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# Non-native flora of *Asinara* National Park (Italy): a first checklist and a preliminary analysis to support management measures

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## BACKGROUND

Islands and protected areas are of high interest for conservation, due to their biodiversity and cultural heritage. However, they are facing problems globally due to the introduction of invasive alien species. Moreover, alien plants may constitute a significant percentage of the total species richness even in these areas. The *Asinara* island (Italian National Park) island located in the Northern part of Sardinia, and it was recognized as Site of Community Importance (SCI).

Human activities, fire, grazing, and agriculture have greatly modified its natural vegetation and landscape. In fact, the island was used in the past as a penal colony. Thus, human effects are also evident in the composition of the non-native flora. We present the first checklist of non-native plant species for the *Asinara* National Park (ANP) and present preliminary results of the analysis.



Fig. 1 – Guide to the flora of the Asinara National Park.

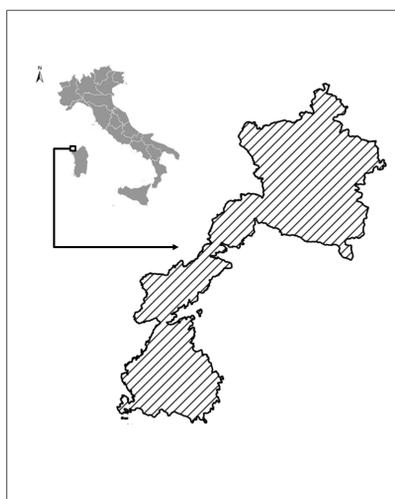


Fig. 2 – Study area. Asinara National Park (north-western Sardinia, Italy).

## GOAL

We present the first checklist of non-native plant species for the Asinara National Park (ANP) and present preliminary results of the analysis. Data was collected from previous studies and dedicated field surveys. This first checklist of non-native plants for the ANP aims to be a first step towards a better understanding of the floristic composition of introduced plants in the island, and to establish priorities for intervention (from eradication to control).

## Alien flora



Fig. 3 – Alien species in the Asinara National Park: a) *Agave americana* L., b) *Pinus halepensis* Mill., c) *Erigeron bonariensis* L., d) *Vachellia karroo* (Hayne) Banfi & Galasso, e) *Austrocylindropuntia cylindrica* (Lam.) Backeb., f) *Yucca aloifolia* L.

## PRELIMINARY RESULTS

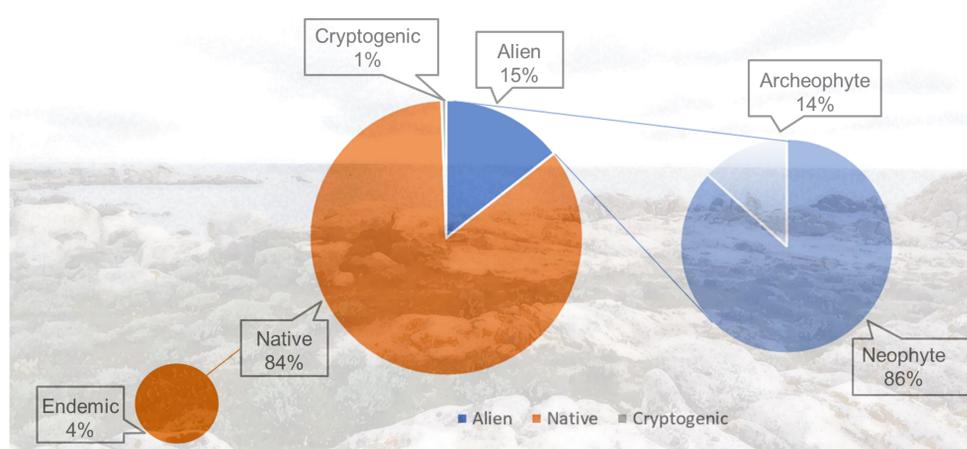


Fig. 4 – Chart of non-native (alien), cryptogenic and native species present in the Asinara National Park.

Based on this dataset, 15% are represented by non-native plant species of the whole flora of the island (ca. 730 species), and four of them are cryptogenic. Neophytes represent most of the whole alien flora (86 % of the total) and, in confront to archaeophytes, gather nearly all introduced taxa (91 vs 14). Among the taxa introduced intentionally, the vast majority are ornamental plants (e.g., *Agave americana*, *Aloe arborescens*, *Hibiscus syriacus*), 5% taxa were introduced for other uses, ranging e.g., timber production, windbreaks, shading (e.g., *Eucalyptus globulus* subsp. *globulus*) and as crops (e.g., *Avena sativa*).



Fig. 5 – Endemic species representing the landscape of the Asinara National Park: a) *Centaurea horrida* Badarò, b) *Bryonia marmorata* E.Petit

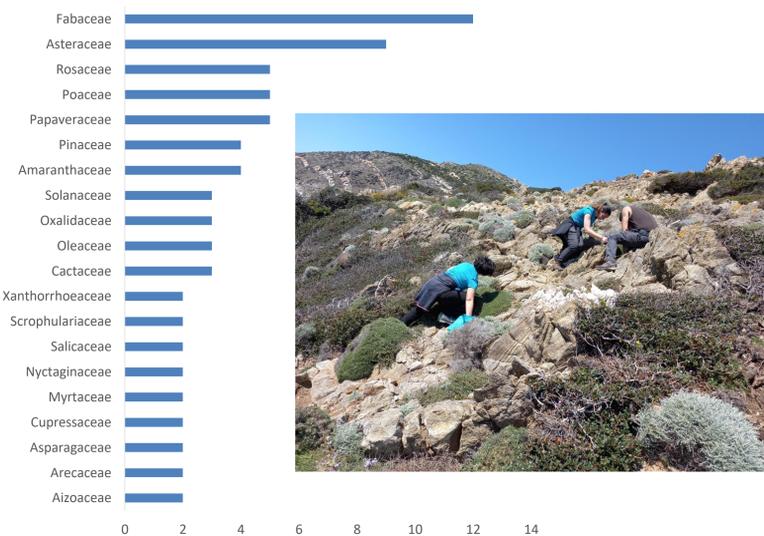


Fig. 6 – The most representative families of the non-native species of the Asinara National Park.

This first checklist of non-native plants for the ANP aims to be a first step towards a better understanding of the floristic composition of introduced plants in the island, and to establish priorities for intervention (from eradication to control). Importantly, ANP hosts a significant number of endemic plant species (4%), many of which are threatened by invasive plants due to competition and habitat modification.