

3.1 = POPULATION TREND IN *ABIES NEBRODENSIS* (LOJAC.) MATTEI

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*Abies nebrodensis* (Lojac.) Mattei is an endemic species of Sicily seriously threatened with extinction. Its natural population consists of thirty individuals, occurring in a narrow area within the territory of the Madonie Regional Park. *A. nebrodensis* has been subject to specific conservation measures implemented by the University of Palermo, the Park Authority and the Regional Department of Forests of the Sicilian Region and other local partners for over a decade. The Life Nature project, which ended in 2005, represented a milestone in *in situ* and *ex situ* safeguard actions (1). Other conservation actions are currently being implemented as part of the new project "Conservation of *Abies nebrodensis* and restoration of peatlands of Geraci Siculo" aiming at the increase of the population of *A. nebrodensis*; actions for *in situ* conservation; maintaining the genetic integrity of this fir; the restoration of peatlands of Geraci Siculo; public awareness and dissemination of results. The activities carried out so far have allowed to monitor the thirty plants of the natural population, check their growth, their reproduction, vegetative state, and plant health. All individuals, except for the one with the inventory number 28, have good vegetative condition. Mature individuals are 25, while the spontaneous process of renewal is active only in the vicinities of 9 of them.

In particular, the total number of individuals from spontaneous regeneration increased, in the past nine years, from 80 to 155 seedlings, an increase of about 94%. The new seedlings, aged between 2 and 30 years, and varying in height from 3 to 45 cm, have the following distribution: 58 in the vicinity of the mother plant n. 18; 39 of the plant n. 22; 30 of the plant n.29; 11 of the plant n. 1; 9 around the plant n. 10; 3 the plants n. 8 and n. 27; 1 each the plants n.. 21 and n. 23.

An action project focused on the monitoring of plants of *A. nebrodensis* planted in 20 experimental plots within the scope of the Life Nature project between 2002 and 2005, in the territory of the Madonie Park. Out of the original 1426 plants only 480 have survived the crisis of transplant and are in a good vegetative condition.

The project also provides for the identification and monitoring of reforestations with *A. nebrodensis* by the Forestry Administration made in the territory of the Madonie Mountains between the 80's and the 90's of the last century, using seedlings of *A. nebrodensis* obtained in the nursery of Piano Zucchi. Six areas were established occupying a total surface of about 12 hectares in which 1715 individuals are found. The facilities of Case Prato, Vallone Prato and Quacella (Polizzi Generosa), next to the area where *A. nebrodensis* is indigenous, host in an area of about 3 hectares 562 plants between 30 and 35 years old, with individuals up to 11 m tall, several of which have born fruit abundantly for several years. The plantation in Contrada Savocheffa (Petralia Soprana), 1.4 ha wide, includes 130 individuals planted between 1995 and 1996, half of which shows signs of damage due to wildlife. The plant reforestation in Contrada Piano Noce (Polizzi Generosa) is located next to the homonymous forest nursery. It includes 570 plants, from 1.5 to 3.5 m tall, spreads over an area of 1.9 ha, in good vegetative and phytosanitary conditions. 5 of these have been fruiting for several years. In Contrada Marrabilici (Polizzi Generosa) 419 plants were surveyed over an area of 4.7 hectares. About 70% of these have very poor vegetative conditions due to the bites of herbivores, particularly deers, and to decortication caused by them with the rubbing of antlers. Fifteen plants, from 4 to 7 m high, have produced cones for several years.

The reforestations of Marrabilici and Savocheffa need for greater protection from ungulates and appropriate interventions for recovering damaged individuals.

The mature specimens of *A. nebrodensis*, surveyed in gardens and private villas in the Madonie, older than thirty years, were forty and showed good vegetative conditions.

The significant increase of the seedlings in recent years, the affirmation of the plants in the plots made within the LIFE Nature project and the sexual maturity reached by several plants for reforestation carried out between the 80's and the 90's of the last century, denote a positive trend in the population dynamics of this important taxon. The increase in population and the expansion of its genetic diversity, will help to avert more and more the extinction of this species.

1) F.M. Raimondo, R. Schicchi (2005) Rendiconto sul progetto LIFE Natura n° LIFE2000NAT/IT/7228 "Conservazione in situ ed ex situ di *Abies nebrodensis* (Lojac.) Mattei". Palermo