

## Brief Report

# Notes on the biology of *Entephria polata* (Lepidoptera, Geometridae)

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A new food plant, *Empetrum nigrum* ssp. *hermaphroditum* (Hagerup) Böcher, is reported for *Entephria polata*. Larvae were observed to live on the buds of the plant in early summer. The find is discussed and the older records reviewed.

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*Entephria polata* (Duponchel, 1831) is a holarctic species occurring in Eurasia from the northern parts of Fennoscandia to northwestern China (Mikkola *et al.* 1985). It favours low-lying mountain moors particularly above the timber line (Skou 1986). Though the adult stage has been known for a long time, the larva was only described in 1941 by Nordman. The biology of the larva has remained poorly known until now. In the recent literature it is said to be unknown (Skou 1986), while Seppänen (1958) and Mikkola *et al.* (1985) report that the larva lives on *Betula nana* L. The latter claim originates most obviously from the observations made in 1937 by Nordman (1941). He had collected larvae from this plant and reared some of them to adults, in spite of heavy braconid parasitization, and thus confirmed identification. According to O. Peltonen (pers. comm.), E. Peltonen had kept a female of *E. polata* in a breeding box, where it had laid eggs on the leaves of *B. nana*. The hatched larvae did not, however, eat this plant, but they accepted the shoots of *E. nigrum* that were offered to them. It has also been known for a while that larvae of *E. polata* can be sweepnetted from *Empetrum* (M. Ahola pers. comm.). However, there have been no observations on which plants the larvae use in nature.

In June 1996, we made some field observations concerning the biology of *E. polata*. On 27 June in the Värriötunturi fjeld area in eastern Finnish Lapland (Grid 27°E; 751:60), we observed many *Entephria* larvae on buds of *Empetrum nigrum* ssp. *hermaphroditum*. The larvae were sitting in a typical bent position on the tips of the plant (Fig. 1).

After we had detected the first larva, it was easy to collect more of them, since even at walking pace one could recognize them sitting on tips of *Empetrum*. After eating the freshly burst bud, they moved to another. They did not eat old leaves at all. We also verified the species by rearing. In rearing conditions, we offered the larvae buds of *E. nigrum* and shoots of *Vaccinium myrtillus* L., *V. uliginosum* L. and *V. vitis-idaea* L., all of which occur in their larval habitat. The caterpillars only accepted fresh buds of *E. nigrum*. The last full-grown larva was collected on 11 July. One must remember that the summer of 1996 was relatively late. In the previous year, we collected full-grown larvae by netting on 15 June, and a larva collected on 20 June pupated after two days.

We found the larvae of *E. polata* ( $n = 40$ ) without exception from *Empetrum* patches. We did not find any larvae from *Betula nana*, which also grows sparsely in the area. Though we do not have any reason to doubt the observation made by Nordman (1941), there is a small uncertainty. He mentions that single larvae were taken from *B. nana*, but he did not say anything about the way in which they were taken. Hence, they may have been full-grown larvae searching for a pupation place. If *E. polata* overwinters as an egg, as reported by Seppänen (1958) and Svensson (1993), it seems, according to our observations, that they eat only buds and in the last phase also young leaves of *Empetrum*, as they did in the rearing conditions (field observations about this are lacking).



Fig. 1. A larva of *Entephria polata* (Lepidoptera, Geometridae) sitting on top of its food plant *Empetrum nigrum* ssp. *hermaphroditum* in the Värriötunturi fjeld area on 11 July 1996. Photo: G. Várkonyi.

All in all, the main food of *Entephria polata* seems to be *Empetrum nigrum* ssp. *hermaphroditum*, but there is a possibility that other plants of an alpine region may also be used by the larvae.

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