

Adenophora liliifolia: impact of the site management, interaction with *Molinia arundinacea* and relation to light intensity

Abstract

Adenophora liliifolia is a continental geoelement belonging to the European-South-Siberian area. Over the last 50 years, natural habitats in which the species grows have largely decreased. Inappropriate forest management leads to shrubs and juvenile trees overgrowth that shadow *A. liliifolia*, and prevent the germination of its seeds. The main threat for this species overall is not only the poor genetic diversity but also the loss of suitable habitats and the modifications in its habitat's structure, including shrinking of its distribution area. The aim of this study was to assess the possible interspecific competition with *Molinia arundinacea* of the Swiss population, more precisely the influence of *M. arundinacea* on *A. liliifolia*'s growth and reproduction ($n = 37$). In four 10-m² plots, three replicas were created in which all the vegetation species were identified. The cover (in %) of all species in the plots was estimated together with *A. liliifolia* height, number of reproductive individuals, and number of flowers. In addition to this, the light intensity for 10 individuals in each site was measured to assess whether light availability also has an impact on the height and fitness status of the plant. It has been found that *M. arundinacea*'s mean cover has no influence on *A. liliifolia*'s mean cover but has a positive influence on its fitness status and height. Light intensity had no influence on any of the variables. This research allows more scientists to gather further information on the subject and gives evidence of the need to improve the planning of conservation strategy for this endangered species.

Keywords: *competition, ecology, endangered species, light intensity, Monte San Giorgio, reproductive status, Ticino, Switzerland*

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