

Publication

Invertebrate herbivory along a gradient of plant species diversity in extensively managed grasslands

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 2106225**Author(s)** Unsicker, Sybille B.; Baer, Nadine; Kahmen, Ansgar; Wagner, Markus; Buchmann, Nina; Weisser, Wolfgang W.**Author(s) at UniBasel** [Kahmen, Ansgar](#) ;**Year** 2006**Title** Invertebrate herbivory along a gradient of plant species diversity in extensively managed grasslands**Journal** Oecologia**Volume** 150**Number** 2**Pages / Article-Number** 233-46

Increasing plant diversity has long been hypothesized to negatively affect levels of invertebrate herbivory due to a lower number of specialist insect herbivores in more diverse sites, but studies of natural systems have been rare. We used a planned comparison to study herbivory in a set of 19 semi-natural montane grasslands managed as hay meadows. Herbivory was measured in transects through the plant communities, and in individuals of *Plantago lanceolata* and *Trifolium pratense* that were transplanted into each meadow. In addition, plant community biomass and arthropod abundances were determined in the grasslands. Before the first mowing in June, mean herbivory levels correlated negatively with plant species richness, as predicted by theory, but they were also significantly affected by plant community biomass and plant community composition. After mowing, herbivory levels were only significantly related to plant community composition. Damage levels in the transplants were lower than herbivory levels in the established plant communities. Most insect herbivores were generalists and not specialists. The number of insect herbivores and spiders were positively correlated and tended to increase with increasing plant species richness. Herbivory levels were correlated negatively with spider abundances. We conclude that while the predicted negative relationship between plant species richness and insect herbivory can be found in grasslands, the underlying mechanism involves generalist rather than specialist herbivores. Our data also suggest a role of natural enemies in generalist herbivore activities.

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