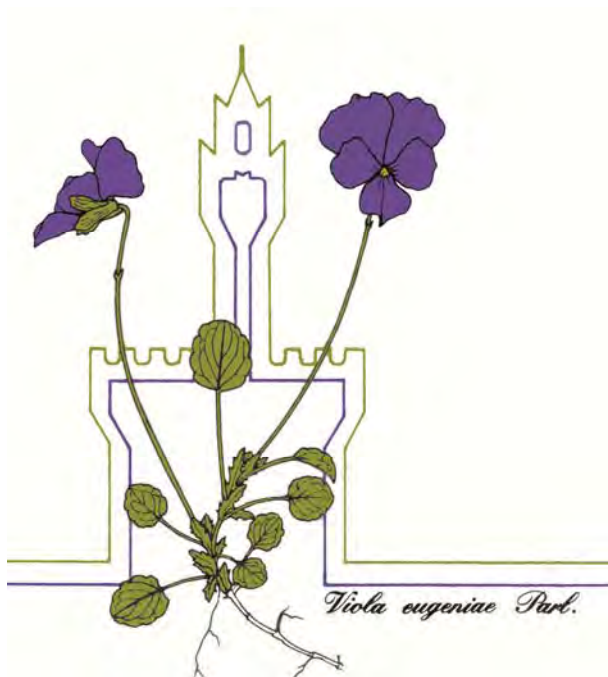


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ABSTRACTS

KEYNOTE LECTURES, COMMUNICATIONS, POSTERS



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1.5 = MONITORING THE EFFECTS OF GRAZING-MANAGEMENT ON PERFORMANCE AND SURVIVAL OF ORCHIDS IN XEROTHERMIC GRASSLANDS

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Xerothermic grasslands are among the most species-rich habitats in the Alpine region as well as in Europe as a whole (1). In the south-western Alpine foothills, where steppic continental elements are found together with sub-Mediterranean and Mediterranean species, these communities are of particular interest. These habitats are currently threatened by the progressive encroachment of trees and shrubs as a result of the abandonment of traditional low-intensity agricultural management. Semi-natural dry grasslands, therefore, constitute a major conservation target and are included as a priority habitat in the Habitats Directive 92/43/CEE (code 6210*). This work focuses on the monitoring activity being performed as part of the European Xero-grazing LIFE project (LIFE12 NAT/IT/000818), which began in 2013 and is being carried out in the Susa Valley (Piedmont, Italy). The purpose of the project is the restoration and long-term conservation of the semi-natural dry grasslands on calcareous substrates located in the SCI IT1110030 "Oasi xerothermiche della Valle di Susa - Orrido di Chianocco e Foresto", an area which is important for its large variety of orchids and Mediterranean species, the latter ones rare in the Alpine region. The habitat restoration is being implemented with a combination of two management strategies - shrub-clearing and sheep grazing. The aim of the monitoring activity is to determine the effects of these measures, in particular on orchids, which are a target species of conservation interest. This group of plants is known to have a complex life history, characterized by a long under-ground recruitment phase before emergence. Periodic phases of vegetative underground dormancy also make it difficult to distinguish dormancy from mortality in data analysis (2). Therefore, studies that investigate effects of management strategies on demography of orchid populations are particularly challenging. In the present study, we are examining the effects of re-introduced sheep grazing on orchids, with a particular focus on the most frequent species found in the study area: *Ophrys fuciflora*, *Orchis tridentata*, *Anacamptis pyramidalis*, *Epipactis atrorubens*. A total of 37 permanent plots, each of 25 m², were established where there was a relevant density of orchids. To disentangle the effects of management from the effects of other factors - e.g. climate and intrinsic orchid dynamics - 10 out of 37 plots were fenced to exclude sheep grazing, while the remaining plots were alternatively grazed for 4-6 weeks in late spring (May-June) and/or autumn (September-October). During the study period (2014-2017), plots were visited twice per season (before-grazing and after-grazing) with over 2000 ramets being individually assigned *x,y* coordinates using a 1x1 m grid, and then monitored. The following measurements were recorded for each ramet: the phenological status (vegetative, reproductive with flowers and reproductive with fruits), the number of leaves, the length and width of the largest leaf, the height of the flowering stalk and the number of flowers and fruits. GLMs were used to analyse the effects of grazing on the total number of vegetative and reproductive ramets, with respect to both the overall orchid population and each target species.

Preliminary results show a general increase over time of the total number of orchids in grazed plots compared to the control plots, consisting mostly of vegetative ramets. *O. fuciflora*, in particular, reflected this trend, which points to the beneficial effect of sheep-grazing. Further results and analysis will be presented and discussed.

1) M.F. Wallis De Vries, P. Poschlod, J.H. Willems (2002) *Biol. Conserv.*, 4, 265-273

2) R.P. Shefferson, J. Proper, S.R. Beissinger, E.L. Simms (2003) *Ecology*, 84, 1199-1206