

# Keeping the web tidy: hygienic behaviour of a small ermine moth (Lepidoptera: Yponomeutidae)

R. E. KOOI

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*Abstract:* Larvae of *Yponomeuta vigintipunctatus* (Retzius) deliberately drop their faeces a few cm away from the place where they eat.

Department of Population Biology, University of Leiden, P.O. Box 9516, 2300 RA Leiden

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## Introduction

During a study of the insect-host plant relationships of the European small ermine moths (*Yponomeuta* Latreille), observations were made on the feeding behaviour of larvae of *Y. vigintipunctatus* (Retzius). During this experiment it was noticed that larvae deliberately deposit their faeces at a certain distance from the place where they eat.

## Observations

From time to time during feeding the larvae move backward along a thread of their web and drop pellets of frass. Thereupon they return to their feeding site; this process is repeated for each defecation and results in the deposition of the frass on a certain place (figs. 1-2). In a group each larva independently deposits its faeces at its own location. In the field much of the faeces will drop away from the plant.

Measurements were made of the distance between the food and the faeces.

## Methods

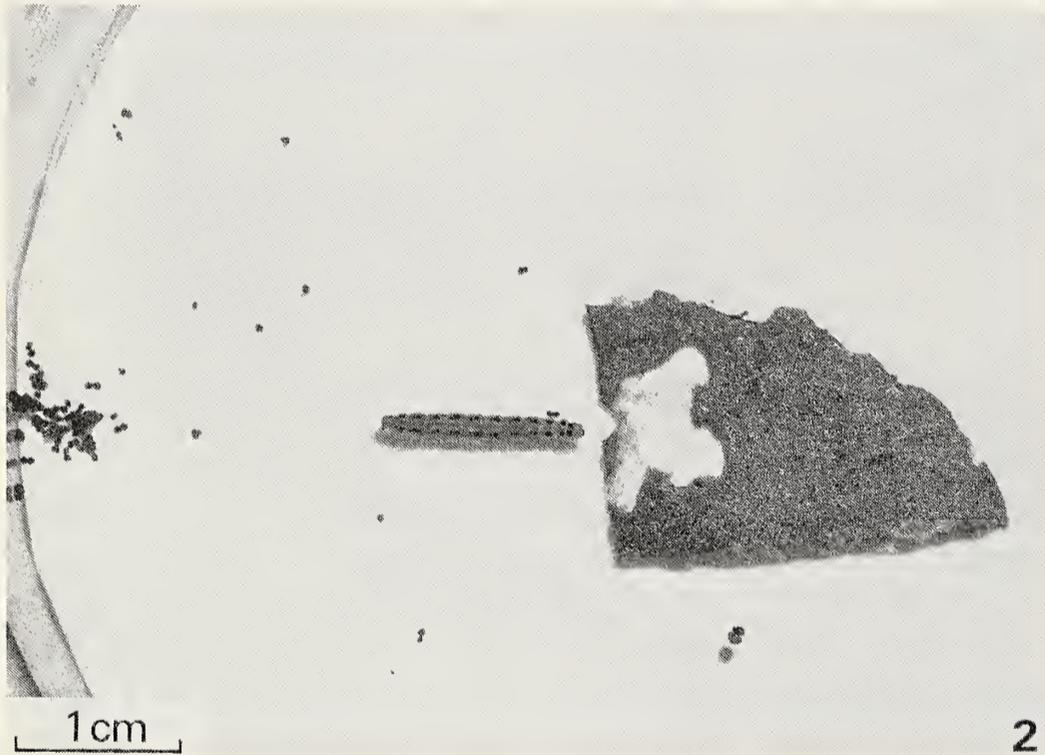
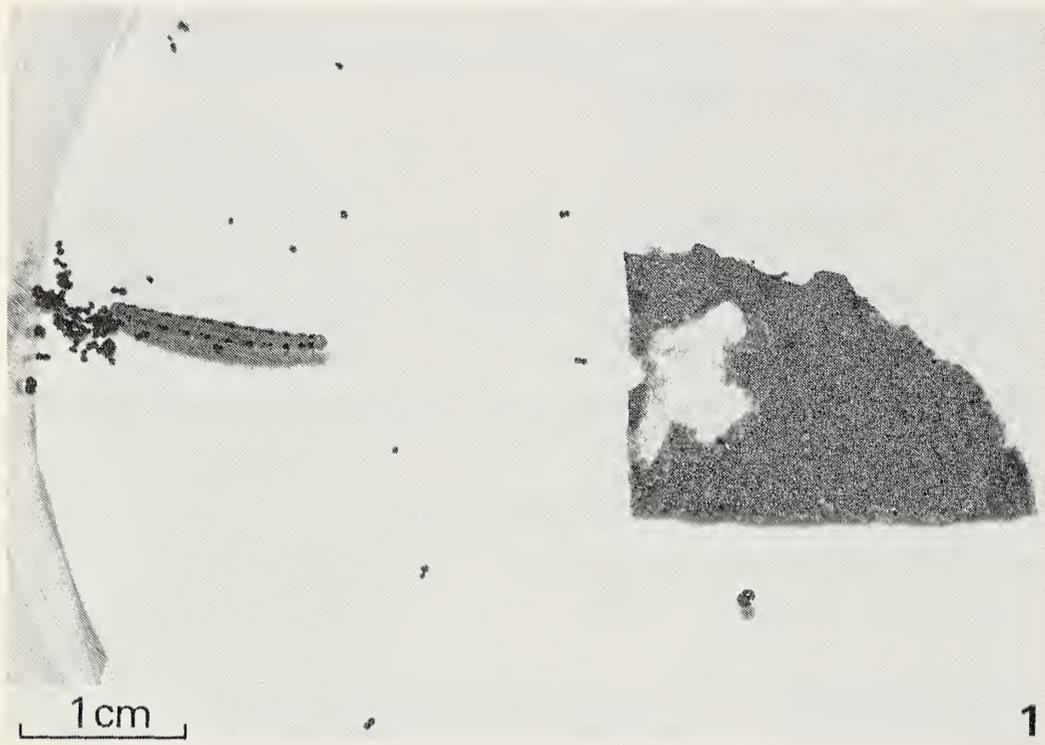
Larvae of *Y. vigintipunctatus* were sampled in the field in September. They were brought to the laboratory and reared until the last stadium. Individual larvae were placed in petri dishes with a disc of leaf of their host plant *Sedum telephium* Linnaeus measuring 1 cm<sup>2</sup> on a layer of wet filter paper. After one day the distance between food and faeces, and the length of the larvae were measured.

The mean distance between the centre of the food and the centre of the faeces was  $1.95 \pm 0.90$  cm ( $n = 68$ ); this was more than the length ( $1.23 \pm 0.16$  cm) of the larvae. The mean distance between the food and the faeces was  $1.09 \pm 0.83$  cm. In 24 out of 68 cases this distance was more than the length of the larvae; in four cases more than twice. In one case the distance between the food and the larva was as much as 4.3 cm.

## Conclusion

It can be concluded that larvae of *Y. vigintipunctatus* actively drop their faeces at a distance from the place where they feed. For this activity they use a thread as a guide. This behaviour is remarkable as larvae of *Y. vigintipunctatus* do not move about much on their food plant. When they eat after building their web they rarely move elsewhere. Larvae of *Malacosoma neustria* Hübner behave similarly. When they meet faeces in their web they remove it with their mouthparts (Roessingh, pers. comm.).

With this behaviour of *Y. vigintipunctatus* web and food become less contaminated; parasites and predators are not attracted. For instance the parasitoids *Microplitis demolitor* Wilkinson and *M. croceipes* Cresson are attracted by the odour of host frass (Nordlund & Lewis, 1985, Drost *et al.*, 1986). This behaviour, however, also has a certain risk. The parasitoid *Triclistus tricarinatus* (Gravenhorst)



Figs. 1-2. Defecation behaviour of a last instar larva of *Yponomeuta vigintipunctatus* (Retzius). Note that the larva is moving along a tread above the filterpaper. Preceding settling the larva moved around and lost some pellets of frass. 1, The moment of defecation; 2, just prior to resuming feeding.

only attacks moving larvae and usually inserts its ovipositor in the last segment of the host, the part of the larva which reaches outside (?) the web (Dijkerman, in press).

## References

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