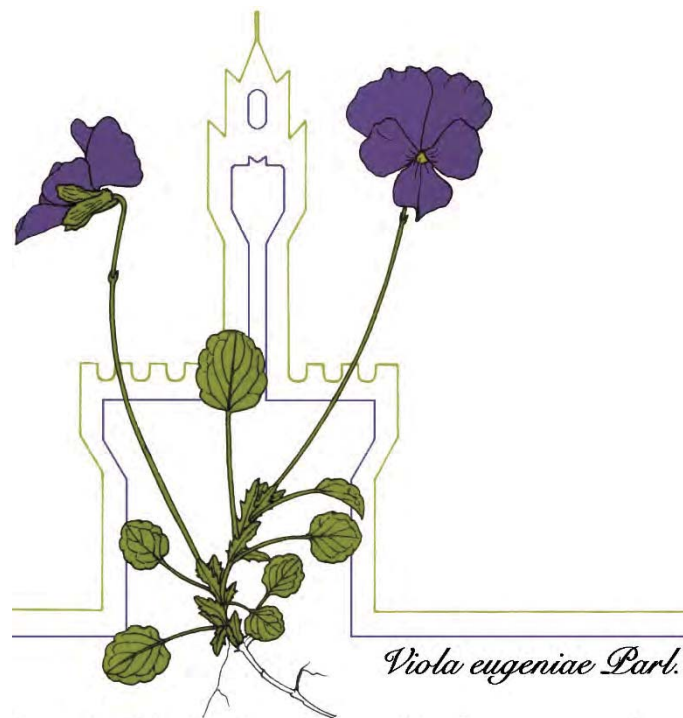


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PISA, 13 - 16 SEPTEMBER 2023



ABSTRACTS

KEYNOTE LECTURES, COMMUNICATIONS, POSTERS

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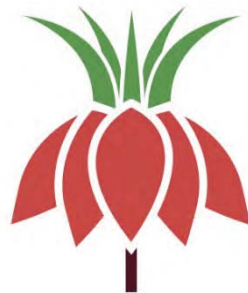
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4.2 = Comparing the impacts of the two alien species (*Carpobrotus*, *Opuntia stricta*) on plant and invertebrate communities in small Mediterranean islands

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Carpobrotus spp. and *Opuntia stricta* are important invasive alien plants (IAPs) in Mediterranean habitats, particularly on in island systems. Despite the negative ecological impacts of *Carpobrotus* spp. on soil and vegetation have been widely documented, their impacts on invertebrate communities are poorly understood. From the few studies undertaken, an increase in the species richness of beetles and spiders has been observed after the removal of this invasive species (1, 2). As regards *Opuntia stricta*, there are as well few studies on its impact on invertebrate communities, in favour of others more focused on its socioeconomic impacts and on plant diversity loss. Contrary to what has been found for *Carpobrotus* spp., *Opuntia stricta* seems to not significantly affect spider communities in terms of species richness, density or assemblages, but it does significantly affect beetle assemblages (3). Our study aims to assess the impacts of these IAPs on native plant and invertebrate communities in Giglio and Capraia, two small islands of the Tuscan Archipelago (Italy).

Thanks to data previously collected in the Tuscan Archipelago, it was possible to plan a consistent sampling design for both islands. For what concerns Giglio Island and *Carpobrotus* spp., we created an experimental design involving the two most invaded areas of the island, Fenaio, to the north, and Capel Rosso, to the south. We randomly launched 18 square plots of 4 m² size, 6 in the invaded area, 6 in the uninvaded area and 6 where the species were manually removed one year before. All of these plots were located within habitats of conservation interest and at least 25 meters apart from one another. For each of them, we recorded data on plant species occurrence, their abundance. Furthermore, we collected soil samples for the Berlese funnel method and for soil microbiota analysis and sampled ants using pitfall traps.

As regards Capraia Island and *Opuntia stricta* species, we randomly launched 12 square plots of 4 m² size, 6 in invaded areas and 6 in uninvaded ones. Then, we recorded plant species occurrence, their abundance and collected the soil samples for Berlese analyses and ants as described above.

Preliminary results show a decrease in plant species richness in the invaded areas compared to the uninvaded ones in both cases. We detected a greater loss of plant species in the case of *Carpobrotus* spp. invasion than in the case of *Opuntia stricta* invasion, given the ability of the former to build suffocating monospecific mats. As regards the impacts on the pedofauna, *Opuntia stricta* does not seem to change completely soil structure and invertebrate communities, while *Carpobrotus* spp., consistently with the literature, significantly modify edaphic properties and invertebrate communities. Future prospects include assessing impacts on other invertebrate groups such as mollusks.

1) J. Braschi, O. H elard, C. Mazzia, P. Oger, P. Ponel, E. Buisson (2021) Biodiversity and Conservation 30, 497-518.

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