**Open dry habitats are crucial to preserve and understand terricolous lichen dynamics in human-impacted lowlands**

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Habitat loss is a major threat for biodiversity worldwide, including lichens. In temperate lowlands of Europe, open dry habitats (ODH), which are in general decline, support a high diversity of terricolous lichens, that are particularly threatened organisms. Lichen communities of three ODH types – *Calluna* heathlands, acidic grasslands, calcareous grasslands – were studied in 75 sites (287 circular plots, radius = 3 m) in the western Po Plain (Northern Italy), a human-impacted lowland area with temperate-continental climate. Richness, composition and functional traits of such communities were put in relation to climate, vegetation dynamics, substrate and disturbance by trampling and an invasive lagomorph (fecal pellets). Analyses were carried out using Generalized Linear Mixed Models and Fourth Corner Analysis, on three levels: across all the three ODH to investigate variation of communities; between the two grasslands to investigate the effects of disturbance; within acidic grasslands to evaluate the correlations of *Cladonia* functional traits (growth forms, reproduction, metabolites) with environmental variables. Thirty-five species were recorded overall, chiefly of genus *Cladonia*, among which several with biogeographical and/or conservation value for the whole Europe. Composition and richness of lichen communities varied significantly across the ODH types and were influenced mainly by vegetation dynamics, climate and substrate within each ODH. In grasslands, lichens were not affected by trampling, but were impacted by the invasive lagomorph with a soil pH-dependent response: on most acidic soils lichens almost increased under such disturbance, whereas on calcareous soils they were most heavily impacted. The study of *Cladonia* traits in acidic grasslands highlighted several significant correlations of different growth forms and metabolites with vegetation dynamics, temperature and precipitation, suggesting their possible reactions to habitat transformation and climate change. All these results highlight the importance of ODH for terricolous lichens in human-impacted landscapes and provide useful insights to plan their conservation-aimed management.