



# Abstract book

## 53° Congresso della Società Italiana di Scienza della Vegetazione

### **Gestione sostenibile degli habitat:**

*plant traits*

*biodiversità*

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Sassari  
30 maggio - 1 giugno 2019



A cura di  
Giovanni Riveccio e Simonetta Bagella



## Impact of a seabird-breeding colony on the vegetation of a small Mediterranean island

D. Dagnino<sup>1</sup>, C.N. Macri<sup>1</sup>, L. Ulzi<sup>1</sup>, G. Casazza<sup>2</sup>, M. Guerrina<sup>1</sup>, M.G. Mariotti<sup>1</sup>, L. Minuto<sup>1</sup>.

<sup>1</sup>Università di Genova, Dipartimento di Scienze della terra, Ambiente e Vita, Corso Europa 26, 16132 Genova, Italy.

<sup>2</sup>Aix Marseille Université, Avignon Université, CNRS, IRD, IMBE. Technopôle de l'Arbois-Méditerranée, BP 80, 13545 Aix-en-Provence cedex 4, France

email: [davide.dagnino@fastwebnet.it](mailto:davide.dagnino@fastwebnet.it)

Within the Mediterranean Basin thousands of islets have exceptionally high levels of plant diversity, playing a key role in this world major biodiversity hotspot. However, these delicate ecosystems are prone to the demographic explosion of seabird species, establishing here their breeding colonies. It has been demonstrated that the pressure caused by seabirds can drastically change the plant communities occurring on islets. To assess the impact of seabirds on the vegetation of a Mediterranean islet, we compared the plant communities of Bergeggi islet, harbouring the largest breeding colony of yellow-legged gulls (*Larus michahellis*) of Liguria (NW Italy), to the analogous ones occurring on the near mainland seacoast (where gulls' disturbance is low or absent).

In each plant community (i.e., Mediterranean maquis, abandoned olive grove invaded or not by maquis, halophilous communities on cliffs and ruderal herbaceous vegetation) we performed a phytosociological survey following the Zurich-Montpellier school approach. We tested the difference in floristic composition of the two groups of relevés (i.e.: islet vs. mainland) using the analysis of similarities (ANOSIM) and the difference in species richness (i.e., total number of taxa) and diversity (i.e., Shannon-Wiener diversity index) using the Kruskal-Wallis test. The species significantly associated to each group of relevés were identified using Species Indicator Analysis (INDVAL). We represented the relationship among phytosociological relevés using a Principal Component Analysis (PCA), considering each species as a semi-quantitative variable. Finally, we performed a phytosociological framework of the relevés referring to the class rank.

The floristic composition of plant communities of the islet and the mainland were significantly different (ANOSIM:  $R = 0.61$ ,  $p\text{-value} = 0.007$ ). The species richness and species diversity on the islet were significantly lower from the mainland ones (Mean richness 10 vs 20 and mean diversity 2.28 vs 2.94). The species significantly associated to the islet' relevés were mainly ruderal and nitrogenous-phosphorous tolerant plants (RNPs – i.e., *Urtica membranacea*, *Asparagus acutifolius*, *Parietaria judaica*, *Piptatherum miliaceum* and *Mercurialis annua*); conversely the species significantly associated to the mainland' relevés were Mediterranean taxa (non RNPs – i.e., *Piptatherum caeruleum*, *Pistacia lentiscus*, *Lobularia maritima*, *Smilax aspera* and *Rhamnus alaternus*). In the PCA the islet's relevés grouped together mainly because of the presence of RNPs shared by most of the relevés; conversely, the mainland's relevés were not clearly lumped together (coherently with their higher values of species diversity) and they were mainly characterized by Mediterranean species. From a phytosociological perspective, the islet' and mainland' relevés were mainly referable to the *Quercetea ilicis* and *Gallio aparines-Urticetea dioicae* classes, respectively; only the plant communities on the cliffs shared their phytosociological framework between islet and mainland (*Crithmo maritimi-Staticetea* x *Saginetea maritimae* classes).



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ISBN 979-12-200-4980-1



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