

DIPARTIMENTO DI PIANIFICAZIONE DESIGN  
TECNOLOGIA DELL'ARCHITETTURA



SAPIENZA  
UNIVERSITÀ DI ROMA



# 54<sup>th</sup> SISV Congress

*Twenty years in the third millennium  
with Vegetation Science*

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## Abstract book

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Master di II livello

The 54th Congress of the Italian Society for vegetation Science was set to be hold in June 2020 at the Faculty of Architecture of the University of Rome. The explosion of the COVID-19 pandemic in the spring of last year led first to move the congress to October 2020 and then definitively to 2021. However, the persistence of the serious situation of COVID-19 infections in Europe during these first months of 2021 and the uncertainty about the results of the current vaccination campaign does not allow us to plan a “face to face” congress as we had planned it.

The SISV 2021 congress will therefore be carried out as a **virtual conference**.



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## RELATIONSHIPS AMONG VASCULAR PLANTS, MOSSES AND LICHENS IN GRASSLANDS COMMUNITIES ALONG ELEVATIONAL GRADIENTS

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Altitudinal gradients have been widely studied, especially on mountains, in order to investigate diversity patterns occurring among and within communities, on the basis of abiotic and biotic factors. Taking into account taxonomic diversity and functional diversity simultaneously is fundamental to shed light on the drivers that shape communities [3]. Moreover, for a better comprehension of the processes operating onto communities, it is critical to adopt a multi-taxa approach to adequately disentangle the role of abiotic and biotic effects on biodiversity [2]. Although vascular plants are the main group of organisms inhabiting grasslands, these habitats are important even for mosses and terricolous lichens, especially in a perspective of elevation gradient [1, 4]. For this reason, we decided to investigate how diversity of these three groups changes in grasslands along an elevational gradient.

We surveyed grassland communities along the elevation gradient (the last 800 m of elevation) of two study areas in Tuscany (Pania della Croce and Monte Prado). A total of 80 randomly placed quadrat plots of 2 x 2 m were used to assess vascular plants, mosses and lichens species abundance and sample their functional traits. A set of environmental variables were measured at plot level in order to characterize sites' microtopography and soil.

Preliminary analyses showed that the increase of species richness of mosses and lichens with elevation is mainly due to a decrease of vascular plants community (in particular coverage and height of vegetation) and not directly to altitude. Nevertheless, using other biodiversity indices (e.g. Rao index), we found weaker relationships between vascular plants and mosses and lichens communities. In order to take into account a wide set of possible relationships among different communities and environmental variables, we performed structural equation models (SEM). Our preliminary results obtained by SEMs showed that elevation is weaker in shaping vascular plant biodiversity compared to soil characteristics (i.e. N content or outcrops). Moreover, it was confirmed that the vascular plant community is the main driver that affects both taxonomic and functional diversity of mosses and lichens. In particular, we found that it is the functional diversity of vascular communities that showed more effects on other communities compared to taxonomic one.

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