

Effects of insecticides and feeding damage on parasitoids in pine forests

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In the Northeastern Lowland pine tree is the most economically important tree species. The majority of the single-layered monocultures grows there on sites characterized by low nutrient and water availability. These imply a high risk for infestations with insect pests. Outbreaks of phyllophagous insects led to disturbances of the ecological equilibrium combined with large economic losses. Complete defoliation in combination with unfavorable weather conditions and infestation with secondary pests can kill large numbers of trees.

As part of the BMEL/FNR research network "Future-oriented risk management for biotic damages in forests to ensure of sustainable forest management", the effects of plant protection products (insecticides applied by helicopter) and feeding damages by different insect pests are investigated on the structure and functionality of the parasitoid community.

Parasitoids are important natural pest antagonists in forest ecosystems. As

specialists they can influence the pest population, but delayed in time. Among the parasitoid wasps of highest relevance for biological forest protection are species of Ichneumonidae and Chalcidoidea as well as Scelionidae (suborder Apocrita).

On the investigation area Herzberg (Brandenburg) first results are based on the evaluation of more than 21.300 individuals of the Apocrita, which were collected by pitfall traps (n=6 per study site), ground photo-electors (n=3) and flight-intercepting traps (n=4) in 2016. This year an outbreak of *Diprion pini* (L.) (Pine sawfly) was required the application of an insecticide (KARATE® FORST flüssig (pyrethroid)). Furthermore, a test with Mimic® (molt accelerator) took place.

The ichneumonid wasp *Pleolophus basizonus* (Grav.) was the most common species. It is known as the most important cocoon parasitoid of *Diprion pini* (L.).