

Editorial

A special issue on the conservation of grassland leafhoppers

Leafhoppers are an abundant and diverse group of insects in many grasslands. There are enough species to encompass a range of life histories and ecological strategies and recently published identification keys have made the group much more accessible to the non-specialist. Above all, individual species and whole assemblages seem to be highly responsive to environmental change and conservation management and are therefore potentially useful indicators of habitat conditions. There is a good understanding of the conservation status of most species, at least in Europe, and interest is growing in addressing the conservation requirements of individual rare and endangered species.

In spite of these advantages, leafhoppers are still an under-worked group amongst grassland invertebrates, often being overshadowed by larger and more charismatic insect groups or ones that have a longer history of ecological studies. The purpose of this special issue is to go some way towards redressing that balance. It is the first collection of papers to be published that specifically addresses the challenge of conserving leafhopper species and assemblages. The papers are arranged under three broad themes. After a brief introduction to the issues associated with leafhopper conservation (Biedermann et al.), two papers consider the factors affecting population persistence and performance in small fragmented habitats. Strauss and Biedermann describe the development of habitat models to predict the occurrence of rare species in montane meadows and urban brownfield sites. Hines et al. explore the theme of habitat fragmentation using the extensively studied assemblage of planthoppers and leafhoppers on cordgrass 'islands' in saltmarshes and the effect that nutrient addition has on assemblage diversity and food-web structure.

The next three papers illustrate how powerful general patterns can be drawn from large-scale multi-site surveys of leafhopper assemblages. Maczey et al. examine the extent to which leafhopper assemblages show concordance with, and add value to, the most widely used classification of British vegetation. Hollier et al. conclude that leafhopper assemblages can be used to indicate habitat quality in spite of their dispersive ability and annual fluctuations in population densities. Finally, Eyre et al. explore the extent to which satellite-derived land cover data can be used to explain the composition of leafhopper assemblages and consider the potential for using leafhoppers in environmental quality assessments.

The final four papers report on how leafhopper assemblages respond to particular types of conservation management. Nickel & Achtziger explore the responses of leafhopper assemblages to 'extensification' of lowland meadows and develop an 'ecogram' that depicts the position of species along two primary axes of agricultural intensity and soil moisture, and that can be used to monitor progress in restoring degraded sites. Rothenbücher & Schaefer examine how leafhoppers respond to mowing and the natural flooding dynamics within lowland river floodplain meadows. Fisher Barham & Stewart show that rabbit grazing on chalk heath has a subtly different effect on leafhopper assemblages to that produced by livestock grazing. Finally, Morris et al. explore the value of rotational sheep grazing regimes on chalk grassland for maintaining a high diversity of leafhopper assemblages and constituent rare species.

The idea for this special issue grew out of discussions amongst participants at the 2003 meeting of the Auchenorrhyncha Ecology Group (<http://www.uni-oldenburg.de/landeco/aeg/index.html>) in the congenial surroundings of Gut Moorbeck near Oldenburg, Germany. I am very grateful to all members of the group for their encouragement to pursue the idea of a special

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