

Abstract

The aim of this project was to look at the effect of natural enemies on *Cirsium arvense* and to test the most effective herbivore hypothesis and the complementary herbivore hypothesis. We measured damages by different herbivore insect guilds and rust fungus *Puccinia punctiformis* in *Cirsium arvense* in six different populations in the surroundings of Prague (the Czech Republic). The populations were divided by humidity gradient. I assessed the spatiotemporal variability in damages by several natural enemies in *Cirsium arvense* between locally distinct populations with different abiotic conditions and seasons. In particular I was interested in identifying damage types that co-occur through space and time. I also wanted to discern whether the most considerable insect species have the biggest influence on the population dynamics of *C. arvense* (the most effective herbivore hypothesis) or if a combination of more species has more effect (complementary herbivore hypothesis).

Plant damage presence in *C. arvense* differ through seasons and are more common in wet site conditions. Damages that are co-occurring on the same individuals are necrosis at the top of ramets, eaten flower tops, cocoons in leaves, galls in stem and other stem damages. Other guilds of natural enemies that are co-occurring in the studied species are rust, holes and mines per leaf and froghoppers. The most important result is that guilds producing leaf necrosis were causing the same damage separately on *Cirsium arvense* as when combined with folivory guilds or with those which produce stem damage. This suggests looking for an insect from this guild could lead to a better biological control of *C. arvense* than to use a combination of various control insect species; nevertheless, there have to be more studies to confirm this fact.

Key words: *Cirsium arvense*, natural enemies, plant-insect interaction, plant damage, population dynamics.