

## Preface

# Flora and insular diversity

Francesco M. Raimondo

Orto Botanico and Herbarium Mediterraneum, University of Palermo, Italy; e-mail: francesco.raimondo@unipa.it

Proceedings of the 1<sup>st</sup> International Congress “Insularity and Biodiversity”, May 11<sup>th</sup>-13<sup>th</sup>, 2012 - Palermo (Italy)

---

As it is well known, the flora of a continental region as that of an island represents the results of interaction between actual environmental factors and other ones of historical nature. Therefore, the flora of any geographical region consists of the whole of plant species that evolved there together with those that gradually arrived from other regions through natural vectors.

Indeed, insularity is a condition circumscribed to a terrestrial spatial context, basically subject to isolation with respect to another equal, similar, context or else a quite different, being separated through any barrier. This condition physically conforms with the geographical unit defined by the term “island” (latin *insula*): the barrier is generally the sea or however by water; but it could also be represented by quite different environmental system. From a biological point of view, according to Greuter (2001) island is an insulating barrier; mountains surrounded by extensive plains, bogs and lakes circumscribed to arid zones, woody topsoils within the steppe are even islands. In fact, the flora of the Mediterranean Region takes its richness and peculiarity from the huge fragmented habitats and isolation phenomena, not always generated by orographical or aquatic barriers. The contributions presented in the symposium “Flora and insular diversity” whose proceedings are presented here, almost refer to the system “island” in its usual meaning of territory surrounded by the sea.

The role played by the insular factor in the genomic processes of plant diversity has been very carefully followed by the scholars, taxonomists and phyto-geographers in particular. On this regard, the Mediterranean biogeographical region, whose flora is among the richest in comparison with its geographical range, which is marked by quite peculiar events of both climatic and geological nature and by a huge number of continental island systems, has represented an important laboratory for biological researches and interpretations. Indeed, many studies on this field are definitely referred to the Mediterranean area. Among these, I just remember the numerous contributions by Werner Greuter who in many occasions treated this topic with special regard to Crete and the Aegean islands, where he carried many personal surveys (Greuter, 1970, 1972, 1975a, 1975b, 1979, 1980, 1991, 1995, 2001).

As remarked by several scholars, insularity is at the same time a geographical barrier and an important factor in the reproductive isolation, at least as the spatial separation is concerned. The reproductive isolation, according to Gerola (1995), as it obstructs genes to freely migrate among populations belonging to the same species, supports ecotypes to assert themselves and then allowing do new species form when they likely could not establish themselves without continue interbreeding, by gene migrations from each ecotype - or population - to other. These are, there-

fore, outside impediments, as defined by George L. Stebbins, the American botanist and geneticist, father of the plant biosystematics, otherwise insuperable barriers affecting both pollination processes and the dispersal of species. Therefore, islands are at the same time conservative and creative for the plant life.

This statement is confirmed by the contributions at the symposium "Flora and insular diversity". These are preeminently dealing with topics concerning the plant diversity in the Mediterranean islands. There is also included an additional contribution which brings into focus the consequences of insularity on the plant evolution under another both geographical and climatic range. In particular, the system which is flood-lit is the Archipelago of Soqatra, in the Indian Ocean, a small orographically diversified area, strategically placed in front of the African Horn, westwards, and the Arabian Peninsula eastwards, respectively.

In conclusion, the contributions here presented confirm the rule: wherever plants are located, islands are both creative and conservative centre of diversity, and on the whole contribute supporting the biological evolution of the Earth.

## REFERENCES

- Gerola F.M., 1995. *Biologia e diversità dei vegetali*. UTET, Torino.
- Greuter W., 1970. Zur Paläogeographie und Florensgeschichte der südlichen Ägäis. *Feddes Repert.* 81: 233-242.
- Greuter W., 1972. The relict element of the flora of Crete and its evolutionary significance. In: Valentine D.H. (Ed.), *Taxonomy, phytogeography and evolution*. London & New York, pp. 161-177.
- Greuter W., 1975a. Die Insel Kreta - eine pflanzengeographische Skizze. - *Veröff. Geobot. Inst. ETH Stiftung Rübel Zürich* 55: 141-197.
- Greuter W., 1975b. Historical phytogeography of the southern half of the Aegean area. In: Jordanov D., Bondev I., Kozuharov S., Kuzmanov B., Palamarev E. & Velcev V. (Eds.), *Problems of Balkan flora and vegetation. Proceedings of the first international symposium on Balkan flora and vegetation, Varna, June 7-14, 1973*. Sofija, pp. 17-21.
- Greuter W., 1979. The origin and evolution of island floras as exemplified by the Aegean archipelago. In: Bramwell D. (Ed.), *Plants and island*. London & New York, pp. 87-106.
- Greuter W., 1980. The endemic flora of Crete and the significance of its protection. In: Antipas B. (Ed.), *Praktika synedriou prostaasias panidas-hlôridas-biotopôn. Athênai* 11-13 Oktôbriou 1979, pp. 91-97.
- Greuter W., 1991. Botanical diversity, endemism, rarity, and extinction in the Mediterranean area: an analysis based on the published volumes of *Med-Checklist*. *Botanica Chronica*, 10: 63-79.
- Greuter W., 1995. Origin and peculiarities of Mediterranean island floras. In: Quézel P. (Ed.), *Connaissance et conservation de la flore des îles de la Méditerranée. Ecologia Mediterranea*, 21: 1-10.
- Greuter W., 2001. Diversity of Mediterranean island floras. *Boccone*, 13: 55-64.