

# Why do we need to conserve forest genetic resources and how can we do it?

Forests play a crucial role in stabilising landscapes, providing ecosystem services essential for human wellbeing, and supporting biodiversity. The persistence of these ecosystems depends primarily on the ability of existing tree populations to adapt locally. A key factor for such adaptation is the presence of high genetic diversity within forest populations. Therefore, conserving the biodiversity of European forests requires the simultaneous conservation of ecosystem, species, and genetic diversity.

## A precious resource

Forest genetic resources (FGR) is the heritable diversity that underpins the evolution and adaptability of forests and trees. This diversity varies within species' distribution ranges, so comprehensively conserving it maximises the capacities of tree species to respond to new threats. This includes their capacity to migrate in response to climate change, and ensures the availability of forest reproductive material for assisted forest regeneration and forest restoration actions.

evolution of populations and species. Unfortunately, some FGR are in danger as they are gradually disappearing with the decline and fragmentation of forests, absent or inadequate forest management, and climate change. To reverse this effect, European countries are coordinating their efforts to proactively conserve these invaluable resources through the European Forest Genetic Resources Programme (EUFORGEN)<sup>1</sup>.

## Genetic Conservation Units: the tree population at the centre

## The role of forest management

Forest management practices can significantly influence the genetic composition and structure of forest tree populations, which in turn affects the

EUFORGEN fosters the conservation of FGR with the tree population at the centre, by coordinating the establishment of a network of Genetic Conservation Units (GCU) across Europe. These units aim to conserve the minimum level of genetic diversity necessary





to ensure the evolutionary potential of individual forest tree species, preserving the genetic base that is essential for biodiversity conservation, climate change mitigation and adaptation, and for a green circular bioeconomy in the context of sustainable forest management. While these units cannot solve the problem of biodiversity loss on their own, they help forest managers to safeguard invaluable FGR and boost the adaptation of forests to an ever-changing world.

### **EUFGIS: GCU data at your fingertips**

Information on GCUs is stored in the European Information System on FGR (EUFGIS)<sup>2</sup>, a system upgraded as part of the H2020 FORGENIUS project. GCUs stored in EUFGIS are characterised using remote sensing and existing climatic datasets, and other information on FGR, such as genetic and phenotypic indicators, making valuable information on forest tree species readily

available in the EUFGIS and easily accessible to forest managers.

### **The essential role of forest managers**

It is vital to establish and maintain GCUs throughout the whole distribution range of the species if we wish to effectively conserve the FGR of European tree species. These units must follow the minimum requirements<sup>3</sup>, need to be visited, managed (when needed) and monitored, and the information and data on those units maintained and curated. Closing the gap between scientific research and practical application is essential for identifying and implementing effective conservation and management strategies. Forest managers are pivotal in this endeavour, playing a crucial role in the conservation of forest genetic resources and in the future diversity and wealth of our forests.

1 euforgen.org

2 portal.eufgis.org

3 [http://portal.eufgis.org/fileadmin/templates/eufgis.org/documents/EUFGIS\\_Minimum\\_requirements.pdf](http://portal.eufgis.org/fileadmin/templates/eufgis.org/documents/EUFGIS_Minimum_requirements.pdf)

