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The islets of the Ionian coast of Sicily: flora and vegetation records highlight changes of human land use over the past 100 years

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Historical flora and/or vegetation surveys highlight how the small islands of the Ionian coast of Sicily (Bella, Ciclopi islands, Vendicari, Capo Passero), currently protected as Nature Reserves and/or part of the Natura 2000 network have undergone major landscape changes following alterations in anthropogenic pressure. Landscape changes have been more prominent for the islands located in the northern part of the Ionian coast, with the consequence of increasing populations of invasive alien species. In contrast, landscape changes have decreased in the southernmost islands as indicated by the recovery of natural wood vegetation.

In order to evaluate the vegetation cover changes over the last 70-100 years, data was collected from unpublished and published studies, historical vegetation surveys, aerial photographs and maps. A phytosociological analysis of plant communities was conducted and the data collected was subjected to multivariate analysis using Syntax 2000 software. In order to characterise the islands from a vegetation point of view, 264 phytosociological relevés (plots), listing each species cover-abundance values and measured environmental variables, were performed. 111 of the relevés were from Ciclopi islands (Acicastello, East-Sicily), 19 relevés from Vendicari (Noto, South-East Sicily), 85 relevés from Bella (Taormina, East Sicily) and 49 relevés from Capo Passero (Portopalo, South Sicily).

On the Ciclopi islands, the main plant communities observed were: shrubland vegetation (*Oleo-Ceratonion siliquae*), rocky coast communities (*Crithmo-Stacion*), cliff vegetation (*Anthyllidion barbae-jovis*), halo-nitrophilous vegetation (*Pegano-Salsoletea*), spring-flowering meadows (*Frankenion pulverulentae*) and nitrophilous communities (*Allion triquetri* and *Echio-Galactition tomentosae*).

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On Vendicari, the main plant communities recorded were: annual halo-nitrophilous vegetation (*Cakiletea maritimae*), embryonic dunes and stable dunes vegetation (*Ammophiletea* and *Crucianelletalia maritimae*), halo-subnitrophilous vegetation (*Suaedion verae*), ephemeral dry grasslands (*Cutandietalia divaricatae*), perennial halophilous vegetation of rocky coast (*Arthrocnemion macrostachyi*), halo-nitrophylous microphytes (*Saginetea maritimae*) and nitrophilous vegetation (*Thero-Brometalia*).

On Bella islet, the plant communities observed were: scrub vegetation (*Oleo-Ceratonion siliquae*), rupicolous communities (*Dianthion rupicolae*), rocky coast communities (*Crithmo-Limonietea*) and halo-nitrophylous microphytes (*Saginetea maritimae*).

On Capo Passero the plant communities recorded were: perennial halophilous vegetation of rocky coast (*Arthrocnemion macrostachyi*), spring-flowering therophytic subhalophilous meadows (*Frankenion pulverulentae*), shrubs vegetation (*Oleo-Ceratonion siliquae*), chamaephytic communities (*Cisto cretici-Ericion manipuliflorae*), annual halo-nitrophilous vegetation (*Cakiletea maritimae*) and dunal vegetation (*Ammophiletea* and *Crucianelletalia maritimae*).

Overall in the last decades, these small islands, considered as a microcosm with defined boundaries, have been subjected, to strong protection and limitations of land use, therefore they represent an exceptional opportunity to verify the vegetation dynamics and colonisation/extinction mechanisms of different species. Specific and targeted conservation actions are essential to safeguard local biodiversity from alien invasive species, particularly acute in this microcosm, but also in many circum-Sicilian islands.