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Book of Abstracts

Tulipa kosovarica

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Plenary lectures

Tulipa kosovarica

Recovery of a grassland community invaded by *Brachypodium rupestre* after multi-annual mowing treatment

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In the last decades, wide grassland areas of central Apennines underwent grazing cessation or decrease in livestock pressure below the theoretical carrying capacity. This triggered the spread of *Brachypodium rupestre*, a competitive stress-tolerant species, which plays a dominant role in grassland ecosystems, affecting species composition and diversity. The research aim was to understand the recovery mechanisms in a grassland community invaded by *B. rupestre*, after repeated mowing events. In a homogeneous calcareous area in central Apennines, undergrazed since about thirty years ago, we fenced an area invaded by *B. rupestre*, inside which we randomly selected 30 plots (0.5 x 0.5 m). Within each plot we collected species cover (%) in late June for six years. The area was mown every year in July and October. Litter and hay were removed after each mowing event. We assessed the trends of diversity indices, *B. rupestre* cover, cover of indicator species of each year (as determined by Indicator species analysis), and examined the change of the relation between diversity indices and *B. rupestre* cover, using linear regression.

We found that *B. rupestre* decreased significantly its cover; conversely, other species, especially some leguminous species and caespitose grasses, showed the opposite trend. Species richness, Shannon and Gini-Simpson indices increased significantly, especially after the first year of treatment. *B. rupestre* cover explained evenness variation among plots only before the treatment, suggesting the importance of the initial intervention of litter removal in triggering the start of a change in community structure. Shannon and Gini-Simpson indices were influenced up to the third year, indicating a marked change in community structure from the fourth year. Richness was not significantly related to *B. rupestre* cover neither before nor during the treatment, indicating that *B. rupestre* spread had not affected community's species pool before the start of the experimentation.

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