

Assessing environmental status of NE Iberian beech forests using lichen diversity

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European beech forests have their southwestern limit in the Iberian Peninsula, where they have to cope with more limiting climatic conditions. In addition, they have been managed intensively, like almost all forest habitats in the Iberian peninsula. The effect that climate and management have on forest habitats has a strong influence on epiphytic communities, namely lichens. Here, epiphytic lichen diversity is applied to evaluate the effects of management and land use on the northeastern Iberian beech forests. Epiphytic lichen diversity is evaluated based on terms of lichen diversity value (LDV) methodology. Apart from diversity, the composition of lichen communities in terms of ecological traits, thallus morphology, photobiont and reproduction has been considered. Sites were classified attending to criteria of naturalness, based on global LDV, and perturbation, based on relative composition in LDV value of eutrophic species. Beech forests host an epiphytic lichen community dominated by crustose, mesotrophic, mesohygrophytic and neutrophilous species. However, disturbances, such forest management or agriculture intensity, determines a shift in epiphytic lichen community promoting the abundance of eutrophic, xerophytic and basophilous species. Beech forests from the NE of the Iberian Peninsula have been enduring severe management conditions with intense agricultural land use, resulting in epiphytic lichen communities remaining in early states of succession. Such perturbations have promoted the increase in species associated to eutrophy and xerophily. The use of the criterion of naturalness does not give a real view on environmental quality of examined forests, because the increase in diversity resulted from species enhanced by perturbations. On the other hand, the application of a criterion based on the abundance of eutrophic species, used as a proxy of disturbances, has resulted in a more accurate evaluation of the current situation of these forests.