EFFECTS OF GYPSY MOTH POPULATION DENSITY AND HOST-TREE SPECIES ON PARASITISM

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Abstract

The gypsy moth (*Lymantria dispar* L.) is a defoliator of deciduous forests throughout most of Eurasia and the northeastern part of the USA. In Poland, the economic importance of the gypsy moth is rather low. Sporadically it causes local outbreaks, which are suppressed by a complex of natural enemies, mostly virus and parasitoids. These studies were conducted in 2003 and 2004 in the Biebrza National Park located in the northeastern Poland.

The research was conducted at three sites characterized as follows: Kopciowe (sparse gypsy moth population in both years), Barwik (outbreak in 2003 and post-outbreak in 2004), and Honczarowska (outbreak in 2004). At Kopciowe, we used trap larvae that were reared in the laboratory from egg masses collected in the field and exposed 3-4 times during the season on oak saplings placed in 3-5 cages covered with netting. At Barwik and Honczarowska, gypsy moth larvae were sampled 4-5 times during the season from 4-5 species of trees (40-50 larvae/tree species/site): *Alnus glutinosa*, *Salix cinerea* (only at Barwik), *Betula* spp., *Quercus robur* and *Corylus avellana*. Larvae collected were reared individually on fresh oak leaves in plastic cups.

Parasitism at Barwik was up to 45% in 2003, but decreased to 35% in 2004. In the outbreak phase the co-dominant parasitoid species were *Blepharipa* spp. (up to 35%) and *Parasetigena silvesris* (up to 9%), whereas in the post-outbreak phase, *P. silvestris* was more efficient (24% max. peak parasitism) than *Blepharipa* spp. (13% max. peak parasitism). At Honczarowska, the total parasitism in 2004 reached 68%, due mostly to *P. silvestris* which parasitized 53% of the larvae. *Blepharipa* spp. (*schineri* and *pratensis*) were subdominant (up to 19.8% parasitism). In the sparse population, total parasitism was up to 39% in 2003 and 48% in 2004. The dominant parasitoid species were *Compsilura concinnata* (up to 31.8%) in 2003 and *Aphantorhaphopsis samarensis* (up to 43%) in 2004. The results of 2-year studies showed no consistent relationship between gypsy moth parasitism by *Blepharipa* spp. and *P. silvestris* and the tree species from which host larvae were collected. In 2003, parasitism by both species was higher on *Alnus* and *Betula* than on *Salix*, but in 2004, parasitization by *Blepharipa* was highest on *Salix*, which had the highest gypsy moth density and concomitant defoliation, but parasitism by *P. silvestris* was lowest on the same host plant, suggesting that defoliation can also be a determinant of parasitism.