

111° Congresso della Società Botanica Italiana
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BOOK OF ABSTRACT

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1.4. = EFFECTS OF ABANDONMENT OF LAND TRADITIONAL MANAGEMENT ON SPECIES AND PHYLOGENETIC DIVERSITY. A CASE STUDY FROM THE NORTHERN APENNINE OF EASTERN TUSCANY

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Low altitude hay meadows (code 6510) and *Festuco-Brometea* dry grasslands (code 6210, habitat of priority interest) represent two habitats worthy of conservation according to the Annex I of the Habitat Directive (Council Directive 92/43/EEC). The abandonment of the traditional agro-pastoral activities exposes these habitats to strong transformations, often with the ingression of shrub species that lead these communities toward very different vegetation types that are of less relevance from a conservation point of view. This study aims to investigate the floristic changes in these habitats related to both the kind of management and the different stages of vegetation evolution after the abandonment of agro-pastoral activities in the eastern Tuscan Apennines. In addition, we also investigated the phylogenetic processes connected to the evolution of these habitats. The floristic data were recorded on 60 plots (10 × 2 types of habitat × 3 different stages of evolution) and 147 species were identified. A Bayesian phylogenetic tree was obtained by using nrDNA sequences available at the NCIB database and by performing new sequences for the 13 species not present in the world database. We compared the differences in species richness, species composition and Phylogenetic Diversity of the plots according to the different types of habitat and stages of evolution, also searching for eventual correlations between these two parameters. Species richness in the two grassland types appears comparable and consistently decreases with the increase of the abandonment level (Fig. 1B). On the other hand, the two habitats appear strongly separated regarding the species assemblages, while tend to be more similar in the transitional phase that follows the abandonment (Fig. 1A). The two habitats tend to segregate again in the more dynamically evolved stage characterized by a high shrub cover (Fig. 1A). Data from the phylogenetic studies reveal a strong loss in phylogenetic diversity related to the loss in species richness, although the final stages of hay meadow host a higher Phylogenetic Diversity and Mean Pairwise Distance than those derived from the dry grassland (Fig. 1C). The standardized effect size on MPD reveals a progressive phylogenetic overdispersion passing from the managed stages to the abandoned ones.

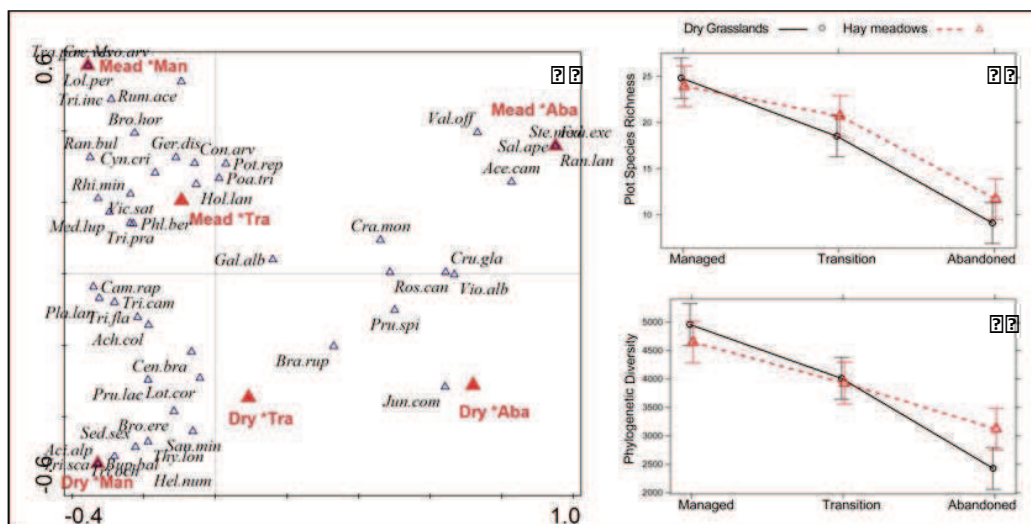


Fig. 1: (A) CCA plot for species composition of plots according to the kind of management and stages of evolution. Total variation is 4.98, explanatory variables account for 25.2%. Permutation Test Results: pseudo-F = 3.6, P = 0.0002. (B) Mean species richness and phylogenetic diversity (C) according to the kind of management and stages of evolution.