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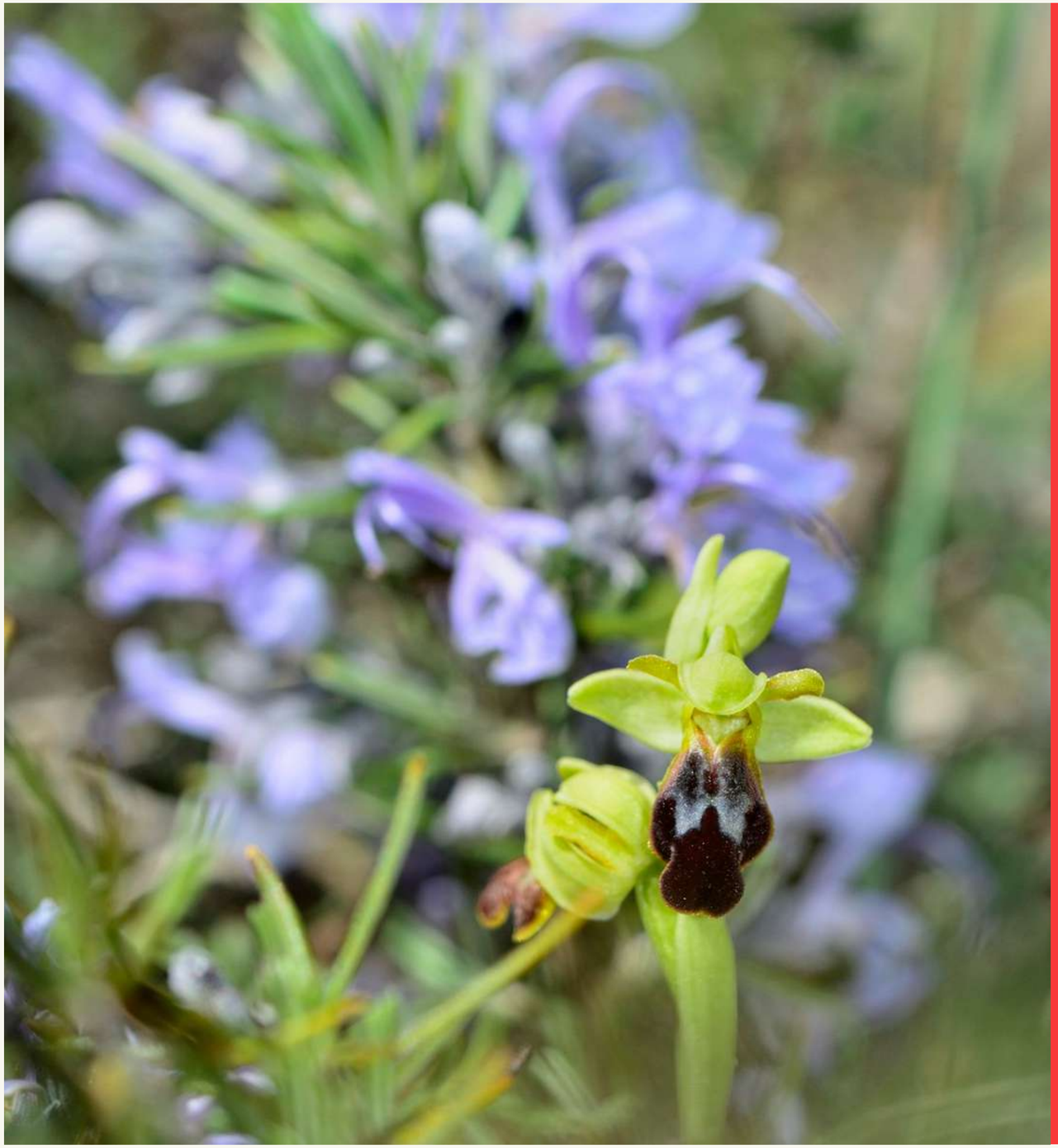
Developing databases with orchids as target group

A link between biogeography and biological conservation

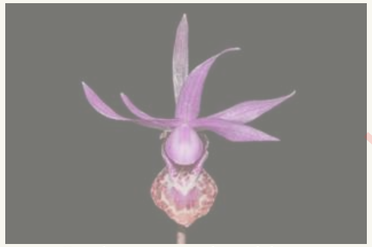
BIOME
BIODIVERSITY & MACROECOLOGY
UNIVERSITY OF BOLOGNA

Michele Lussu
Centro Interuniversitario per la Biodiversità Vegetale Big Data -
PLANT DATA Alma Mater Studiorum Università di Bologna, LifeWatch ERIC

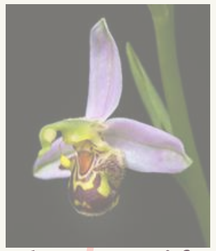
LifeWatch
ITALIA



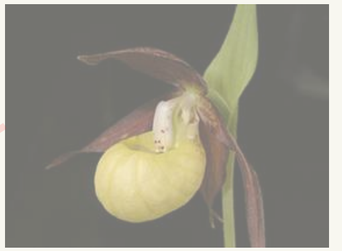
Why orchids?



Calypso bulbosa

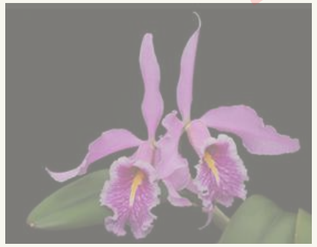


Ophrys apifera



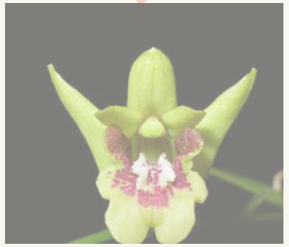
Cypripedium calceolus

Orchids are ideal candidates to investigate ecological patterns as they are numerous, diverse, and well surveyed for many ecosystems.



Cattleya maxima

Disa unicolor



Dendrobium closterum

Research lines

Biogeography

Conservation Biology

Aim

Create a dataset of orchids of the Mediterranean Basin

Framework

DATA PROVIDERS

DATA HARMONIZATION

SERVICES

LifeWatch ITALIA

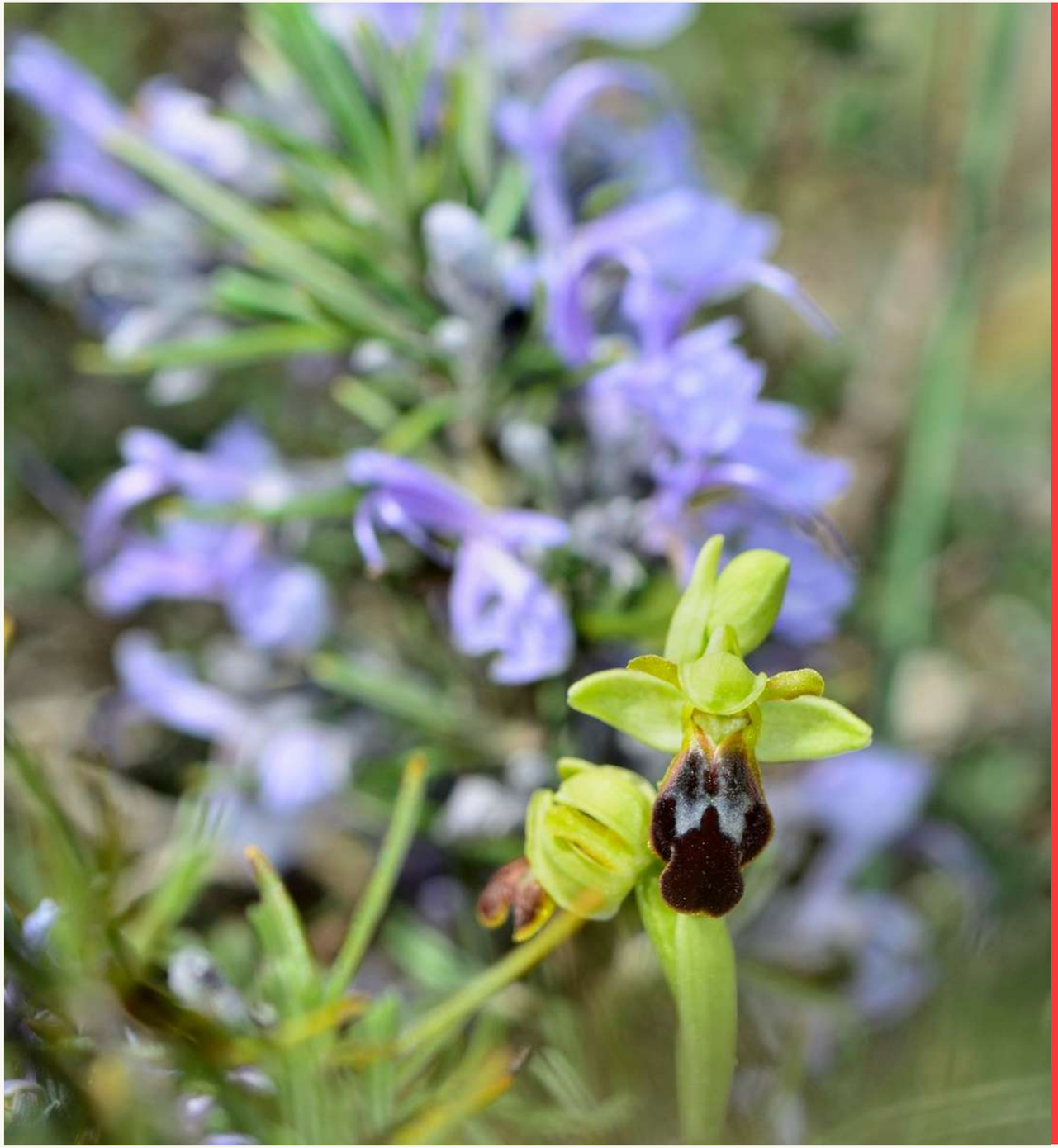
Who are the data providers?

Who are the data providers?

Who are the data providers?

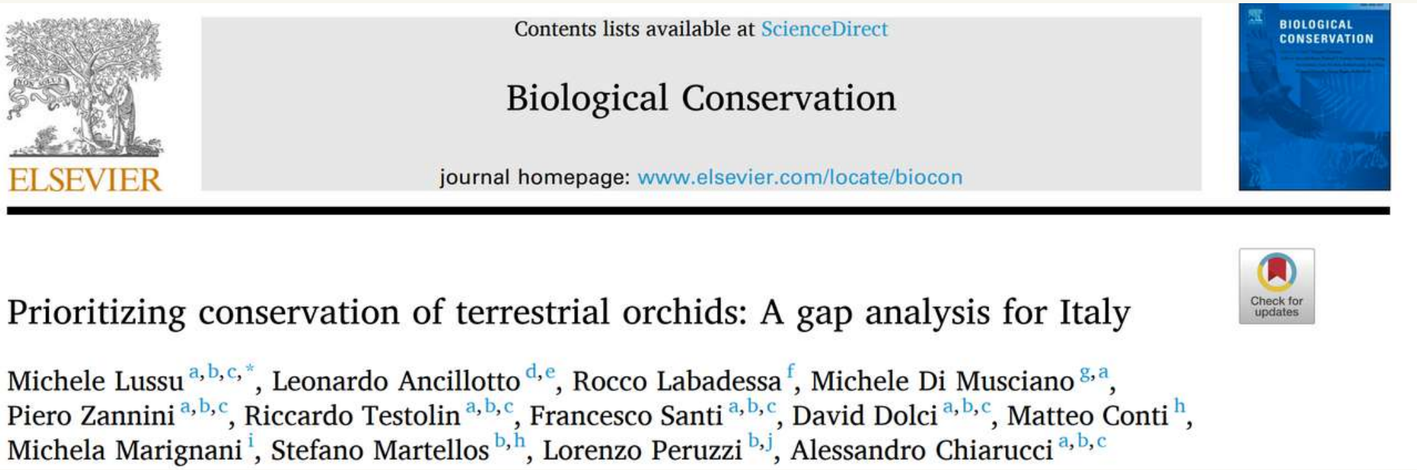
COLLEAGUES!

THE IMPORTANCE OF CREATING A NETWORK OF PEOPLE AND DEVELOPE **TOGETHER** WORKING GROUPS



OUR RESULTS (SO FAR)

Our publications



Contents lists available at ScienceDirect

Biological Conservation

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Prioritizing conservation of terrestrial orchids: A gap analysis for Italy

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how the actual Italian PAs network protect orchids

SARS and pollination syndromes

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Journal of Biogeography

WILEY

RESEARCH ARTICLE

Biogeography of orchids and their pollination syndromes in small Mediterranean islands

M. Lussu[1,2,3] | P. Zannini[1,2,3] | R. Testolin[1,2,3] | D. Dolci[2] | M. Conti[3,4] | S. Martellos[2,3,4] | A. Chiarucci[1,2,3]

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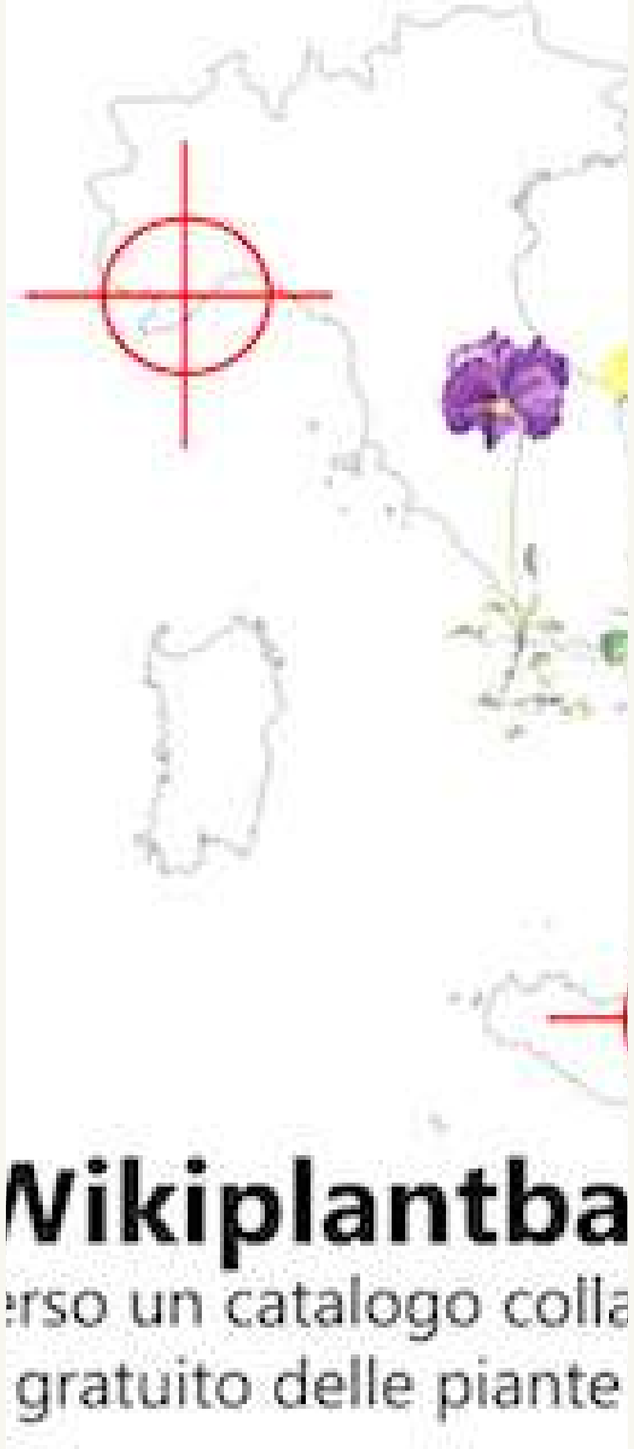
main question:

how the actual Italian PAs network protect orchids

Data gaining and cleaning

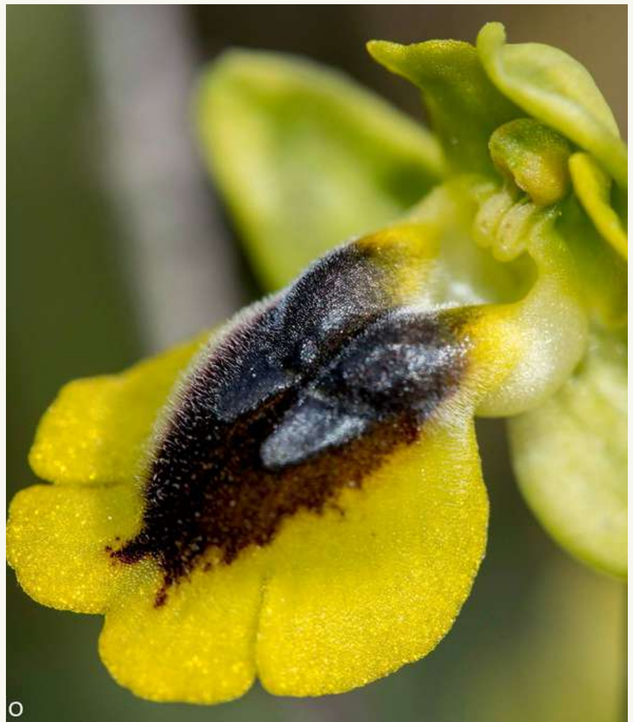
- duplicates, as well as records with low spatial resolution,ì were discarded;
- records collected before the year 1945 were excluded as well
- In the cases of two or more records of the same species occurring at a distance < 100 m, we only took into account the most recent one, in order to avoid counting the same individual twice, or more



GBIF

Global Biodiv
Information I

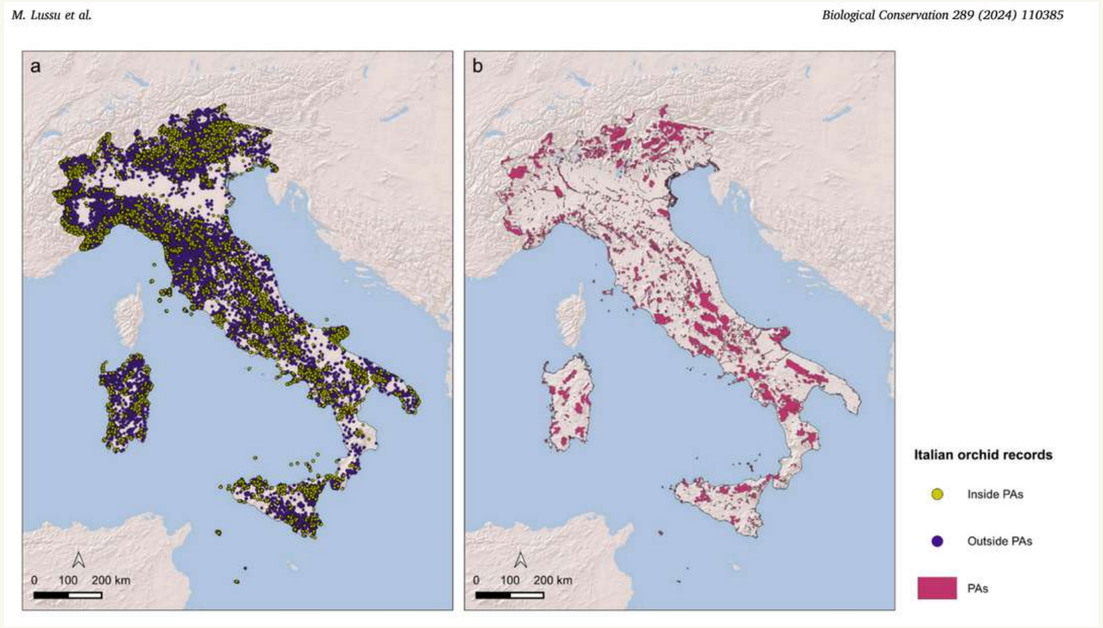
iNaturalist



our final dataset

239 taxa

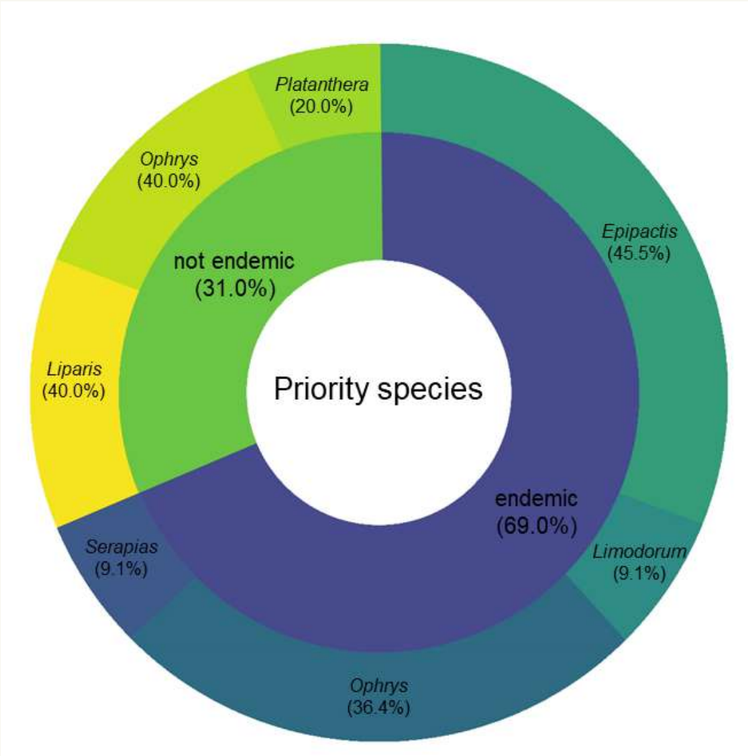
71,693 occurrence



Distribution of occurrences of orchid species (a) and surface of protected areas (b) in Italy.

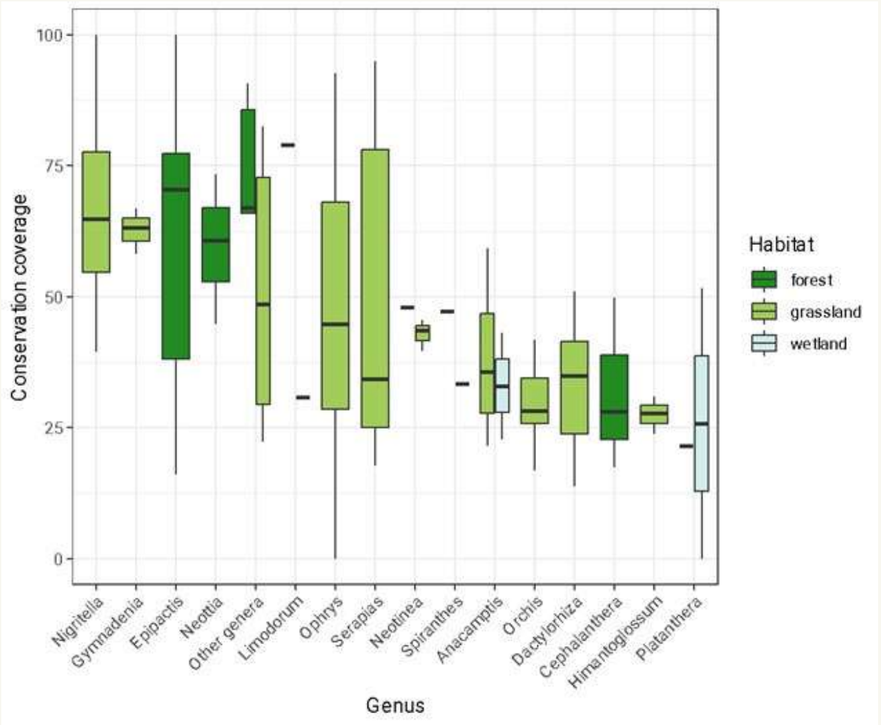
Main results

only **47.7%** of records fall within PAs



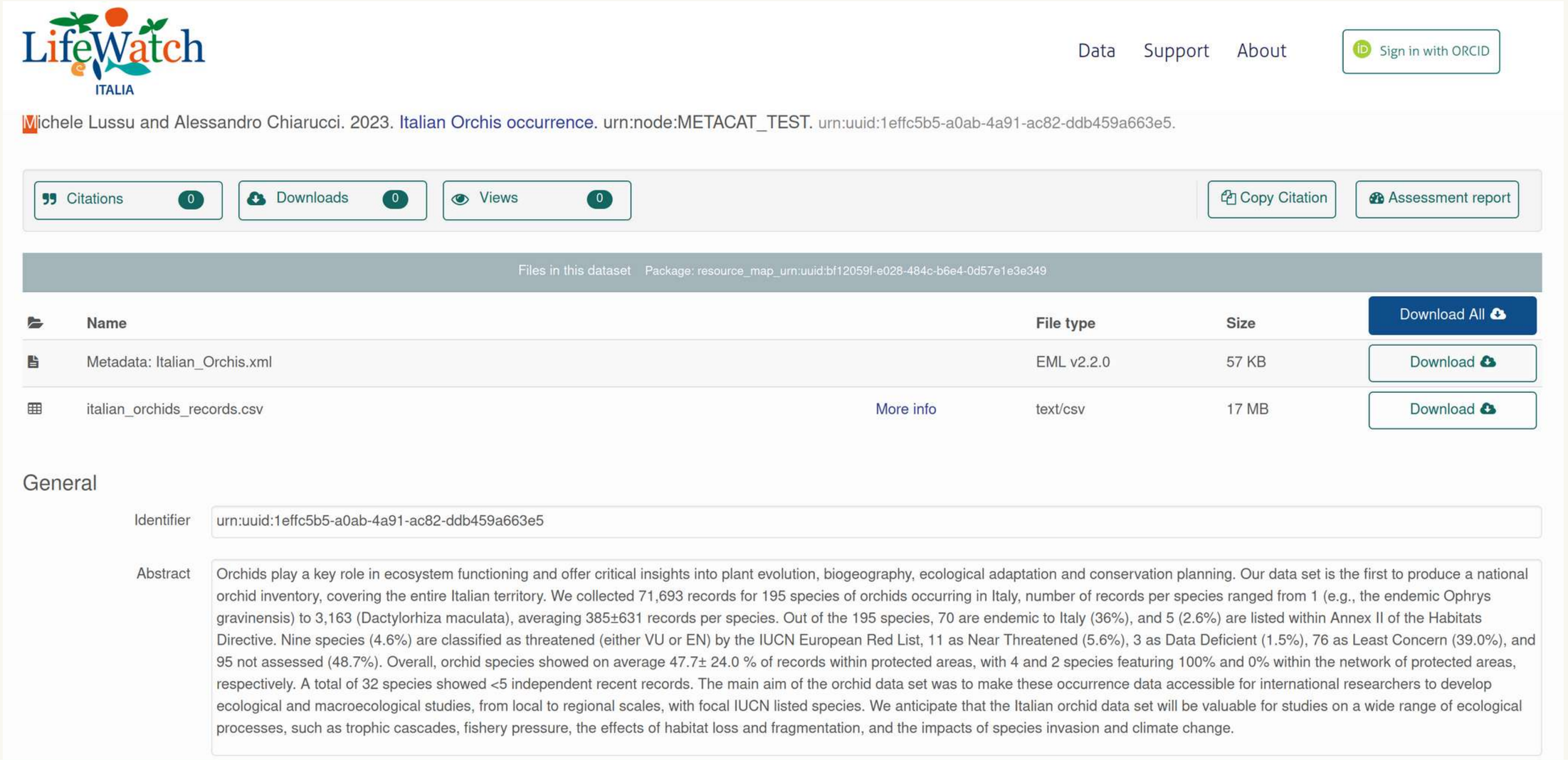
Proportion of the species with highest conservation priority.

We found significant **grassland** and **wetland** as negative factors that affect orchid occurrences, while **forest was detected to be a positive driver**



Boxplot showing variability in spatial conservation coverage (as percent of occurrences falling within protected areas) of orchid species recorded in Italy, grouped for genus and favored habitat and organized in decreasing order according to mean.

this dataset is currently available



work in progress

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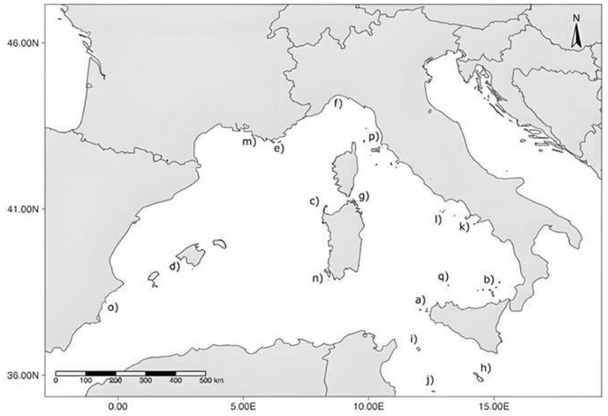

FIGURE 1 Map of the archipelagos and islands of the Central-Western Mediterranean basin: (a) Aegadian Islands, (b) Aeolian Islands, (c) Asinara Archipelago, (d) Balearic Islands, (e) French Islands, (f) Spezzino Archipelago, (g) Maddalena Archipelago, (h) Maltese Islands, (i) Pantelleria, (j) Pelagian Islands, (k) Phlegraean Islands, (l) Pontine Islands, (m) Riou Archipelago, (n) Sulcis Archipelago, (o) Tabarca, (p) Tuscan Archipelago, (q) Ustica [single column].

113 islands

39 VOLCANIC
75 CONTINENTAL

In this study, we investigated the distribution of orchid pollination syndromes across different islands and their relationship with species-area relationship

work in progress

Our goal is to build a dataset that includes all orchid occurrences of Mediterranean islands (2217)

Take home messages

the development of appropriately structured datasets is essential to make the biological information usable

the creation of new and heterogeneous groups allows us to approach the research from different but complementary perspectives

THANK YOU

LifeWatch ITALIA