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Forest EcoValue

# ONLINE TRAINING MODULES

0.3.2

RESPONSIBLE PARTNER: PP7 / LGCA; PP8 / UNIGRAZ





Interreg Alpine Space Programme 21-27

Carbon neutral and resource sensitive Alpine region

SO 2.2: Promoting the transition to a circular and resource efficient economy

**Forest EcoValue:**

**Supporting multiple forest ecosystem services through new circular/green/bio markets and value chains**

Project ID: ASP0100005

## List of the Forest EcoValue project partners

- PP1. Finpiemonte SpA – Regional financial and development agency / **Coordinator** [FINPIE]
- PP2. Lombardy Foundation for the Environment – Fondazione Lombardia per l’Ambiente [FLA]
- PP4. National Research Institute for Agriculture, Food and Environment – Institut National de Recherche pour l’Agriculture, l’Alimentation et l’Environnement [INRAE]
- PP5. Slovenia Forest Service – Zavod za Gozdove Slovenije [ZGS]
- PP6. Institute for Environmental Planning and Spatial Development GmbH & Co. KG – Institut für Umweltplanung und Raumentwicklung GmbH & Co. KG [Ifuplan]
- PP7. Lombardy Green Chemistry Association – Cluster Lombardo della Chimica Verde [LGCA]
- PP8. University of Graz, Institute of Environmental Systems Sciences [UNIGRAZ]
- PP9. Regional Centre for Forest Property Auvergne-Rhône-Alpes – Centre Régional de la Propriété Forestière [CNPF]
- PP10. The French National Forest Office – Office National des Forêts [ONF]
- PP11. Hozcluster Steiermark – Woodcluster Styria [HCS]

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## Glossary

**CICES** - Common International Classification of Ecosystem Services

**FES** - Forest Ecosystem Services

**INRAE** - National Research Institute for Agriculture, Food and Environment

**LLs** - Living Labs

## 1. Introduction

This output consists of **a set of short video-based training modules** aimed at disseminating the knowledge, methodologies and tools developed within the project to a wider audience beyond the project consortium.

The training modules are based on the contents developed into the **Alpine Winter School 2025** “Markets and business models to support forest ecosystem services & sustainable forest management” (D.3.2.2), held online (via Zoom platform) on December 2–4, 2025. It represented a key capacity-building activity of the project, bringing together project partners, stakeholders and external participants interested in forest management and business model implementation. The Alpine Region Winter School gathered **31 participants from across the Alpine region**. The programme combined expert input on the fundamentals of Forest Ecosystem Services (FES), economic valuation, business models implemented in the project, practical work on real case studies, and a section dedicated to policy and stakeholder engagement for enabling ecosystem service markets.

Following the event, the Forest EcoValue project announced that recordings would be made available as training modules on the project YouTube channel. The four video modules described in this report implement that commitment, **translating the Winter School’s key learning blocks into structured online training content**.

This output aims to capitalise and make accessible the knowledge generated during the training activities, **by transforming selected contributions from the Winter School into structured and user-friendly video modules**.

The training modules cover four main thematic areas, reflecting the core dimensions addressed within the project, providing:

- conceptual clarifications on Forest Ecosystem Services;
- insights into the economic value of FES;
- practical approaches to market design and business model development;
- reflections on policy and governance frameworks, including barriers and enabling factors.

Each module is based on **expert contributions delivered during the Alpine Winter School** and combines theoretical insights with practical perspectives emerging from the project activities.

To ensure accessibility and usability, the original recordings from the Alpine Winter School have been edited into short thematic modules, following a **one topic - one video approach**. This format allows users to easily navigate the content and focus on specific topics of interest.

All training modules have been edited and **published on March 16, 2026**, on the official YouTube channel of the project, ensuring wide dissemination and long-term accessibility:

<https://www.youtube.com/@Forestecovalue>

The modules are intended for a broad audience, including policy makers, researchers, practitioners, forest managers and stakeholders interested in ecosystem services, sustainable forest management and innovative forest-based value chains.

## 2. Project overview

Forests of the Alpine Space play a key role in climate change mitigation and resilience, providing multiple ecosystem services (ES) and environmental and social benefits such as CO<sub>2</sub> absorption, air pollution reduction, biodiversity enhancement, and protection against natural hazards. However, they are threatened by abandonment, climate change, and territorial degradation, which progressively reduce natural resources and the provision of forest ES (FES). Maintenance costs of Alpine forests are high, and public funds and traditional wood value chains are insufficient to cover them. Economic valuation and payment schemes for FES are widely discussed but rarely successfully applied.

The Forest EcoValue project addresses this challenge by developing innovative, sustainable business models for forest management and maintenance, supporting new bio-based value chains and ES markets, and involving different sectors, public and private actors, and citizens. Restoring and maintaining healthy forests has been recognised as a source of value for the Alpine region, while also creating business opportunities and green jobs for Alpine communities.

The project focuses on a subset of FES from the following categories:

1. **Provisioning** (e.g. biomass, raw materials, chemicals) with a specific focus on non-timber forest products, and on the production of woody biomass for energy, integrated into circular energy markets.
2. **Regulating** (e.g. biodiversity, natural risk reduction, CO<sub>2</sub> absorption) concretely working on carbon and biodiversity credits, natural risk management through protective forests, and innovative environmental finance instruments such as green bonds and reverse auctions.
3. **Cultural** (e.g. recreation, habitat experience, health) particularly enhancing recreational and tourism services and spiritual and cultural services.

These services have been explored and tested within Living Labs (LLs) across five countries, located in different Alpine territories and representing diverse ecological and socio-economic contexts:

1. **Italy – Valle Tanaro, Piedmont:** The LL in Valle Tanaro explores innovative approaches to valorising chestnut groves, promoting non-timber forest products, developing carbon and biodiversity credits, and fostering experiential activities linked to forest and rural heritage.
2. **France - Haute-Savoie:** Grand Annecy and Thonon LLs focus respectively on two aspects: 1) recreational ecosystem services, enhancing the value of forests through the sale of experiences such as ecotourism, outdoor activities, and educational programmes; 2) enhancing the value of water regulation services through a public-private partnership.
3. **Slovenia – Karavanke Mountains, municipality Tržič:** The Slovenian LL addresses natural risk management with a focus on torrent control, advances solutions for wood biomass supply chains and promotes sustainable tourism and recreational use of forests.
4. **Austria – Province of Styria:** The Styrian LL concentrates on biodiversity and habitat provision and carbon sequestration and storage through innovative financing mechanisms such as reverse auctions.
5. **Germany – Tegernsee Valley, Upper Bavaria:** The German LL explores spiritual and cultural services, such as forest cemeteries with biodegradable urns, while also fostering habitat and biodiversity conservation through collaborative public-private partnerships.

Accordingly, the project is aiming to:

1. Map and analyse the Alpine Space forests delivery capacity of FES;
2. Identify and estimate the economic potential, define business models and FES market frameworks;
3. Test the models/tools developed by the consortium in pilot LLs involving local players;
4. Compare results at transnational level, identifying obstacles and facilitating factors;
5. Analyse the need for innovative policies to foster forest maintenance, FES markets, and new value chains;
6. Elaborate refined transferable tools/models and policy proposals to enable new markets and value chains and ensure the expected FES.

Throughout the project, a continuous participatory process is carried out within the Living Labs. Stakeholders' active involvement in these labs is essential for co-designing and testing models and tools, ensuring that the innovative approaches are rooted in local realities. In parallel, public events and capacity-building workshops have strengthened engagement, supported

knowledge transfer, and provided regular updates on project activities. This participatory and long-term approach, tested across the five territories, is paving the way for refined, transferable tools and policy proposals that can unlock new markets and value chains while safeguarding the provision of ecosystem services in the Alpine Space.

Project duration: 42 months

### 3. First Online Training Module

Title: **The concept of Forest Ecosystem Services**

Speaker: **Frédéric Berger (INRAE)**



Figure 1: Banner from the first online training module

The first training module introduces the **concept of Forest Ecosystem Services (FES)** and provides the methodological foundations for their assessment within the Forest EcoValue project.

The module begins by clarifying that ecosystem services are based on a **human-centred perspective**, representing the benefits that forest ecosystems provide to society. In this sense, FES are not intrinsic properties of forests alone, but rather the result of how humans perceive and value the functions performed by forest ecosystems.

A reference is made to European-level classification systems, such as the **Common International Classification of Ecosystem Services (CICES)**, which provide a harmonised framework for defining and categorising ecosystem services. Within this framework, three main categories of FES are presented:

- **Provisioning services**, including tangible outputs such as timber, biomass and raw materials;
- **Regulating and maintenance services**, such as water purification, carbon sequestration and protection against natural hazards (e.g. avalanches, rockfall, torrent control);

- **Cultural services**, including recreation, tourism and spiritual values, which are more difficult to quantify and map.

The module then illustrates how these categories are operationalised within the Forest EcoValue project across its five pilot countries (Austria, France, Germany, Italy and Slovenia), highlighting a range of ecosystem services addressed through both **biophysical assessment and economic valuation**.

A significant part of the module is dedicated to the **biophysical assessment framework** used in the project. This includes several key steps:

- defining the scope and selecting relevant ecosystem services;
- identifying appropriate indicators;
- collecting and harmonising data;
- performing spatial modelling;
- assessing ecosystem service stocks and flows;
- mapping results;
- validating outputs.

The use of **large-scale datasets**, including European sources such as Copernicus and previous Interreg Alpine Space projects, is emphasised as essential for ensuring comparability across different territories.

The module also highlights the importance of a **participatory approach**, involving stakeholders such as forest owners, managers, public authorities and local users. Their engagement is crucial for identifying relevant ecosystem services, selecting indicators and ensuring access to data, particularly in contexts characterised by fragmented forest ownership.

Finally, the module outlines the practical challenges associated with data availability, scale of analysis and model selection, presenting the assessment process as an iterative workflow that requires continuous validation and adjustment.

Overall, this module provides a structured introduction to the concept of FES and the methodological approach adopted in the project, laying the groundwork for subsequent modules on economic valuation, business models and policy development.

The first training module is available on the Forest EcoValue YouTube channel at the following link: <https://www.youtube.com/watch?v=ykEYur5YoXA>.

## 4. Second Online Training Module

Title: **Economic value of Forest Ecosystem Services**

Speaker: **Victoria Yavorskaya (University of Graz)**



Figure 2: Banner from the second online training module

The second training module focuses on the **economic value of Forest Ecosystem Services** (FES). The module begins by explaining that the economic value of ecosystem services represents the **value that individuals and society attribute to the benefits generated by ecosystems**, rather than a direct market price. A key distinction is made between **value and price**, highlighting that ecosystem services can generate significant value even when no market price exists. For example, recreational activities such as hiking in forests are often free of charge, yet they provide substantial benefits in terms of well-being.

The module further clarifies that the purpose of economic valuation is **not to assign a price tag to ecosystem services or to estimate direct revenues**, but rather to assess how ecosystems contribute to **human welfare and well-being**, supporting informed decision-making and policy development. In this context, economic valuation is presented as a tool to analyse trade-offs and guide resource management strategies.

Different approaches to ecosystem service valuation are introduced, including both **monetary and non-monetary methods**, with a specific focus on monetary valuation adopted within the Forest EcoValue project. These include:

- market-based approaches, applicable when ecosystem services are traded;

- revealed preference methods;
- cost-based approaches;
- stated preference methods.

The module also presents the concept of **value transfer**, a method used within the project to estimate ecosystem service values across multiple pilot areas by transferring results from existing valuation studies to the Living Labs. In particular, the project applied an **adjusted unit value transfer approach**, which allows the estimation of values in monetary terms (euro per hectare) while accounting for differences in local socio-economic conditions of project partner countries.

A practical example from one of the project Living Labs is used to illustrate how valuation results can be interpreted. The module emphasises the importance of critically analysing outputs such as **unit values, total economic value and spatial distribution maps**, and encourages users to consider the underlying assumptions, data limitations and methodological choices.

Finally, the module highlights key limitations of economic valuation, including:

- data availability constraints;
- the interconnected nature of ecosystem services;
- the influence of scarcity and abundance on perceived value;
- potential rebound effects resulting from changes in ecosystem use.

Overall, the module provides a comprehensive understanding of how economic valuation can support better decision-making, while also underlining the need for cautious and informed interpretation of results.

This second training module is available on YouTube at this link: <https://www.youtube.com/watch?v=qgoQ-Aa0W50>.

## 5. Third Online Training Module

*Title:* **Market design and business model implementation in Forest Ecosystem Services**

*Speakers:* **Luca Cetara (Lombardy Foundation for the Environment), Carlotta Pellegrino (Lombardy Foundation for the Environment)**

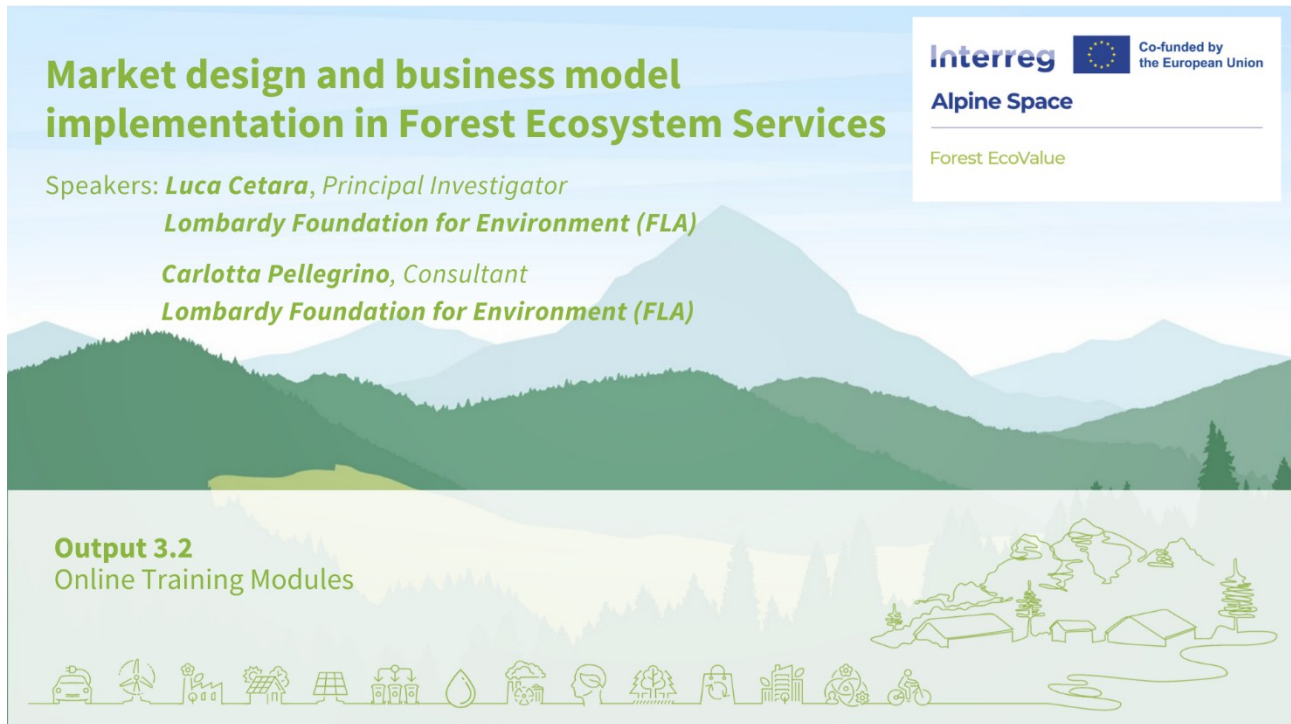


Figure 3: Banner from the third online training module

The third training module introduces the fundamentals of **market design and business models for Forest Ecosystem Services (FES)**.

In the case of ecosystem services, many benefits provided by forests (e.g. clean water, carbon storage, biodiversity) do not have a direct market price. This is explained through the concepts of **public goods** (non-rival and non-excludable) and **externalities**, where benefits or costs are not reflected in market transactions. As a result, forest owners are typically compensated only for private goods such as timber, while receiving little for public ecosystem services, leading to a **misalignment of incentives** and under-provision of these services.

The module highlights the need to **internalise externalities** by designing systems that reward forest managers. Markets are therefore presented as systems that can be intentionally designed, requiring elements such as clear property rights, measurable services, mechanisms to limit free-riding and the presence of willing buyers.

Building on this, the module introduces the concept of a **business model** as a framework explaining how value is created, delivered and captured. Particular attention is given to the **Business Model Canvas**, adapted within the project to account for ecosystem services by

including elements such as key beneficiaries, governance structures and cost reduction strategies.

Finally, the module presents different **business model archetypes** (e.g. environmental finance, tourism and experience-based models, circular economy, and social initiatives) and emphasises the importance of defining value propositions (environmental, social and economic), governance arrangements, cost structures and value capture mechanisms, while considering trade-offs between them.

This online training module is available at this link:  
[https://www.youtube.com/watch?v=C\\_TxX6qI5qs](https://www.youtube.com/watch?v=C_TxX6qI5qs).

## 6. Fourth Online Training Module

*Title:* **Developing policy frameworks for Forest Ecosystem Services**

*Speaker:* **Adriana May (Lombardy Foundation for the Environment)**

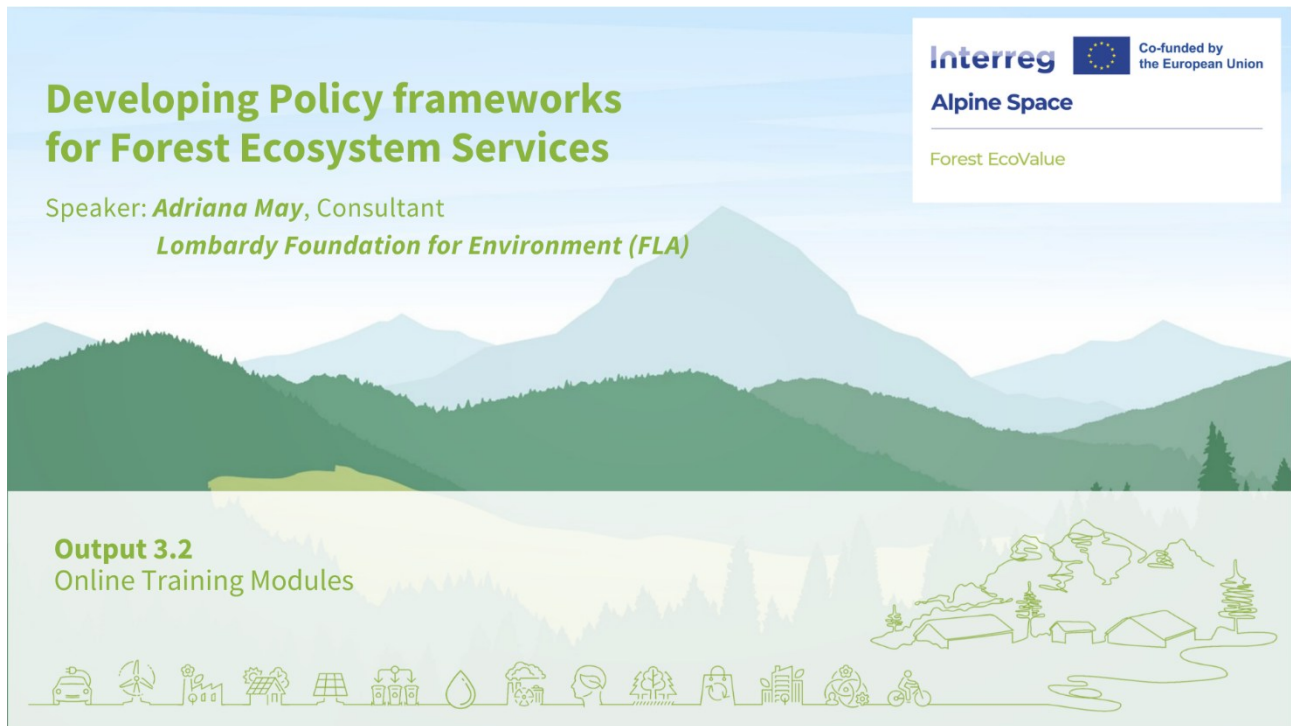


Figure 4: Banner from the fourth online training module

The fourth and final training module focuses on the **policy dimension of Forest Ecosystem Services (FES)**, emphasising the need for a coherent governance framework and a supportive political context. It is **based on a dialogue process** involving stakeholders and policymakers at transnational, national and regional levels across the Alpine region.

FES provide **benefits of public interest**, but face significant challenges related to the **economic sustainability of forest management**, particularly in mountain and marginal areas. Issues such as forest abandonment, declining forest quality and the limited capacity of public or private actors to address these challenges alone highlight the need for coordinated policy action. In addition, multiple sectoral policies and governance levels influence forest management.

The module presents the project's policy work, including a **policy inventory** analysing regulatory frameworks and practical experiences, stakeholder engagement involving Alpine Convention, EUSALP, public authorities and Living Lab actors, and the development of a **policy memo**. This memo provides key principles and proposals in a flexible “toolbox” format, adaptable to different legislative and territorial contexts.

Core principles include the need for **active forest management**, the recognition of **fair income for forest owners and enterprises**, and the importance of **public-private cooperation**. The

module also stresses the need to recognise the economic value of ecosystem services and promote shared responsibility between providers and beneficiaries.

Key policy directions include promoting **economic sustainability** through a mix of ecosystem services and value chains, strengthening **cooperation among forest owners**, identifying **strategic ecosystem services**, improving the use of compensation mechanisms to support the **restoration and management of existing forests**, and increasing public awareness of the value and costs of ecosystem services.

Finally, the module highlights the importance of **supporting instruments and planning tools**, such as data-sharing platforms, capacity building, innovation support and integrated, participatory governance approaches.

This last training module is available at the following link: <https://www.youtube.com/watch?v=-jr3w1m36g0>.

## Conclusions

The Online Training Modules developed within the Forest EcoValue project represent an important output for ensuring the **dissemination and usability** of the knowledge generated during the project.

By converting the contents of the Alpine Winter School into structured video modules, this output allows a wider audience, including policymakers, practitioners and stakeholders, to access and benefit from the project results.

The four modules provide a coherent overview of the main project themes, covering the conceptual understanding of Forest Ecosystem Services, their economic valuation, the development of business models and the role of policy frameworks. Together, they highlight the need for an integrated approach combining environmental, economic and governance dimensions.

Overall, the training modules contribute to strengthening capacity building and support the uptake of innovative approaches for the sustainable management and valorisation of forest ecosystem services, ensuring continuity of impact beyond the project duration.

