



LIFE4FIR: Decisive in situ and ex situ conservation strategies to secure the critically endangered Sicilian fir, *Abies nebrodensis*

LIFE18/NAT/IT/000164 **LIFE4FIR**



US Role and Responsibilities



Montserrat **ARISTA**

Francisco J. **BALAO**

Anass **TERRAB**

Pedro Luis **ORTIZ**



A. PREPARATORY ACTIONS

A1 Protocol setup to define genetic traits of *Abies nebrodensis* population, and to improve its propagation and conservation at low and cryogenic temperatures of selected tissues and organs. **Responsible: US**. Involved: CNR, CIRITA, EPM, DRSRT

C. CONSERVATION ACTIONS

C2 Conservation of genetic purity of *Abies nebrodensis* and improvement of its genetic diversity. **Responsible: US**. Involved: US, UNIPA, CNRS

C7 Replication. Implementation action dedicated to the results' transfer and replication during the project. **Responsible: CNR**. Involved: all

E. PUBLIC AWARENESS AND DISSEMINATION OF RESULTS

E2 Tourists visits, workshops, fairs, networking, Institutions and policy makers involvement, awarenessrising. **Responsible: CNR**. Involved: all

F. PROJECT MANAGEMENT

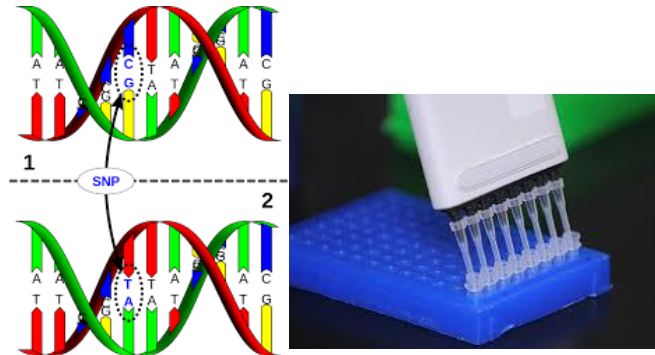


ACTION A.1-SUBACTION A1.1

A1.1 Evaluation of genetic diversity of adult plants and natural regeneration

30 adult trees + 1000 seeds + about 170 natural regenerated seedlings

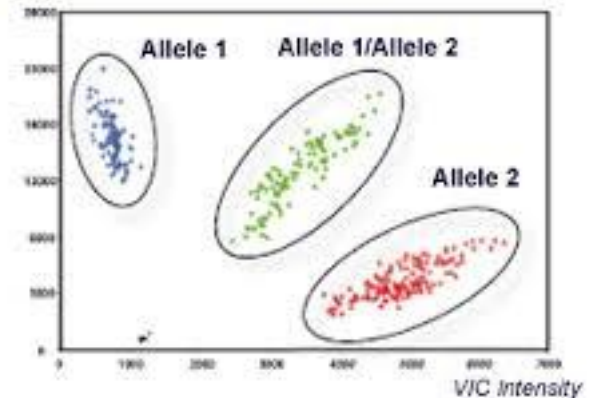
Genetic diversity and population structure by using 144 single-nucleotide polymorphisms (SNPs)



SNP (Single Nucleotide Polymorphism)

FAM intensity

Marker 1



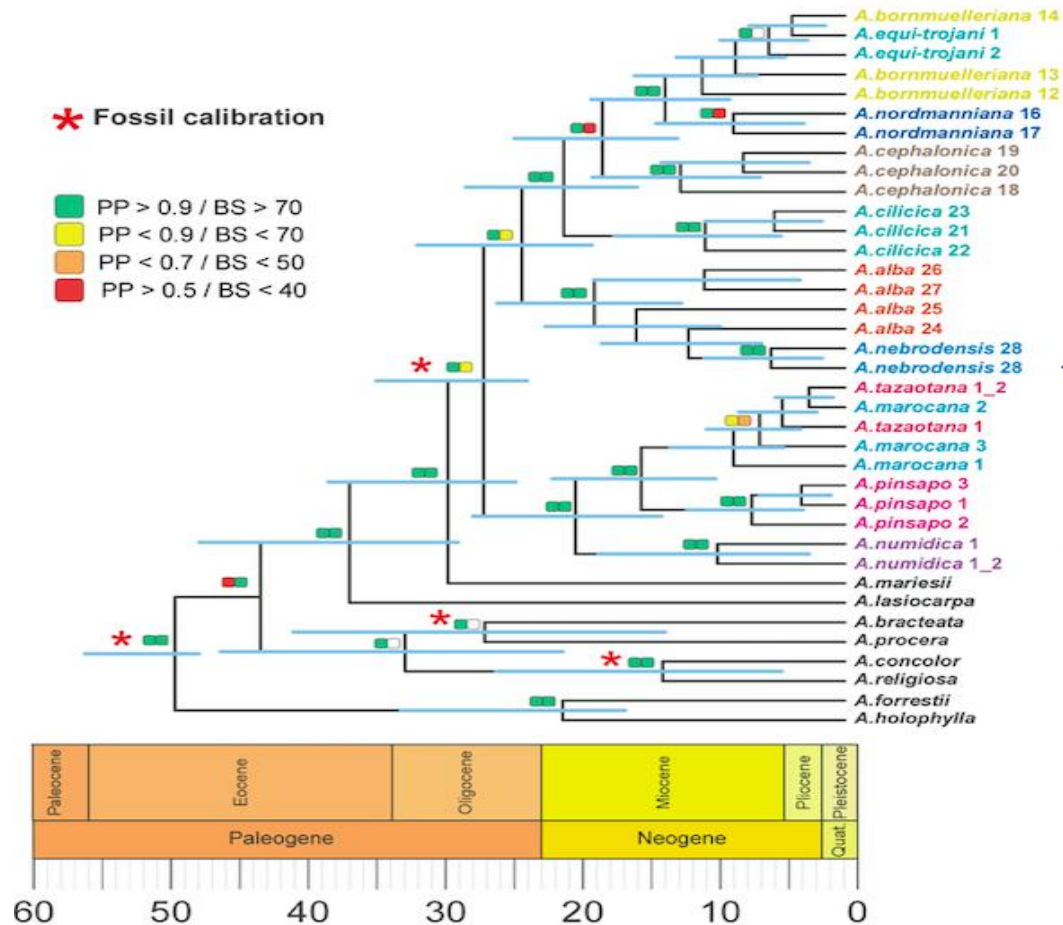
Deliverables: Paternity test of pure *A. nebrodensis* seedlings: **6/2020**

Kick Off meeting, Palermo 2 -3 October, 2019



Early diversification and permeable species boundaries in the Mediterranean firs

Francisco Balao^{1*}, María Teresa Lorenzo¹, José Manuel Sánchez-Robles¹, Ovidiu Paun², Juan Luis García-Castaño¹, Anass Terrab¹



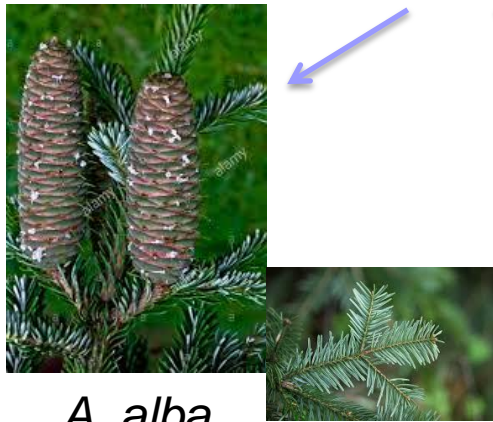
ACTION A.1-SUBACTION A1.2

A1.2 Genetic characterization of seedlings from the local nursery 'Vivaio Piano Noce' to select **intraspecific crosses (n=2100)**



A. alba x *A. nebrodensis*

A. nebrodensis x *A. cephalonica*



A. alba



A. nebrodensis



A. cephalonica

Deliverables: Detection of pure and hybrids seedlings **12/2020**



ACTION C2-SUBACTION C2.1

- **C2.1** Enhancement of the genetic diversity of the natural population: promoting the outbreeding through manual cross- pollination
- **C2.2** Selection of outbred seedlings derived from intraspecific crosses to be used in reforestation

Two-reproductive seasons: hand crosses between the most genetically diverse trees



- List of the seedlings from nursery indicating their genetic origin **9/2021**
- Molecular data deposited in the GenBank **10/2021**
- Report: Procedure to quickly determine the genetic origin of seedlings. Result dissemination to Natural Park Managers at the end of the Project **9/2022**
- List of all the hybrid seedlings to be eliminated **10/2022**



ACTION C.7: Replication. Implementation action dedicated to the results' transfer and replication during the project

Development of a "Best Practices Handbook"



Deliverables:

Development of the Handbook 3/2022

Replication Plan 9/2022



Many thanks for your attention

Muchas gracias por su atención

Grazie mille per l'attenzione

