



XIV OPTIMA Meeting

September, 9-15 2013

Palermo

Abstracts

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OPTIMA (Organization for the Phyto-Taxonomic Investigation of the Mediterranean Area)
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Technical Editing: Gianniantonio Domina, Pasquale Marino

Design: Pasquale Marino, Giuseppe Bazan

August 2013

Tipolitografia Euroservice Punto Grafica, via Giuseppe Impastato, 9/11 - Palermo.

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Edited by Orto Botanico ed Herbarium Mediterraneum, Università degli Studi di Palermo, Palermo, Italy.

ISBN 978-88-903108-8-1

Results of efforts made for *in situ* and *ex situ* conservation of *Abies nebrodensis* (*Pinaceae*) in Sicily

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Abies nebrodensis (Lojac.) Mattei is a heavily threatened relict endemic species, consisting of a wild population formed by a whole of 30 individuals confined in a small area in the Polizzi Generosa district, within the Madonie Natural Park, north Sicily.

The threaten of extinction is mainly due to the slightness of the population only part of which is made of fertile specimens, and besides to the risk of genetic pollution caused by the occurrence of *Abies alba* Mill., *A. cephalonica* Loudon and *A. nordmanniana* (Stefen) Spach rather recently introduced all around the distribution area.

Since 2002, the Park of Madonie Office, backed by both the Palermo University botanists and the Azienda Regionale Foreste Demaniali staff, has set up a both technical and scientific programme for *in situ* and *ex situ* conservation of *A. nebrodensis*.

In particular, between 2002 and 2005 a Life Natura programme has been fulfilled aimed at to protect and genetically characterize of the wild *A. nebrodensis* population and its progeny in its range, by surveying of the wild renewal and the occurrence of exotic firs, the setting up a seedling nursery and the plantation of several experimental parcels. Since 2010 this programme is carried on by means a plan granted by CIPE in which also the restoration of small *Sphagnum* bogs scattered around the range of *A. nebrodensis* in the district of di Geraci Siculo is included.

In the last 10 years these activities have given the following results:

- Controlled pollination inside the *A. nebrodensis* wild population has been carried out in order to increase its genetic variability and to produce a genetically pure seed stock. More than 95% strobiles produced fertile seeds from which 5.000 partly mycorrhized seedlings were obtained.
- The experimental parcels have shown that the best plantations are located on quartzarenite ground, in north-facing places between 1000 and 1500 m elevation.
- Genetic analysis has pointed out a considerable individual diversity in the wild population; besides a close correlation among mature wild individuals and their seedlings, both wild as cultivated in the nursery, has been observed.
- About 5.000 mostly mature exotic fir specimens have di been localized, more than 1000 of which have been graft by shoots of *A. nebrodensis*. This, in order to increase its population and to exploit as rootstock other firs to be cut down to avoid a serious conservational danger.
- The rescue of the marshy body of the “Urgo di Pietra Giordano” has been carried out by removing , through naturalistic engineering technique, damages provoked in the past and restoring the water supply essential to re-establish the previous peat bog plant community.
- In the wild population active renewal process has been observed around 8 of the 24 specimens producing fertile strobiles. Indeed, with respect to the 45 ones first recorded, the wild individuals (including seedlings) now observed throughout the range *A. nebrodensis* are 151. These are 1-30 years old and up to 42 cm high. The increased number of seed born individuals on account of the above outlined actions for the *in situ* conservation shows a remarkable reversal of trend in the *A. nebrodensis* population dynamic.