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A "BUTTERFLY HOUSE" AS AN INSTRUMENT FOR BUTTERFLIES CONSERVATION. PRELIMINARY DATA

INTRODUCTION.

On May 2010, on the occasion of the International Year of Biodiversity, in Conversano (Bari, Italy), the Association Polyxena has built and opened a Butterfly House, the only experiment now operating in Italy exclusively with autochthonous species.
The project targets are: 1) to improve the knowledge about butterflies biology and ethology; 2) to raise awareness of the natural environment in its entirety, providing an innovative tool for environmental education; 3) to set experimental strategies and measures for the conservation of ex-situ autochthonous butterflies.
This experimental farming can find real application in future restocking programs, especially of threatened species like *Zerynthia polyxena* and *Melanargia arge* (a South Italy endemic species). The base from which we started is the peculiarity of the Apulian region in terms of biogeography, marked by a distinctive faunal composition.

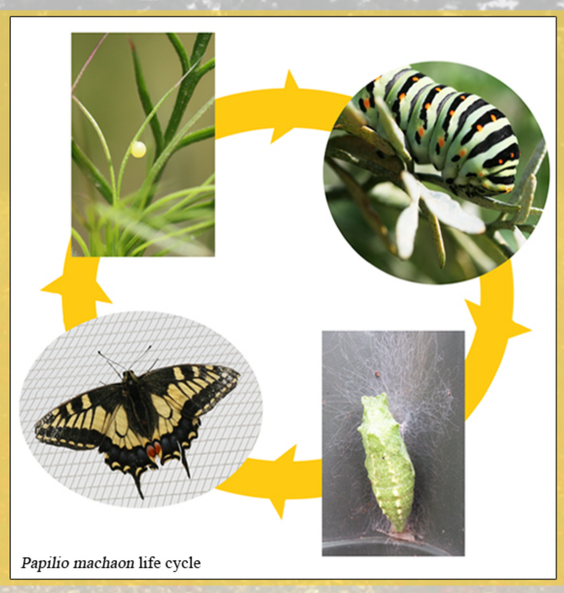
Capture of butterflies necessary to populate the Butterfly House.

Zerynthia polyxena

Famiglia	Specie
Hesperiidae	*Thymelicus acteon*
Lycaenidae	*Callophrys rubi*
	Glaucopsyche alexis
	Celastrina argiolus
	Polyommatus icarus
Nymphalidae	*Vanessa atalanta*
	Vanessa cardui
Papilionidae	*Iphiclides podalirius*
	Zerynthia polyxena
	Papilio machaon
Pieridae	*Artogeia rapae*
	Artogeia napi
	Antocharis cardamines
	Colias alfacariensis
	Colias crocea
	Gonepteryx cleopatra
	Pieris brassicae
	Pontia edusa
Satyridae	*Coenonympha pamphilus*
	Melanargia galathea
	Lasiommata megera
	Maniola jurtina

Butterfly House hosted species checklist

Gonepteryx cleopatra: eggs under the foodplant leaf (*Rhamnus alaternus*), and a group of adults.



Papilio machaon life cycle

MATERIALS AND METHODS.

An approximately 90 m² wide typical environment of garrigue and Mediterranean maquis has been re-built , with the aim of reproducing a suitable habitat for the autochthonous butterflies. The structure possesses the necessary conditions to complete the butterfly life cycles: adequate space flight, the presence of host-plants for larvae and essences high in nectar, create the right condition to ensure that the different species placed complete its life cycle.
The area used for farming has a central hexagonal stone platform, surrounded by a perimeter strip where Mediterranean essences and shrubs were allocated directly in the ground. An anti-hail net delimit a suitable flying space, which also prevents the escape of individuals hosted and, at the same time, the entry of predators and parasites.
The choice of breeding native species avoid the risk of escape of the species in the natural environment, in the case of a possible split of the containment net.
A nursery set up ad hoc for larvae breeding allows to control parasites attacks and predators threat. The entire structure was built using energy from renewable sources, non-toxic paints and a drip irrigation system to avoid loss of water.

After a preliminary analysis using historical data and literature, concerning the area of interest, we proceeded to the peopling of the structure through the research and capture of individuals, trying not to affect with a strong impact on the populations of the sampled areas.
The initial introductions were conducted with individuals in the caterpillar stage and/or image, of the species inside.
From the data in elaboration, during the survey in the sampled territory, two new populations of *Zerynthia polyxena* (Den. et Schiff.), *taxon* included in Appendix. IV of Dir 92/43/EEC "Habitat", were identified.
On the other hand, although the conditions for their presence were clear, *Aporia crataegi* (L.) and *Inachis Io* (L.), were completely absent.
After this preliminary informations, we proceeded monitoring the trends of the populations, which will be published at the end of the first three years of work. Given an initial introduction of individuals from capture, at the end of the first three years of experimentation, it is expected that the structure may be able to sustain itself only through the reproduction of present individuals.

DISCUSSION AND CONCLUSIONS.

In 2011 were hosted over 1000 individuals, belonging to 22 different species (8 Pieridae, Papilionidae 3, 4 Lycaenidae, Nymphalidae 6, 1 Hesperiidae).
At present days, individuals of *Gonepteryx cleopatra* (L.), *Artogeia rapae* (L.), *Papilio machaon* (L.), *Pieris brassicae* (L.). have completed their entire life cycle inside the House.
In the immediate future we will try to implement the data, continuing the monitoring and recording of trends within the structure, and also create the conditions for receive protected and endemic species, such as *Melanargia arge* (Sulz.) or *Z. Polyxena*, in order to operate possible restocking in nature.
The educational value of this project is to represent a conservation tool sensu lato, as capable of creating a bridge between science and society.

At the same time, the Association Polyxena has began, in 2011, a "Citizen Science" project of monitoring the populations of Lepidoptera in the Natural Reserve "Lakes of Conversano and Gravina di Monsignore". Through the knowledge of the surrounding area, therefore, we are trying to give the means to raise awareness in the visitor about the good practices related to environmental sustainability.
The structure will provide a valuable support for a broader spectrum of scientific research in order to have a picture as comprehensive as possible of lepidotterofauna of Apulia. We will be also able to characterize qualitatively and quantitatively the populations present, as well as clarify the distribution of species and their ecological preferences. The Polyxena Butterfly House therefore appears as an active action to protect the territory, aiming to implement the measures already put in place for the in situ preservation. A model in testing phase, which could be taken as an example also in other situations.

Children into the Butterfly House (Rocco De Benedictis photo - "Agenzia TODAY")

Young students visiting the Butterfly House

Children setting butterflies free

The Polyxena Butterfly House has been realized with the Grant of Apulia Region Programme "Young ideas for a better Puglia" and the Italian Youth Minister.

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