

SAWFLY FAUNA OF A WOODED PARK
WITHIN THE CITY OF EDINBURGH
(HYMENOPTERA: SYMPHYTA)

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(Concluded from p.21)

Notes on individual species

The two female specimens of *Pamphilius hortorum* were of the colour form *bicinctus* Benson, which has been treated as a Scottish-Scandinavian subspecies by some. This form was previously recorded from Perth., Aberdeens. and Inverness (Benson, 1945). Such forms also appear to occur in lowland central Europe (Lacourt, 1973).

Calameuta pallipes, a southern species, is found in this area on flowers of *Ranunculus acris* in unshaded but sheltered grassy areas.

Heptamelus ochroleucus and *Strongylogaster macula* are characteristic of fairly densely shaded, damp, ferny areas. Drier and more open sites in and around Edinburgh usually support *Strongylogaster lineata* (Fall.) instead of these two species, and most damp birch woods contain only *H. ochroleucus* and *S. mixta* (Kl.). *Strombocerus* appears to be more tolerant of ranges of shade and dampness.

Dolerus gonager is on the wing from mid April till late June on Corstorphine Hill, as in many other Scottish localities. Benson (1951-1958) gives V-VI.

Athalia liberta is represented by a single female collected in June 1981 near plants of *Alliaria petiolata*. This species may be extending its British range northwards and could be a recent arrival in the area (Liston, 1980a).

Eutomostethus luteiventris is restricted to three or four clumps of *Juncus effusus* growing in the wet flush on the south side of the hill. It is parthenogenetic with sedentary adults, this perhaps helping to maintain the species in its extremely restricted habitat.

Messa glaucopis was wrongly recorded as feeding on *Populus tremula* at this locality (Liston, 1980b). The host is actually *P. canescens* growing around the above mentioned wet flush. Previously recorded hosts of *glaucopis* in Britain are *P. tremula* and *P. alba*. Some botanists believe that *canescens* originated as a hybrid between these species. I know of no other stands of Grey Poplar in or near Edinburgh. *M. glaucopis* and its host were probably introduced from southern England.

Both *Tenthredopsis* species seem to be unusual amongst the sawflies feeding on Gramineae in that they are found regularly under trees casting heavy shade. All the grass-feeding *Dolerus* spp.

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except *liogaster*, and all the grass-feeding *Pachynematus* seem to require more open conditions.

Species of *Tenthredo* are generally polyphagous and limited to particular habitat types by factors other than the presence of host-plants. Three of the species present tend to occur in rank, nitrophilous vegetation (*livida*, *colon* and *mesomelas*). The first two of these also show a strong preference for sites in scrub or woodland. *T. mesomelas* can be equally abundant in suitable unwooded sites. *T. maculata* always seems to be found in light woodland. *T. balteata* is more typical of scrubby woods and open places. In Scotland it is most frequent in birch woods. *T. obsoleta* is an apparently anomalous presence. It would be expected in open or lightly wooded subarctic/subalpine type habitats. *Rhogogaster punctulata* is likewise, but not so strongly, associated with northern and upland habitats, favouring birch in Britain.

Adults of *Hoplocampa chrysorrhoea* are elsewhere usually found in flowers of *Prunus spinosa*, in the ovaries of which the larvae develop. Sloe does not occur on Corstorphine Hill and the adults have usually been taken near trees of *Prunus padus*.

The two adult male *Platycampus luridiventris* were not taken from Alder, but swept from birch. *Alnus* is the main host but continental literature records *Betula*, *Corylus* and *Rubus idaeus* as secondary hosts (Klausnitzer, 1978).

Pristiphora lanifica was new to the British list when first discovered at this site (Liston, 1981). A fourth female has been collected (on 7.5.81). *P. lanifica* is now known to occur in Aberdeenshire also (unpublished data). Adults and a few larvae have been observed on Corstorphine Hill only on two bushes of *S. caprea* growing in a small stand of birch where some other interesting sawflies were found, e.g. *Rhogogaster punctulata* and *Amaurone-matus amplus*.

The host of *Pontania proxima* at this locality is *Salix alba*, all of which seem to have been planted,

Both *Pristiphora ruficornis* and *Nematus viridis* are in my experience more abundant in drier sites with *Betula pendula* than on damp moors with *B. pubescens*.

Nematus leucotrochus seems to be scarce in Scotland. This is the only specimen I have seen. Like *N. ribesii* (Scop.), it flies early in the year, but has only a single generation. It is associated with dry-type woods containing *Fagus*, *Ulmus*, *Corylus*, etc. Benson (1951-1958) gives the hostplant as *Ribes*, chiefly *uva-crispa*, but *leucotrochus* has also been recorded from *Corylus* (Stritt, 1939).

Not included in the list is *Nematus spiraeae*, occurring on *Aruncus silvester* planted in gardens very close to the park, but not in it.

Hostplant associations

46 out of the 88 species recorded are associated with trees and

large shrubs. However, the commonest trees support very few sawflies: *Quercus*, *Fagus* and *Fraxinus* have none; *Acer*, *Pinus* and *Tilia* only 1 each; *Ulmus* 2. The scarcer tree species support many more, as follows: larvae of 11 monophagous and polyphagous species feed on *Betula*, and 8 others on *Salix*; 6 only on arborescent Rosaceae (*Crataegus*, *Sorbus*, *Prunus*); 3 on *Alnus*; 3 on *Picea*; 2 on *Larix*; 1 on *Populus*. 7 polyphagous species are chiefly associated with trees and shrubs, but these hosts do not include *Quercus*, *Fagus*, *Acer*, etc.

Of the other 42 species, 17 are probably grass-feeders; 3 feed on *Rubus idaeus*; 3 on ferns; 2 on *Ribes*; 2 on *Rosa* and 1 on *Juncus effusus*. The rest feed on a variety of herbaceous plants or have unknown hosts (2 species).

Discussion

The 88 species recorded represent approximately 18% of the known British sawfly fauna. 22 of these were recorded on the basis of a single specimen, indicating that numerous other species must remain undetected. This fauna also seems fairly diverse, more so than that of native or "primary" woodland, perhaps because of the greater number of plant species represented. Many of the sawflies are exceptionally localised within the park, some even restricted to one or two particular plants. Others maintain very low population levels, but seem to be more widespread.

Less disturbed areas of wood and scrub in other parts of south-east Scotland are richer in terms of numbers of species and individual sawflies, but Birch and *Salix* spp. provide a much greater proportion of niches, so that nearly all sawflies found there are Nematinae.

Planting of broadleaves for amenity took place on a large scale in the 18th and 19th Centuries. This must have severely reduced the number of sawfly species present without offering an equivalent number of new niches for other species. Nevertheless, several probable relict species seem to survive on Birch, Willow, Raspberry and some of the herbaceous plants, eg. *Amauronematus amplus*, *Pristiphora lanifica*, *Pamphilius hortorum*, *Rhogogaster punctulata* and *Tenthredo obsoleta*. Apart from *A. amplus*, these are typically northern or upland species.

Corstorphine Hill has, however, probably always also supported some species at the northern edge of their ranges, eg. *Tenthredo colon* and *Hoplocampa chrysorrhoea*. These essentially southern species may have become more successful at this locality in recent times because planting of ornamental trees provided increased shelter and promoted the development of a more luxuriant ground flora. *Messa glaucopis*, *Pristiphora laricis*, *P. wesmaeli*, *Sharliphora amphibola*, *Pontania proxima*, *Pachynematus scutellatus* and *P.*

montanus are species which were probably introduced with their hosts by man. Additionally, *Heterarthrus aceris* and *Parna tenella* feed on plants which in southern Scotland are naturalised but not native. Creation of ungrazed, open grassland in the park itself seems to have been very recent. By the time areas like this existed, the site was completely isolated by built-up zones. This would seem to explain the absence of several common and conspicuous meadow species whose foodplants are present, eg. *Tenthredo arcuata* Forst. and *T. schaefferi* Klug. Grazed grassland is always extremely poor in Symphyta. That on the east side of this locality was no exception. Only *Dolerus aeneus* could be found there, though this in some numbers.

Summary

Management and interference with the vegetation of a park in the city of Edinburgh, particularly the planting of broadleaved tree species for amenity during recent historical times, seems to have significantly altered the composition of the sawfly fauna. As the vegetation changed, species with southern distribution types may have become better represented and more abundant at the expense of northern and upland forms, some of which survive in fragments of relict vegetation.

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