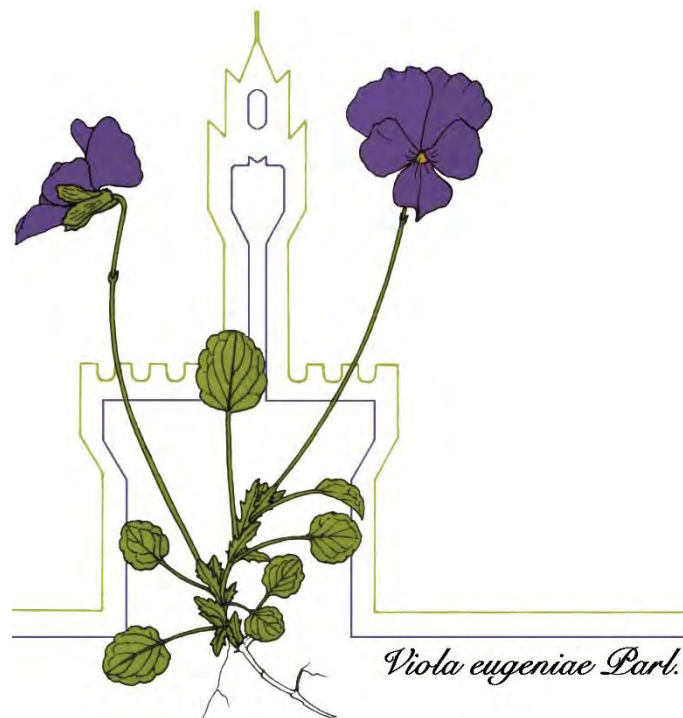


117° Congresso della Società Botanica Italiana

VIII INTERNATIONAL PLANT SCIENCE CONFERENCE (IPSC)

BOLOGNA, 7 - 10 SEPTEMBER 2022



ABSTRACTS

KEYNOTE LECTURES, COMMUNICATIONS, POSTERS

Scientific Committee

Alessandro Chiarucci (Università di Bologna)
Presidente
Stefania Biondi (Università di Bologna)
Antonella Canini (Università di Roma Tor Vergata)
Giovanni Cristofolini (Università di Bologna)
Stefano Del Duca (Università di Bologna)
Vincenzo De Feo (Università di Fisciano)
Giannantonio Domina (Università di Palermo)
Goffredo Filibeck (Università della Toscana)
Marta Galloni (Università di Bologna)
Maria Paola Germanò (Università di Messina)
Lorenzo Gianguzzi (Università di Palermo)
Marcello Salvatore Lenucci (Università del Salento)
Stefano Loppi (Università di Siena)
Filippo Maggi (Università di Camerino)
Michela Marignani (Università di Cagliari)
Lorella Navazio (Università di Padova)
Fabio Orlandi (Università di Perugia)
Rossella Pistocchi (Università di Bologna)
Ferruccio Poli (Università di Bologna)
Gianni Sacchetti (Università di Ferrara)
Laura Sadori (Università La Sapienza, Roma)
Luigi Sanità di Toppi (Università di Pisa)
Solveig Tosi (Università di Pavia)
Giuseppe Venturella (Università di Palermo)

Local Committee

Iris Aloisi (iris.aloisi2@unibo.it)
Fabiana Antognoni (fabiana.antognoni@unibo.it)
Stefania Biondi (stefania.biondi@unibo.it)
Fabrizio Buldrini (fabrizio.buldrini@unibo.it)
Marco Cantonati (marco.cantonati@unibo.it)
Davide Cavalletti (davide.cavalletti@unibo.it)
Alessandro Chiarucci
(alessandro.chiarucci@unibo.it)
Stefano Del Duca (stefano.delduca@unibo.it)
Maura Ferri (maura.ferri@unibo.it)
Manuela Mandrone
(manuela.mandrone2@unibo.it)
Umberto Mossetti (umberto.mossetti@unibo.it)
Juri Nascimbene (juri.nascimbene@unibo.it)
Luigi Parrotta (luigi.parrotta@unibo.it)
Laura Pezzolesi (laura.pezzolesi@unibo.it)
Rossella Pistocchi (rossella.pistocchi@unibo.it)
Ferruccio Poli (ferruccio.poli@unibo.it)
Mirko Salinitro (mirko.salinitro2@unibo.it)
Annalisa Tassoni (annalisa.tassoni2@unibo.it)
Alessandra Zambonelli
(alessandr.zambonelli@unibo.it)

With the patronage of



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Sponsor



Koeltz Botanical Books



10 = Use of drones for environmental monitoring and rare plants conservation status: a new tool for botanical research

Gianmarco Tavilla¹, Alessandro Crisafulli², Arthur Lamoliere³, Veronica Ranno¹, Giulia Bacilliere¹, Salvatore Cambria¹, Pietro Minissale¹, Gianpietro Giusso del Galdo¹, Saverio Sciandrello¹

¹Department of Biological, Geological and Environmental Sciences, University of Catania, Via A. Longo 19, 95125 Catania, Italy; ²Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina, Via Stagno d'Alcontres, 98100 Messina, Italy; ³Institute of Earth Systems, University of Malta, Msida, Malta

The use of aerial images offer an efficient and cost-effective support for assessing the conservation status and monitoring the distribution range of rare and isolated plant species, as well as Invasive Alien Plants (IAPs). The development of remote sensing is no longer limited to satellite imagery. In the last decade, consumer-grade Unmanned Aerial Vehicles (UAVs) extended the scope and accuracy of vegetation mapping and native plant investigations. UAVs are versatile and cost-effective tools for environmental monitoring. In particular, they allow to evaluate the occurrence of endemic/rare species on inaccessible growing sites and monitoring plant cover changes over time.

Such new botanical research tool has two main advantages: 1) it allows to have more reliable data on alien and rare/narrow endemic plants, and 2) data sampling does not affect the natural populations or endangers the field researchers. Besides, these concrete actions are useful in implementing any decision involved in the management of a protected area. An accurate census is essential both for habitat management and for monitoring rare/narrow endemic species distribution, as well as to evaluate invasion and invasiveness of alien plants. Nevertheless, site accessibility may represent a significant obstacle, particularly for those species exclusively occurring on fragile and inaccessible habitats.

Currently, we are carrying out drone field surveys to improve knowledge about rare/narrow endemic species no longer recorded, especially in inaccessible areas, poorly affected by grazing and human impacts. In addition, we are implementing a database of orthophotos processed from drone aerial surveys both in Sicily and Malta (Figs. 1 and 2). One of the project's target is the identification of the spectral signatures of IAPs. Moreover, this work aims to facilitate the census of rare/narrow endemic plant species with peculiar morphology and the real or potential competition with IAPs.

This research is supported by the FAST Project "Fight Alien Species Transborder" Programme INTERREG V-A Italia-Malta 2014-2020.



Fig. 1. UAV image of rupicolous species at Rocca Salvatesta Cliff, Peloritani Mounts, Sicily



Fig. 2. UAV image of *Carpobrotus* sp. at San Lawrenz Cliff, Dwejra, Gozo