



OBSERVATIONS ON THE BRITISH PSYLLIDAE. I.

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Psylla alni Linn.

In a previous article on the Psyllidae of the Hebrides (*Ent. mon. Mag.*, 72: 48-51) I mentioned the fact that *Psylla alni* had been captured from birch at Fearn, East Raasay. The precise tree from which the insects were taken was sufficiently far away from alders to preclude the possibility of their having come from such a source. Similarly, Harrison (1918) mentions the fact that *P. alni* was sometimes taken from birch in Northumberland and Durham, but did not state whether adults or larvae were taken from that host. On Raasay, 1935, although only adults were captured from birch, the

tree was marked, thereby enabling me to investigate the matter further on future visits.

In April and May, and later, in June of the following year, I had again the opportunity to examine this birch tree at Fearn. On the first occasion very young larvae were in evidence; later in June, large almost full-grown larvae and two teneral adults were captured.

We must, therefore, consider birch as an additional, though not usual, host to *Psylla alni*.

Psylla försteri Flor.

Psylla försteri is also very abundant in the Hebrides, occurring almost everywhere with the preceding species. At present, 1936, *P. försteri* is more abundant than *P. alni* on the island of Raasay, but the predominance of one over the other seems to vary from year to year. Harrison (1915) stated that the further north collections are made of the 'Alder Psyllids,' the more abundant was *P. försteri*. Whilst this may be true in respect to the counties of Northumberland and Durham, it does not hold generally.

In his Monograph, Scott says of *P. försteri*, 'Exceedingly abundant on alders (*Alnus glutinosa*), from June to the end of October,' and of *P. alni*, 'Not common. The only examples I have seen, in addition to my own, were taken by Dr. Power and Mr. Douglas.' However, judging from his descriptions of the two species, there is a possibility of his having confused them, since the specific characters put forward by him may quite well be regarded as covering the other. As a general rule, *P. alni* is the common species, whilst *P. försteri*, although nearly always present, is decidedly the rarer.

In County Durham, too, I have noticed a variation from year to year in their relative numbers, but, without doubt, *P. försteri* is much more abundant in Scotland and the Hebrides than in the north of England.

In 1934, on Raasay, *P. alni* was the dominant species and very common indeed. On the other hand, in 1935 the numbers of *P. alni* and *P. försteri* were about equal, whilst this year, 1936, *P. försteri* was supreme, and constituted fully 70 per cent. of the Psyllid populations on alder. This was very noticeable in spring, when the larvae could be studied on the trees. *P. alni* larvae always produce enormous masses of white flocculent material, which most of us know only too well. *P. försteri* also secretes copiously, but not to the extent of *P. alni*; the difference was thus very obvious.

Psylla bagnalli Harr.

When, in 1916, this species was first described, the original specimens were said to feed on *Juncus*, since they were swept from plants of that genus on Blanchland Common, Northumberland. Other plants may have supplied the host, but there was no evidence to that effect.

In 1934, when I first took *P. bagnalli*, it was obtained from a mixture of small *Junci* and the Sea Club Rush, growing on the shore, just above high-water mark, near Budle Bay, Northumberland. The same year I recognised it again in some of my Hebridean collections, made later in the season. It was beaten from Coniferae on the islands of Raasay, Skye, and Fladday. Thus, still no clue as to the identity of its true host was available. However, in November I found the insect hibernating within the stools of a small *Juncus* on the island of South Uist, near Lochboisdale. I was thus fairly certain that *Juncus* spp. furnished the hosts to this insect, but considered that further evidence would be desirable.

Early this year, an opportunity was granted for the study of this species, and its host relations, in several of its stations on the island of Raasay. Sweeping over the *Juncus* growing in a damp pasture where the insect had been found previously, I again detected it. Narrowing down my search to a few square yards, I was rewarded eventually by finding one green larva inside the basal shoots of a fairly large stool of *Juncus* with a number of young adults, some with their wings just expanded.

Psylla bagnalli is apparently endemic to the British Isles. It is never abundant, and as pointed out in the original paper on the species, finds its closest relatives in *P. nigrita* Zett., *P. melanoneura* Först. and *P. subferruginea* Edw.

Apart from species of *Livia*, it is the only known Psyllid to feed on rushes. In this connection it is rather unfortunate that Haupt (1935) did not know of its existence or of its host plants, for he uses the fact that *Livia juncorum* is the only known European rush-feeder as a means, among others, for the separation of that form.

Psylla ambigua Först.

Although I have in preparation a complete account of the life-history of this and its *Salix*-feeding allies, I wish to point out here one or two facts relative to its life-history which have been misinterpreted by Lal (Trans. Roy. Soc. 82: 363-385). There, the latter gives what purports to be the full life-history of the insect, the salient features of which are:

1. *P. ambigua* hibernates in the adult stage, eggs being laid in spring from which the adults of the new generation develop in May and June.

2. Conspicuous colour changes take place during the adult life of the insect.

Both of the above statements do not conform with my own observations on this insect made over a period of four generations.

P. ambigua hibernates as a small second instar larva under the lateral buds of the host *Salices*, and there are no colour changes such as Lal describes. It is true, however, that, towards the end of June and July, the few adults that are still alive have a pale, washed-out orange colour suffusing the abdomen and thoracic regions. Instead of having a long life as an adult, two months at the most is all they enjoy. Eggs are laid on the leaves in July, and the larvae, after one ecdysis, migrate to the buds under which they spend the winter.

It is clear that Lal has confused one or more of the several other *Salix*-feeding species with *P. ambigua*. Although that worker does not mention the existence of any other species in the Edinburgh area which feed on Sallows, I have found no fewer than four frequenting *Salices* in North Northumberland and the same number in several localities in Scotland. The possibility of their occurrence in the area worked by Lal is therefore great.

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