaccinium*.
Holarctic, boreal-subalpine.

***Pristiphora lativentris** (Thornson)

4. Val dal Botsch, Munt la Schera, Alp Buffalora and Funtana da S-charl.
5.6.–3.7.1945–1960. 2300–2400 m.
Common at catkins of dwarf *Salix*.
Circumpolar arctic-alpine.

***Pristiphora breadalbanensis** (Cameron)

4. Val dal Botsch, Alp Buffalora and Funtana da S-charl. 6.6.–1.7.1960. 2300–2400 m.
Common at catkins of dwarf *Salix*.
West European arctic-alpine.

***Pristiphora coactula** (Ruthe)

4. Alp Buffalora and Funtana da S-charl. 18.–21.6.1960. 2300–2400 m.
At catkins of dwarf *Salix*.
Circumpolar arctic-alpine.

***Pristiphora borea** (Konow)

4. Alp Buffalora, and Funtana da S-charl. 18.6.–3.7.1960. 2300–2400 m.
At catkins of dwarf *Salix*.
Circumpolar arctic-alpine.

***Pristiphora carinata** Hartig

4. Il Fuorn; 7. **Sta. Maria**, 6.–7.6.1945–1960. 1400–1900 m.
Clearings in coniferous forest.
Eurasian boreo-subalpine.

***Pristiphora saxeseni** (Hartig)

4. Munt la Schera. 19.6.1960. 2200 m. *Picea*.
North and central Europe.

***Pristiphora abietina** (Christ)

4. Punt dal Gall; 7. **Sta. Maria**, 13.–14.6.1960. 1400–1800 m. *Picea*.
(Common forest pest.) North and central Europe.

***Pristiphora compressa** (Hartig)

4. Punt dal Gall; 5. Selva-Cluoza. 13.6.–12.7.1942–1960. 1400–1800 m. *Picea*.
North and central Europe.

***Pristiphora ambigua** (Fallén)

4. Champlönch and Punt dal Gall. 11.–13.6.1960. 1800–2000 m.
Picea (forestry pest in buds).
North and central Europe.

Amauronematus Konow***Amauronematus arcticola** Enslin

4. Alp Buffalora. 24.6.–1.7.1960. 2300–2400 m. *Salix* (on solifluction slopes). Circumpolar arctic, not previously recorded from central Europe.

Amauronematus variator Ruthe

4. Funtana da S-charl. 3.7.1960. 2400 m. *Salix* (on solifluction slopes). Circumpolar arctic-alpine.

***Amauronematus godmani** Benson

4. Alp Buffalora and Funtana da S-charl; 7. Sta. Maria. 17.6.–3.7.1960. 1400–2400 m. *Salix*.

The commonest species of the genus in the Swiss alps, absent from the arctic though it occurs in Scotland.

***Amauronematus opacipleuris** Konow

4. Champlönch, Val dal Botsch, Alp Buffalora and Funtana da S-charl. 2.–27.6.1960. 2200–2400 m. *Salix*.

Known only from alps of Switzerland and Austria.

***Amauronematus leucolaenus** Zaddach

4. Alp Buffalora and Funtana da S-charl. 21.6.–3.7.1960. 2300–2400 m. *Salix*. Eurasian boreal subalpine.

***Amauronematus hyperboreus** (Thomson 1871)

Amauronematus alpicola Konow, Benson, 1955, Mém. Soc. R. ent. Belg., 27: 78 nec Konow.

Amauronematus coracinus Lindqvist, 1959, Not. ent. 39: 14–15, Syn. nov.

4. Alp Buffalora. 28.6.1960. 2360 m. *Salix*.

Circumpolar arctic-alpine species.

Amauronematus polaris (Holmgren 1883)

Pontania islandica Kincaid, 1900, Wash. Acad. Sci. Proc., 2: 355, Syn. nov.

Pteronidea shumagensis Kincaid, 1900, Wash. Acad. Sci. Proc., 2: 357, Syn. nov.

Pteronidea parriserrata Lindqvist, 1944, Notul. ent., 24: 23, Syn. nov.

Amauronematus Zeucopyga Lindqvist, 1948, Notul. ent. 28: 69–70, Syn. nov.

Amauronematus subpolaris Lindqvist, 1948, Notul. ent., 28: 71–2, Syn. nov.

Pteronidea bipicta Lindqvist, 1959, Notul. ent., 39: 56, Syn. nov.

Pteronidea sordidiapex Lindqvist, 1959, Notul. ent., 39: 57, Syn. nov.

I have before me paratypes of *Pteronidea parriserrata*, *bipicta* and *sordidiapex*, and specimens named by LINDQVIST of *Amauronematus leucopyga* and *subpolaris* from Lapland and Finland; in my opinion they all belong to one species. LINDQVIST characterizes *Amauronematus leucopyga* as having 18–19 teeth on the saw and *A. parriserrata* as having 20 teeth and yet a specimen before me of the former named by LINDQVIST has 20 teeth and specimens of the latter 18 and 19 teeth. Representatives of the other species (except the type series of *N. polaris*) fall within the same range and so do the Swiss specimens. In my series from Lapland the saws also vary in the form of the teeth and other ways not correlated with the total number. The type series of *N. polaris*

from Novaja Semlja is distinguished according to LINDQVIST by having only 15–16 teeth to the saw. Nevertheless this range of variation seems to me not excessive for an arctic species which could easily have fewer teeth in far northern localities; and I prefer, as far more probable, LINDQVIST's earlier opinion (1944, *Notul. ent.*, 24: 14) that the Finnish and Novaja Semlja specimens belong to the same species.

4. Jufplan. 17.6.1952. 2200–2300 m. *Salix*.

Circumpolar arctic-alpine, known previously in Switzerland from Valais, but the Alaskan specimens were not previously recognized as conspecific.

Nematinus Rohwer

Nematinus **abdominalis** (Panzer)

7. Sta. Maria. 14.6.1960. 1400 m. *Alnus*.
Europe.

Nematinus **willigkiae** Stein subsp. **pilosus** Benson

This subspecies was previously thought to be confined to North Britain (BENSON 1951–1958, p. 194) and its discovery in Switzerland suggests that it is one more of the small group of British-alpine forms. It differs from the typical Central European and English form of the species in lacking the glabrous pleuro-sternal line of the meso-thorax.

7. Sta. Maria. 14.–27.6.1960. 1400 m. *Alnus*.
Europe.

Euura Newman

***Euura mucronata** (Hartig)

4. Punt dal Gall and Il Fuorn. Galls. 13.6.–2.7.1960. 1700–1900 m. *Salix cinerea* L., etc.
One of the commonest European sawflies. Holarctic.

Pontania O. Costa

***Pontania vesicator** (Bremi)

4. Il Fuorn; 7. Sta. Maria. Galls 14.6.–2.7.1960. 1400–1900 m. *Salix purpurea* L.
Europe, boreo-subalpine.

***Pontania bridgmanni** (Cameron)

4. Punt Periv and Punt dal Gall. Galls 13.6.1960. 1700 m. *Salix cinerea* L. etc.
Europe.

***Pontania viminalis** (L.)

4. Il Fuorn; 7. Sta. Maria. Galls. 14.–27.6.1960. 1400 m. *Salix purpurea* L.
Europe.

***Pontania crassipes** (Thomson)

4. Val dal Botsch, Alp Buffalora, Munt la Schera, Funtana da S-charl.
17.6.–1.7.1960. 2200–2400 m. *Salix herbacea* L., *reticulata* L. and *myrsinites* L.
Circumpolar arctic-alpine.

**Pontania dolichura* (Thomson)

4. Punt dal Gall, Il Fuorn; 7. Sta. Maria. Galls 9.-27.6.1960. 1400-1700 m. *Salix purpurea* L.

Circumpolar boreo-alpine.

Phyllocolpa Benson

Phyllocolpa *purpureae* (Cameron)

7. Sta. Maria (leaf-rolls). 27.6.1960. 1400 m. *Salix purpurea* L.
Europe.

Nematus Panzer

**Nematus reticulatus* Holmgren 1883

Nematus reticulatus Holmgren, 1883, Ent. Tidskr., 4: 143.

Nematus marionellus Holmgren, l. c.: 144.

Nematus occipitalis Holmgren, l. c.: 144.

Nematus anceps Holmgren, l. c.: 145.

Nematus mysticus Holmgren, l. c.: 145.

Nematus parvulus Holmgren, l. c.: 146.

Nematus picticollis Holmgren, l. c.: 147.

Pontania tenuitarsis Konow, 1901, Z. syst. Hym. Dipt., 1: 130.

Pontania forsiusi Enslin, 1918, Die Tenthred. Mitteleuropas, 4: 354-5.
(Beihefte Deutsch., ent. Z.)

LINDQVIST, 1949, *Notul. ent.*, 24: 14-16 and 20, gave the above **synonymy** of what he calls *Amauronematus reticulatus* but nevertheless later described many new **species** of *Pteronidea* from Fennoscandia closely related to it. The large amount of material that I have now amassed from Lapland, Scotland, Switzerland and North-west Canada shows that *N. reticulatus* is a **circumpolar** species very variable not **only** in colour but in sculpture and details of genitalia and saws, insomuch that it is quite impossible any more to **segregate** the different named forms on the **characters** given. The **following** species I therefore regard as **further synonyms** of *N. reticulatus* after **examining** either the type (*) or specimens named by the **original** authors.

°*Nematus lientericus* Holmgren, 1883, Ent. Tidskr., 4: 146, *Syn. nov.*

(The ratios of head length breadth and eye length breadth in specimens of this **species**, including examples named by Lindqvist, are identical with those of *N. reticulatus* also named by Lindqvist.)

°*Pontania popofiana* Kincaid 1900, Wash. Acad. Sci. Proc., 2: 353, *Syn. nov.*

°*Pontania glinka* Kincaid, l. c.: 355, *Syn. nov.*

°*Pontania poppii* Konow, 1904, Z. Syst. Hym. Dipt., 4: 230, *Syn. nov.*

°*Amauronematus alberich* Benson, 1934, Ann. Mag. nat. Hist., (10) 14: 208-211.

°*Pteronidea nubium* Benson, 1935, Tr. ent. Soc. Lond., 83: 30

°*Amauronematus alsius* Benson, l. c.: 32.

Pteronidea leptostigma Lindqvist, 1957, *Notul. ent.* 37: 111, *Syn. nov.*

Pteronidea nigrita Lindqvist, 1957, l. c.: 113, *Syn. nov.*

°*Pteronidea roberti* Lindqvist, 1957, l. c.: 117, *Syn. nov.*

Pteronidea lindbergi Lindqvist, 1957, l. c.: 105, *Syn. nov.*

In **addition** to the above **several** more of LINDQVIST's species which I have not **seen**, especially those based on single abnormal individuals, are for practical purposes better regarded **at** present as further synonyms of *N. reticulatus*, i.e., *Pteronidea wolteri* Lind-

qvist, 1957, l.c. p. 115 (unique Q), Pteronidea rutilipes Lindqvist, 1959, *Notul.* ent., 39: 59 (unique Q), Pteronidea sulciceps Lindqvist, l.c., p. 57 (unique ♀), Pteronidea *aspera* Lindqvist, l.c. p. 58 (unique ♀) and Pteronidea thunbergi Lindqvist, l.c. p. 58 (? 3 ♀).
4. Alp **Buffalora**, Funtana da S-charl. 15.6.–3.7.1960. 2200–2400 m. *Vaccinium*.
Circumpolar arctic-alpine.

***Nematus coeruleocarpus** Hartig

2. S-charl; 4. Punt dal Gall, Il Fuorn, Pass dal Fuorn; 5. Crappa Mala. 13.6.–30.7.1919–1960. 1700–2100 m.
Salicaceae (Salix, Populus) and **Ranunculaceae** (Aquilegia, Delphinium and *Paeonia*).
North and central Europe to Caucasus.

Nematus **ribesii** Scopoli

7. **Sta. Maria**. Larvae. 14.–27.6.1960. 1400 m. Ribes.
Europe to Caucasus introduced to North America.

Nematus myosotidis Fabricius

7. **Sta. Maria**. 27.6.1960. 1400 m. *Onobrychis* and *Trifolium*.
Europe to Caucasus to Western Siberia.

Nematus capreae L. (= *miliaris* Panzer)

2. S-charl. 23.7.1949. 1700–1900 m. Salix or *Populus*.
Europe, Asia Minor and Siberia.

Nematus **bergmanni** Dahlbom (= *curtispina* Thomson)

4. **Sta. Maria**. 27.6.1960. 1400 m. Salix.
Europe and Siberia.

Pachynematus **Konow**

***Pachynematus imperfectus** (Zaddach)

4. Champlonch, Il Fuorn and **Munt** la Schera (on snow). 6.–20.6.1960. 1700–2500 m.
Larix.
Central Europe.

***Pachynematus nigriceps** (Hartig)

4. God la Schera. 13.6.1960. 1800 m. Picea.
Central Europe.

***Pachynematus montanus** (Zaddach)

4. God la Schera; 7. **Sta. Maria**. 13.–14.6.1960. 1400–1800 m. Picea.
Central Europe.

***Pachynematus scutellatus** (Hartig)

7. **Sta. Maria**. 14.6.1960. 1400 m. Picea.
Central Europe.

***Pachynematus leucopodius** (Hartig)

4. God la Schera. 13.6.1960. 1800 m. *Picea*.

***Pachynematus obductus** (Hartig)

4. God del Fuorn. 19.6.–27.7.1945–1951. 1750–2100 m. Gramineae.
Holarctic.

***Pachynematus vagus** (Fabricius)

4. Il Fuorn; 7. Sta. Maria. 14.–23.6.1960. 1400–1800 m. Gramineae.
Holarctic.

Pachynematus declinatus (Forster)

7. Tschier. 26.5.1956. 1700–1850 m.
Central Europe.

***Pachynematus apicalis** (Hartig)

4. Champlönch. 22.6.1960. 2000 m. Gramineae.
Europe.

***Pachynematus foveolatus** Konow (= *truncatus* Benson)

4. Alp Buffalora. 28.6.1960. 2380 m. Gramineae.
Holarctic.

***Pachynematus kirbyi** (Dahlbom)

4. Champlönch. 8.6.1960. 2000 m. *Carex*.
Holarctic.

***Pachynematus xanthocarpus** (Hartig)

4. Champlönch. 11.–22.6.1960. 2000 m. Gramineae.
Europe.

***Pachynematus clitellatus** (Lepelletier)

4. Funtana da S-charl. 3.7.1960. 2400 m. Gramineae.
Europe.

References

- BARBEY, A., 1932. Les Insectes forestiers du Parc National Suisse. *Ergebn. wiss. Unters. schweiz. Nat. Parks* **1** (Neue Folge), 6.
- BEAUMONT, J. DE, 1958. Les Hyménoptères Aculéates du Parc National Suisse et de Régions Limitrophes. *Ergebn. wiss. Unters. schweiz. Nat. Parks* **6** (Neue Folge), 40: 146-233 + map.
- BENSON, R.B., 1938 (1). European Sawflies of the genus *Xyela* Dalman (sens. lat) Hymenoptera Symphyta) *Proc. R. ent. Soc. Lond.*, (B) **7**: 32-36, figs 1-5.
- 1938 (2). Revision of the British Sawflies of the genus *Empria* Lepelletier (Hymenoptera Symphyta) *Trans. Soc. Brit. Ent.*, **5** (3): 181-198, figs 1-8.
- 1939. On a new and some little-known European species of *Arge* Schr. (Hymenoptera Symphyta) *Proc. R. ent. Soc. Lond.*, (B) **8**: 114-117, figs 1-9.
- 1940. A new British leaf-rolling Sawfly of the *Pontania* Costa on *Salix pentandra* L., (Hymenoptera Symphyta). *Ent. mon. Mag.*, **76**: 209-212, figs 1-5.
- 1946. The European Genera of the Tenthredinidae (Hymenoptera Tenthredinidae) *Proc. R. ent. Soc. Lond.* (B) **15**: 33-40, figs. 1-12.
- 1947. Two new European species of *Dolerus* Jurine (Hymenoptera Tenthredinidae) *Ent. mon. Mag.*, **83**: 62-4, figs 1-3.
- 1950. Two new Swiss Sawflies, a *Tenthredo* and a *Fenella* (Hymenoptera Tenthredinidae) *Proc. R. ent. Soc. Lond.* (B) **19**: 53-5. 2 figs.
- 1951-1958. Hymenoptera Symphyta. *Handb. Ident. Brit. Ins. Lond.*, **6** (2a-c): 1-252, + vi, 815 figs.
- 1952. A new *Anoplonyx* destructive to Larch in Britain (Hymenoptera Tenthredinidae) *Bull. ent. Res.*, **43**: 543-7, figs 1-7.
- 1953. A Revision of the genus *Fenella* Westwood (Hymenoptera Tenthredinidae) *Proc. R. ent. Soc. Lond.* (B) **22**: 136-138, 2 figs.
- 1954. Some Sawflies of the European Alps and the Mediterranean Region (Hymenoptera Symphyta) *Bull. Brit. Mus. (nat. Hist.) Ent.*, **3** (7): 267-295, 31 figs.
- 1955 (1). Some high alpine Nematine Sawflies (Hymenoptera Tenthredinidae) *Ent. mon. Mag.*, **91**: 103-5.
- 1955 (2). Sawflies of the high Swiss Alps (Hymenoptera Symphyta) *Mim. Soc. R. ent. Belg.*, **27**: 74-81.
- 1959 (1). Revision of the European Sawflies of the *Tenthredo arcuata-schaefferi* complex (Hymenoptera Tenthredinidae) *Proc. R. ent. Soc. Lond.*, (B) **28**: 93-102, 11 figs.
- 1959 (2). Tribes of the Tenthredinidae and a new European genus (Hymenoptera Tenthredinidae) *Proc. R. ent. Soc. Lond.*, **28**: 121-7, 8 figs.
- 1960 (1). Studies in *Pontania* (Hymenoptera Tenthredinidae) *Bull. Brit. Mus. (nat. Hist.) Ent.*, **8** (9): 367-384, figs 1-6.
- 1960 (2). Two new European species of *Xyela* Dalman (Hymenoptera Xyelidae) *Proc. R. ent. Soc. Lond.*, (B) **29**: 110-112, 4 figs.
- 1960 (3). Some more high-alpine Sawflies (Hymenoptera Tenthredinidae) *Mitt. schweiz. ent. Ges.*, **33**: 173-182, figs 1-7.
- FERRIÈRE, C., 1947. Hyménoptères Térébrants du Parc National Suisse et des Régions Limitrophes, *Ergebn. wiss. Unters. schweiz. Nat. Parks*, **2** (Neue Folge) **15**: 1-56 + map.
- MOREAU, R.E., 1955. Ecological Changes in the Palaearctic Region since the Pliocene. *Proc. zool. Soc. Lond.*, **125**: 253-295.
- STECK, T., 1893. Beiträge zur Kenntnis der Hymenopteren-Fauna der Schweiz. 1. Blattwespen-Tenthredinidae *Mitt. schweiz. ent. Ges.* **9**: 1-45.