



International Symposium Future of Butterflies in Europe III

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On the Wings of Knowledge

The POLYXENA Citizen Science Program

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Introduction

POLYXENA is a non-profit organization
promotes scientific research and safeguard of
butterflies, moths and their habitat

Activities:

- Butterfly House
- scientific research
- environmental education
- sustainable cultural events
- citizen science projects



Introduction

Citizen science projects promote

interest in

knowledge of

SCIENCE



“On the wings of knowledge” → POLYXENA Citizen Science Program

Introduction

“On the wings of knowledge”

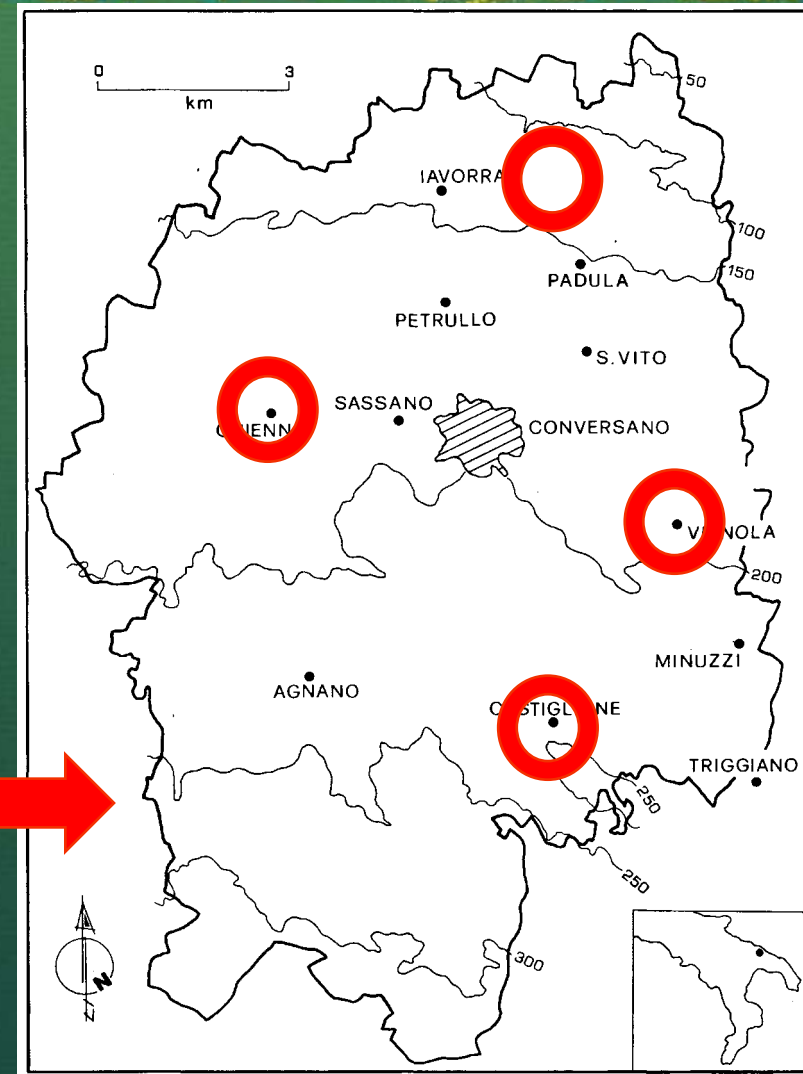
- Duration: 3 years (2011-2013)
- Place: “Laghi di Conversano and Gravina di Monsignore” (Conversano Lakes and Monsignore Gorge) Regional Natural Reserve
- Participants: Butterfly and nature enthusiasts → volunteers in a true “participatory research project”
- Activity: butterfly population structure monitoring program
- Aims:
 - use butterflies as bioindicators to suggest correct Park management measures
 - elaborate threatened species safeguard plans

Materials and methods

Study area



- 103 species
- 40 year data gap



Materials and methods

Study area

- There are different habitats within the Natural Reserve:
 - Mediterranean Scrub
 - *Quercus ilex* wood
 - Meadows
 - Temporary Mediterranean ponds
→ priority habitat under Habitats Directive (92/43/CEE)



Materials and methods

Citizen science butterfly monitoring protocol

- Four sampling sites:
 - two Mediterranean ponds in a typical agricultural and meadow patch
 - a rocky gorge with *Quercus ilex* wood and shrubs
 - a wood hill with small grassland patches
- Sampling rate:

Every 15 days from late March to early October



Materials and methods

Citizen science butterfly monitoring protocol



- Sampling method:
standard transects about 300 meters long
- Butterfly sampling procedure:
 - catching with entomological net
 - identifying with professional field guides
 - releasing of butterflies (storing few representative specimen)

Materials and methods

Citizen Science Phases

- First phase: crowdsourcing campaign
 - web open call process
 - oral presentations at University → for Biology and Natural Science students



- Second phase: short educational course
 - butterfly biology and ecology
 - sampling design and technique
 - data processing criterion



Materials and methods

Citizen Science Phases

- Third phase: field training stage

- site selection
- transept location
- sampling tests



- The data collected on fieldwork will be processed at the end of the three year citizen science program.

Materials and methods

Sampling process instruments

- entomological nets
- magnifying lens
- expert field guides
- data sheets
- GPS



Materials and methods

The “Butterfly House” as an innovative instrument

The Butterfly House is unique in Italy and hosts autochthonous species only.

The purposes:

- to improve knowledge about butterfly biology and ethology;
- to offer an original instrument for environmental education;
- to involve citizens in Natural Science research programs



Results

2011



- 20 volunteers participated in the butterfly monitoring fieldwork → increased interest in Natural Science university students
- About 1000 people took part in the Butterfly House interactive guided tours, hikes, cultural events in nature, and “butterfly watching” field trips

Results

2011

- locals involved in conservation projects
- trust relationship established
- research work awareness created

social consensus
with regard to
the Natural
Reserve
achieved

Discussions and Follow-up

2012 - 2013

- Citizen Science Program will be integrated with:

→ *Zerynthia polyxena* dispersal study

→ *Melanargia arge* (South Italy endemic species) population monitoring program



- At the end of the three years, researchers shall have a detailed picture about these two protected species, and exhaustive safeguard action plans could be developed .

Discussions and Follow-up

Next...

- *Aporia crataegi* and *Inachis io* presence checking (at sampling sites level)
- *Danaus chrysippus* as migrant species (at regional level)
- Atlas of Apulian Butterflies



Discussions and Follow-up

Further studies...

- Other taxa could be investigated (Coleoptera, Odonata, Arachnida, etc.) to define a clearer global situation of Natural Reserve ecosystem health.



- This could merge into one of the largest citizen science projects of Southern Italy and into “S.I.B.M.S.”.



Thank you for your attention

