



23<sup>rd</sup> International Workshop of the  
European Vegetation Survey

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*Book of Abstracts*



**23<sup>rd</sup> International Workshop of the European Vegetation Survey –  
Book of Abstracts**

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**Contents**

Welcome .....	5
Organising Committee .....	6
Scientific Committee .....	6
Program .....	7
Oral presentations – Abstracts .....	23
Poster presentations – Abstracts .....	102
List of participants .....	221

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### Invasive grasses reduce arbuscular mycorrhizal colonization of roots of resident species

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Recent research indicates that the soil microbial community, particularly arbuscular mycorrhizal fungi (AMF), can influence plant invasion in several ways. We tested if 1) invasive species are colonized by AMF to a lower degree than resident native species, and 2) AMF colonization of native plants is lower in a community inhabited by an invasive species than in an uninvaded resident community. The two tests were run in semiarid temperate grasslands on grass (Poaceae) species, and the frequency and intensity of mycorrhizal colonization, and the proportion of arbuscules and vesicles in plant roots have been measured. In the first test, grasses representing three classes of invasiveness were included: invasive species, resident species becoming abundant upon disturbance, and non-invasive native species. Each class contained one C3 and one C4 species. The AMF colonization of the invasive *Calamagrostis epigejos* and *Cynodon dactylon* was consistently lower than that of the non-invasive native *Chrysopogon gryllus* and *Bromus inermis*, and contained fewer arbuscules than the post-disturbance dominant resident grasses *Bothriochloa ischaemum* and *Brachypodium pinnatum*. The C3 and C4 grasses behaved alike despite their displaced phenologies in these habitats. The second test compared AMF colonization for sand grassland dominant grasses *Festuca vaginata* and *Stipa borysthonica* in stands invaded by either *C. epigejos* or *C. dactylon*, and in the uninvaded natural community. Resident grasses showed lower degree of AMF colonization in the invaded stand compared to the uninvaded natural community with *F. vaginata* responding so to both invaders, while *S. borysthonica* responding to *C. dactylon* only. These results indicate that invasive grasses supposedly less reliant on AMF symbionts have the capacity of altering the soil mycorrhizal community in such a way that resident native species can establish a considerably reduced extent of the beneficial AMF associations, hence their growth, reproduction and ultimately abundance may decline. Accumulating evidence suggests that such indirect influences of invasive alien plants on resident native species mediated by AMF or other members of the soil biota is probably more the rule than the exception.

### Palinological Reconstruction of Vegetation in the Sárrét Basin of Fejér County (western Hungary)

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The Sárrét marshland is situated along the northeastern foothills of the Bakony Mountains, located between Várpalota and Szekesfehérvár. The basin was created due to a depression process during the Late Pleistocene and this area is still depressing in the present.

In 2004 a 500 cm long core was deepened in the area, and after that in the spring of 2011 we had an opportunity to drill another 11 meters long core. Our aim was to detect the changes in the vegetation history of this marsh and – if it is possible – the biological history of the marshland.

The drilled sample was divided by 5–10 centimeters long intervals and 41 samples were selected among them for analyzing. According to these samples 5 pollen zones (LPAZ) could be defined. The first two zones reflect the climate change happened during the Pleistocene and the Holocene in the investigated area. This data helped us to reconstruct the former vegetation and understand the details of the climate changes occurred in the recent thousands of years. Since we could not date the samples by radiocarbon methods each zone was dated back based on previous palinological and malacological studies (Willis *et al.* 1997, Sümegi *et al.* 2007).

The goal of our research was to extend previous analysis carried out in this area earlier with newer data sets. In the future we are also intending to perform more detailed analysis regarding to the climate change and the former vegetation based on the recently drilled out core samples obtained from the same area.