Improving access to FORest GENetic resources Information and services for end-Users

Deliverable D7.5

Workshop reports, including participants' evaluation and feedback on the system functions (lessons learnt and possible upgrading)

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Workpackage leader: EFI

Deliverable leader: VA

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CO Confidential, only for members of the consortium (including the Commission Services)	

Research and Innovation action: GA no. 862221

Start date of the project: January 1st, 2021

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1 Summary

The document outlines the results of two workshops organized by Veneto Agricoltura (VA) in Italy, focusing on the presentation of the EUFGIS web application on forest genetic resources. The workshops, which took place online in May 2025, attracted 40 participants from diverse backgrounds, including forestry technicians, nursery managers, public officials, and researchers.

The EUFGIS web application integrates various databases and provides information on genetic conservation units (GCUs) across Europe, combining environmental, genetic, and phenotypic data. The workshops aimed to gather feedback on the near-final version of the application, which offers features such as assessing the conservation status of species, comparing conservation units, and providing climate scenarios for each GCU.

Participants highlighted the potential benefits of the application, such as supporting conservation decisions and climate change adaptation. However, they also pointed out some challenges, including the complexity of the data presentation and the need for an even more intuitive and user-friendly interface. This feedback will be used to refine the application.

Overall, the workshops were successful in raising awareness of the importance of forest genetic resources and the role of the web application in supporting management decisions.

2 Introduction

Forgenius partners developed a web application that integrates existing databases (e.g. FOREMATIS and EUFGIS) with genetic and ecological variables developed and studied in other Forgenius WPs. To make all the information available and user friendly for all potential end users, a close interaction with key stakeholders was promoted during the project, with feedback collected through surveys and interviews. The web application was updated and edited accordingly and these two WS aimed at presenting the close-to-final version of the web application to the end users in a demo and interactive sessions. Veneto Agricoltura (VA) organized the two WS in an online format addressing Italian end-users, with the aim of collecting feedback.

During the WSs, after a brief introduction to FORGENIUS, the EUFGIS web application was presented thanks to a deep guided demo that highlighted all the main sections. Hereafter can be seen the agenda of the WSs, and a brief presentation in Italian language of the speakers from project partner institutions (EFI, INRAE and CNR).

FORGENIUS: workshop online di presentazione del portale EUFGIS per la caratterizzazione delle Unità di Conservazione Genetiche (GCU)

Premessa:
Il seguente workshop online è organizzato da **Veneto Agricoltura**, con il supporto di ETIFOR, nel contesto del progetto FORGENIUS (ID 862221), con l'obiettivo di **presentare la piattaforma online EUFGIS**. Questa piattaforma fornisce informazioni georeferenziate sulla conservazione delle risorse genetiche forestali in Europa e consente l'accesso a dati dettagliati sulle unità di conservazione genetica (GCU) degli alberi forestali. Attualmente, il **portale EUFGIS contiene informazioni su 3516 unità di conservazione genetica (108 in Italia) relative a 116 specie arboree in 37 paesi**. Le unità ospitano complessivamente 4647 popolazioni arboree. Le GCU sono caratterizzate da indicatori genetici, fenotipici, ambientali relativi al sito forestale.

Quando:
- lunedì 19 maggio: 14.00-15.30
- martedì 20 maggio: 14.00 alle 15.30

Il workshop sarà il medesimo ripetuto nei 2 giorni: SI PREGA DI SCEGLIERE LA DATA PREFERITA

Modalità iscrizione:
si prega di iscriversi al workshop online compilando il **seguente FORM**

Programma
Nel corso del workshop verrà introdotto il progetto FORGENIUS e poi verranno illustrate le varie funzioni del nuovo portale EUFGIS sviluppato all'interno del progetto FORGENIUS, con anche delle simulazioni di utilizzo. Di particolare interesse saranno le informazioni sugli **scenari climatici** per ciascuna GCU. **Per informazione sui profili dei relatori vedere pagina seguente.**

Per ulteriori informazioni relativamente al progetto FORGENIUS o per un supporto non esitare a contattarci ai seguenti recapiti:
- Roberto Fiorentin (Veneto Agricoltura): roberto.fiorentin@venetoagricoltura.org ; 3471166759
- Giovanna Bullo (Veneto Agricoltura): giovanna.bullo@venetoagricoltura.org ; 0498293889
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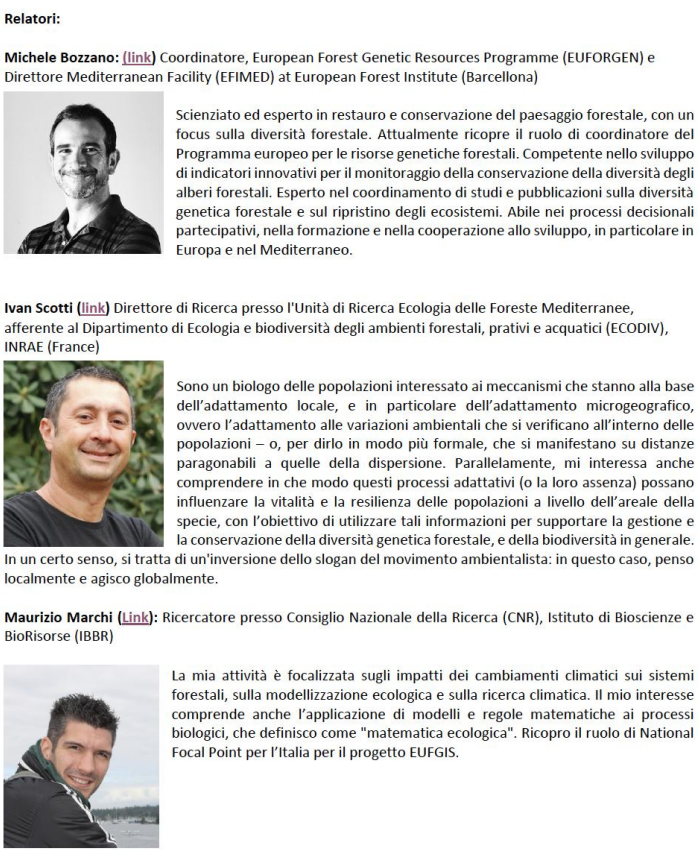
Figure 1 Agenda of the Workshops (1st page)



Relatori:

Michele Bozzano: (link) Coordinatore, European Forest Genetic Resources Programme (EUFORGEN) e Direttore Mediterranean Facility (EFIMED) at European Forest Institute (Barcellona)

Scienziato ed esperto in restauro e conservazione del paesaggio forestale, con un focus sulla diversità forestale. Attualmente ricopre il ruolo di coordinatore del Programma europeo per le risorse genetiche forestali. Competente nello sviluppo di indicatori innovativi per il monitoraggio della conservazione della diversità degli alberi forestali. Esperto nel coordinamento di studi e pubblicazioni sulla diversità genetica forestale e sul ripristino degli ecosistemi. Abile nei processi decisionali partecipativi, nella formazione e nella cooperazione allo sviluppo, in particolare in Europa e nel Mediterraneo.

Ivan Scotti (link) Direttore di Ricerca presso l'Unità di Ricerca Ecologia delle Foreste Mediterranee, afferente al Dipartimento di Ecologia e biodiversità degli ambienti forestali, prativi e acquatici (ECODIV), INRAE (France)

Sono un biologo delle popolazioni interessato ai meccanismi che stanno alla base dell'adattamento locale, e in particolare dell'adattamento microgeografico, ovvero l'adattamento alle variazioni ambientali che si verificano all'interno delle popolazioni – o, per dirlo in modo più formale, che si manifestano su distanze paragonabili a quelle della dispersione. Parallelamente, mi interessa anche comprendere in che modo questi processi adattativi (o la loro assenza) possano influenzare la vitalità e la resilienza delle popolazioni a livello dell'areale della specie, con l'obiettivo di utilizzare tali informazioni per supportare la gestione e la conservazione della diversità genetica forestale, e della biodiversità in generale. In un certo senso, si tratta di un'inversione dello slogan del movimento ambientalista: in questo caso, penso localmente e agisco globalmente.

Maurizio Marchi (Link)**:** Ricercatore presso Consiglio Nazionale della Ricerca (CNR), Istituto di Bioscienze e BioRisorse (IBBR)

La mia attività è focalizzata sugli impatti dei cambiamenti climatici sui sistemi forestali, sulla modellizzazione ecologica e sulla ricerca climatica. Il mio interesse comprende anche l'applicazione di modelli e regole matematiche ai processi biologici, che definisco come "matematica ecologica". Ricopro il ruolo di National Focal Point per l'Italia per il progetto EUFGIS.

Figure 2 Biographies of the speakers of the workshops (page 2 of the agenda)

3 Results

VA organised two separate but identical workshops of 1h 30min each in an online format, with the support of EFI, CNR and INRAE. The first one was held on 19th May 2025 with 17 participants; the second one took place the 20th May 2025 with 23 participants, for a total of 40 stakeholders. The table below categorizes the participants according to their professional category.

Category	Number
Forestry technician, public (regional)	24
Forestry technician, public (state)	2
Nursery technician, private	2
Nursery technician, public (regional)	4
Parks/natural reserve manager	4
Public manager, Ministry	2
Researcher	2
Total	**40**

Table 1 Participants of the workshop categorized by professional category

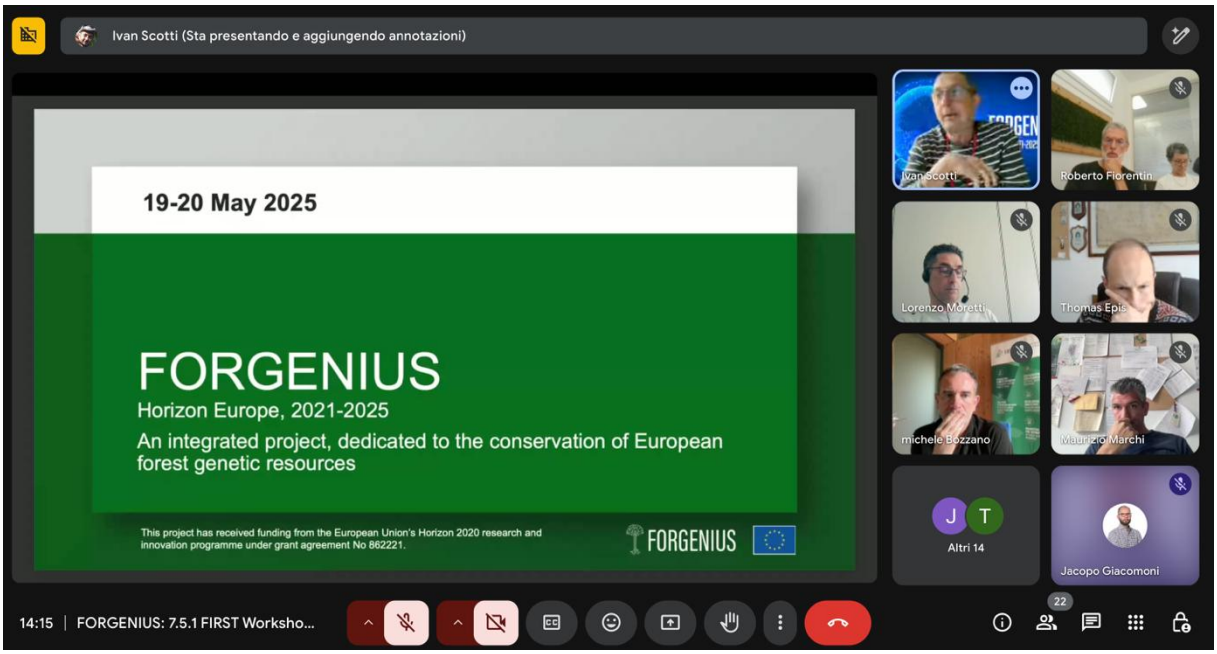


Figure 3 Screenshot of the first day of workshop

Figure 4 Homepage of the beta version of the EUFGIS web application, presented at the workshop

The number of participants was satisfactory, with a good participation by forest technicians (at the regional and national levels) and nursery managers. The involvement of some natural park managers as well as some representatives of the national forest ministry, who attended at both sessions, is also worth noticing.

The platform was presented as a strategic tool for improving both the quality and quantity of data on Genetic Conservation Units (GCUs), standardizing this data across Europe, and making it accessible to users. Additionally, the new application integrates remote sensing, genetic, and phenotypic data related to conservation units. It provides detailed information on the locations and characteristics of GCUs throughout Europe, along with environmental and climate data and scenarios for each unit. This enables comparisons to be made both between

units and with seed stands (through the FOREMATIS link). A particularly important feature of the web application is the ability to assess the conservation status by country or species, offering users a broader perspective and the opportunity to expand their view beyond the single GCUs.
Considering that the end users were Italian, an overview of the national context was provided. This includes 108 genetic conservation units (GCU), with a very discontinuous and heterogenous distribution, concentrated in certain regions. All GCUs in Italy are located within protected areas (e.g. national parks, Natura 2000 sites, etc.) and several gaps remain in species and ecoregion coverage.

Feedback from end users

During the WS, participants suggested the following potential uses and benefits of the EUFGIS web application:

- Support in the selection of management practices for GCU sites, using the data and indicators that characterize each GCU;
- Assess climate change impacts and adaptation needs by consulting the climate scenario developed for each GCU;
- Identify unique/priority populations for conservation, especially using the “Status of conservation” page of the web application, that provides an overview that can be filtered by species and country;
- Link with operational forest reproductive material systems (e.g. FOREMATIS) is both strategic and useful
- Explanation of the single indicators is fundamental to better guiding users of the web application and to interpret the indicators correctly

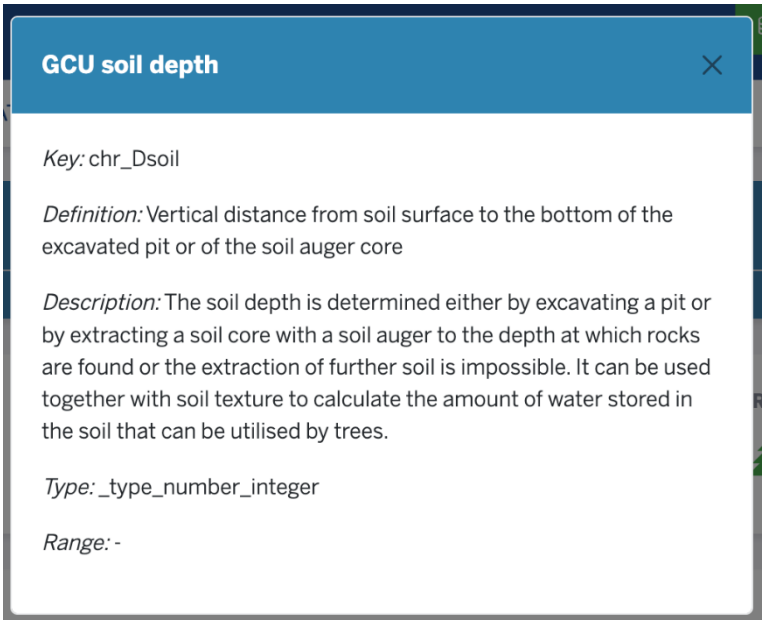


Figure 5 Example of "INFO BOX" for one indicator

According to the end users, the large quantity of data also comes with some drawbacks:

- 61 indicators (9 environmental, 17 phenotypic, 14 genetic, 5 modelled, 16 forest) are clearly presented in the pages of the GCUs but this can sometimes being overwhelming for some end users (e.g. nursery managers) who would benefit from an easier way to interpret or visualize representation some of the indicators. This feedback was provided also earlier in the project by VA but no effective visualization solutions were found, especially considering that potential end users might have different needs (e.g. researcher vs nursery manager vs policy makers)
- Weather scenario forecast for the single GCU was perceived as valuable information to guide end users in the selection of the best management practices for the future, considering the challenges arising from the climate change. Nevertheless, end users would have preferred a single plot covering the different decades rather than separate graphs, to have a big picture in the long term.

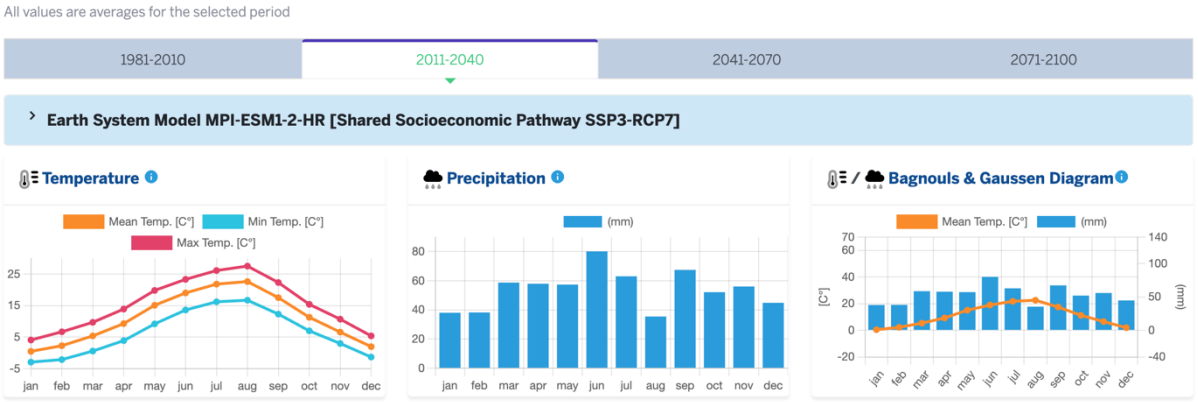


Figure 6 Climate scenario for a GCU as shown in the EUFGIS web application

Brief feedback was also given concerning the language: some end users suggested that an Italian version might be more user friendly, considering that who work at local level might not be that familiar with foreign languages.

Furthermore, it is worth noting that during the interesting discussion that followed the demo of the web application, the participants identified several challenges for regional implementation of conservation and management practices of FGR and FRM:

- Lack of a clear regulatory framework for GCUs, unlike for seed forests;
- Confusion between GCUs and seed forests/basic materials;
- Need for better coordination between the national focal point and the regions, that in Italy are 20; some species are not sufficiently represented by the current Italian GCUs;
- Difficulty accessing some potential GCU sites for sampling/management at an operational level.

4 Conclusions

End users were positively impressed by the usability, interface and potential of the web application as a tool to guide their management decision. The WSs were also fundamental in

raising awareness on the importance of preserving and managing FGR with a solid scientific background deriving from the data obtained during FORGENIUS that find in the web application an effective repository. The feedback collected can be used to further refine the web application, which was very much appreciated overall.

5 Partners involved in the work

VA as organizer of the WS; INRAE, CNR and EFI as speakers.

6 Annexes

No Annex present in this Deliverable