the largest number of known vector species (Nielson 1979, Weintraub & Beanland 2006). Despite their economic importance, there are surprisingly many gaps in the knowledge on the phylogeny, taxonomy, life history and biology of leafhoppers and planthoppers. Previous authors advocated the use of phylogenetic analyses to make predictions concerning pest species (Dietrich 2013), because phylogenetic conservatism in certain behavioural traits, and consequent predictability of their expression, may elucidate the evolution of vectoring ability. However, phylogenetic relationships among lower taxa of Auchenorrhyncha remain largely unexplored.

This preliminary study reviews the state of the art of research on actual and potential vectors of phytoplasmas recorded until now, highlighting the phylogenetic relatedness among of species reported in the literature. About 200 leafhopper species were recorded as actual or potential vectors of phytoplasmas, and the vector competence has been properly demonstrated for about half of them. Competent vectors were recorded in 8 out of 19 subfamiles (Aphrodinae, Cicadellinae, Coelidiinae, Deltocephalinae, Eurymelinae, Iassinae, Megophthalminae, Typhlocybinae) of Cicadellidae, and about 80% of them are allocated in the subfamily Deltocephalinae. Thirteen tribes out of 36 described for Deltocephalinae shall comprise phytoplasma vectors, and those which including the largest number are Opsiini, Macrosteliini and Athysaniini.

Molecular and morphological studies are still ongoing with the aim of better defining the traits (genetic, ecological and morphological distinctness) associated with vector competence, and constructing detailed phylogenies of major groups of Auchenorrhycha vectors.

References

Bertaccini A., Duduk B., Paltrinieri S., Contaldo N. (2014): Phytoplasmas and Phytoplasma Diseases: A Severe Threat to Agriculture. – American Journal of Plant Sciences, **5:** 1763-1788.

Dietrich C.H. (2013) Overview of the phylogeny, taxonomy and diversity of the leafhopper (Hemiptera: Auchenorrhyncha: Cicadomorpha: Membracoidea: Cicadellidae) vectors of plant pathogens. – Proceedings of the 2013 International Symposium of Insect vectors and Insect-Borne Diseases: 47-70.

Nielson, M.W. (1979) Taxonomic relationships of leafhopper vectors of plant pathogens. – In: Maramorosch K & Harris K.F (eds): Leafhopper vector and plant disease agents. – Academic Press, New York: 3-27.

Weintraub, P.G. & Beanland L. (2006) Insect vectors of phytoplasmas. – Annual Review of Entomology, **51:** 91-111.

Hadrons and hoppers: inadvertent grassland conservation at CERN

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The name CERN (the European Organization for Nuclear Research) evokes high technology and cutting edge science; the LEP accelerator was hailed as the world's largest machine and the super-cooled magnets of the LHC made it, for a while, "the coolest place in the universe." When CERN was founded in the 1950s on the border of Switzerland and France, the area chosen to build it was agricultural and undeveloped, and the farming methods in use were relatively primitive. CERN continued to manage some of the site in the same way, more or less by default, while the surrounding area saw the building of the first satellite city in Switzerland in Meyrin, and a huge enlargement of the villages in neighbouring France, coupled with changes in agricultural practise and land management. Sampling of some CERN grasslands in 2016 revealed a leafhopper assemblage typical of broad-leaved neutral grassland; not an unexpected result. The interest of the site lies in the fact that there are extremely few comparable semi-natural habitats left in the surrounding landscape, and those that remain are managed with regard for the flora rather than communities as a whole. The leafhopper assemblages associated with these parcels are full of the same set of generalists with a wide spectrum of habitat use. The conservation management of the CERN semi-natural grasslands was happenstance rather than design, but they represent valuable blocks of habitat which can help to support metapopulations of leafhoppers in a highly fragmented system.

The invasion of *Bromus erectus* alters species diversity of vascular plants and leafhoppers in calcareous grasslands

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The most common mechanism of biological invasions is an increase in competition, which usually results in the loss of biodiversity. The invasion of *Bromus erectus* in calcareous grasslands of western and central Europe is well-documented. However, it is widely unknown to what extent this development affects biodiversity.

In this study, we analysed the effects of *B. erectus* invasion on vascular plant and leafhopper assemblages of calcareous grasslands. At each of the 15 randomly selected sites, we compared one plot with occurrence of *Bromus* (presence) and one without (absence) (paired design). The invasion of *B. erectus* affected vegetation structure as well as vascular plant and leafhopper assemblages. Despite similar

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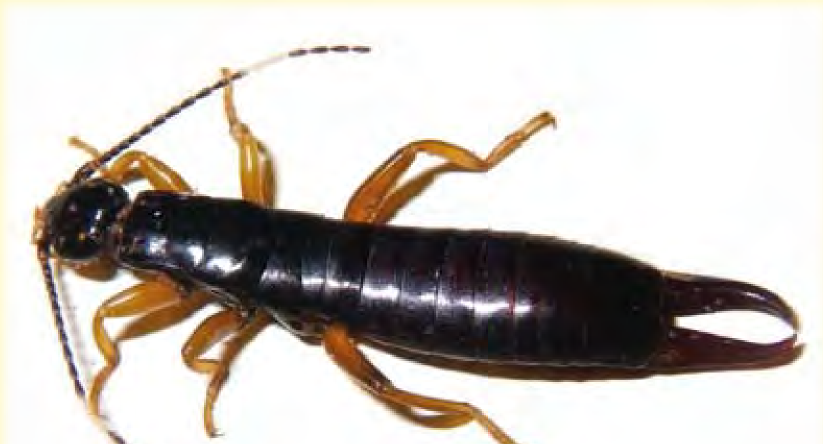

II. Insekten-Konferenz von DGaaE und DPG

Veränderung der Artenvielfalt, Monitoring und Maßnahmen für den Schutz von Insekten

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