

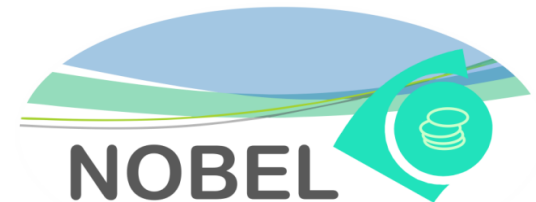


NOBEL - Novel business models and mechanisms for the sustainable supply of and payment for forest ecosystem services

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<https://nobel.boku.ac.at/>



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NOBEL Project Partners

- Forest Sciences and Technology Centre of Catalonia, Spain
- French National Institute for Agricultural Research, France
- Norwegian University of Life Sciences, Norway
- School of Agriculture / Instituto Superior de Agronomia, Portugal
- Swedish University of Agricultural Sciences, Sweden
- Technische Universität München, Germany
- University of Natural Resources and Life Sciences Vienna, Austria



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ForestValue has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°773324.

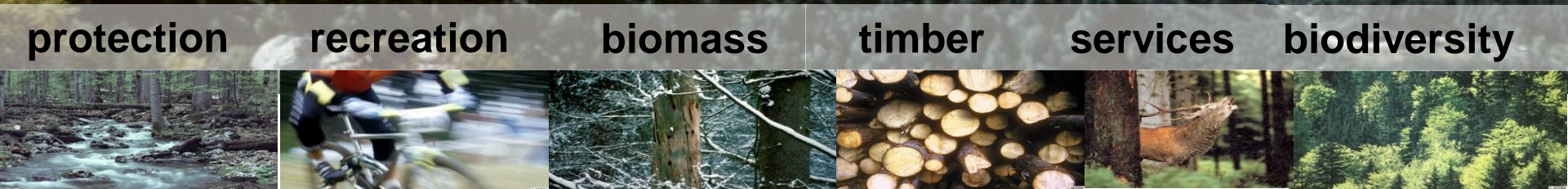
Total project budget: 1.477.736.- €

Project start and end date:
01/02/2019 – 30/09/2022



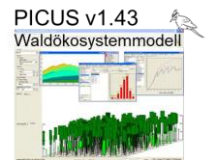
Introduction and motivation

- demand for timber, non-timber products and ecosystem services is increasing due to growing populations and socio-economic changes
- many important forest ecosystem services have no direct monetary value
- forest management often favour timber production over other services
- Hindering and success factors for payments for ecosystem services identified
- Innovative mechanism, business models and policies for payments for ecosystem services explored in NOBEL
- trade-offs among different forest ecosystem services in pilot demonstrations analyzed
- Demonstration of business models with web-based auction platform





Scientific approach



Predict effects
of forest management
with ecosystem models

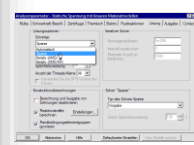


quantification
of FES with
indicators

assess economic
value of FES



quantify acceptable value trade-
offs with optimization tools



methods and mechanisms for
web-based auctioning



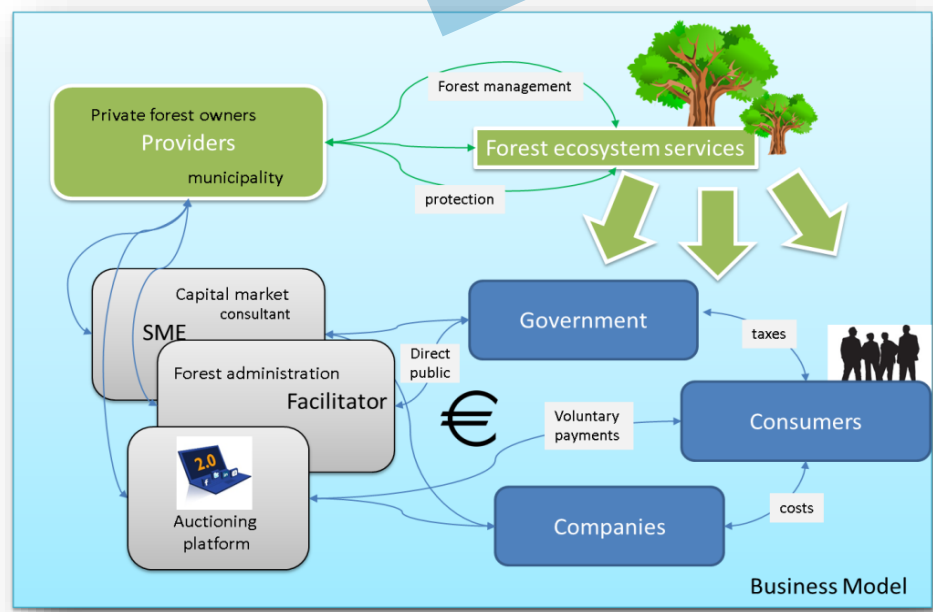
implement
business models



Identify business
relations



Design innovative
forest management plans



Results: Indicators for assessment of forest ecosystem services

Section	Division	Group	Class	Indicators	Regulation & Maintenance (Biotic)	Transformation of biochemical or physical	Mediation of wastes or toxic substances of anthropogenic origin by living processes	Filtration/sequestration/storage/accumulation by micro-organisms, algae, plants, and animals	Area occupied by riparian forests								
Provisioning (Biotic)	Biomass	Wild plants (terrestrial and aquatic) for nutrition, materials or energy	Wild plants (terrestrial and aquatic, including fungi, algae) used for nutrition	Production of wild berries and fruits	29.5%	Biomass	Surface water used for drinking	Volume of water extracted	Mediation of nuisances of pogenic origin	Smell reduction	Tree cover density around infrastructure						
			Production of mushrooms	Provisioning (Biotic)								Genetic material from all biota (including seed, spore or gamete production)	Transformation of biochemical or physical inputs to ecosystems	Regulation of physical, chemical or biological conditions	Direct, in-situ, and outdoor interactions with living systems that depend on presence in the environmental setting		
			Fibres and other materials from wild plants for direct use or processing (excluding genetic materials)													Regulation & Maintenance (Biotic)	Indirect, remote, often indoor interactions with living systems that do not require presence in the environmental setting
		Wild plants (terrestrial and aquatic, including fungi, algae) used as a source of energy	Abundance of wood (wooded)	17.2%	Water	Non-aqueous natural abiotic ecosystem outputs	Transformation of biochemical or physical inputs to ecosystems	Regulation of physical, chemical or biological conditions	Direct, in-situ, and outdoor interactions with natural physical systems that depend on presence in the environmental setting								
		Wild animals (terrestrial and aquatic) for nutrition	Wild animals (terrestrial and aquatic) used for nutritional							Population of invertebrates	12.3%	Regulation & Maintenance (Abiotic)	Regulation of physical, chemical or biological conditions	Indirect, remote, often indoor interactions with physical systems that do not require presence in the environmental setting			
			Other materials from animals for direct processing (excluding materials)	Population of invertebrates	7.4%	Cultural (Abiotic)	Indirect, remote, often indoor interactions with physical systems that do not require presence in the environmental setting										
			Fibres and other materials collected for use or establishing a material	Potential of food material				4.9%	Cultural (Abiotic)	Indirect, remote, often indoor interactions with physical systems that do not require presence in the environmental setting							
			Lower plants (organisms) used to produce strains or	Potential of food material	4.9%	Cultural (Abiotic)	Indirect, remote, often indoor interactions with physical systems that do not require presence in the environmental setting										
				Net				4.9%	Cultural (Abiotic)	Indirect, remote, often indoor interactions with physical systems that do not require presence in the environmental setting							
		Net	4.9%	Cultural (Abiotic)	Indirect, remote, often indoor interactions with physical systems that do not require presence in the environmental setting												

Section

Division

Group

Class

Class type

Provisioning

Biomass

Water

Cultivated plants

Wild plants

Reared animals

Cultivated plants for nutrition

Cultivated plants for materials

Cultivated plants for energy

Cereals

0

5

10

15

20

25

% of total indicators

Common International Classification of Ecosystem Services (CICES)

14 groups, 53 classes, 85 Indicators

10.10.2022



Forest Value
ERA-NET Cofund



(Grima et al. 2022)

Results: Analysis of PES schemes



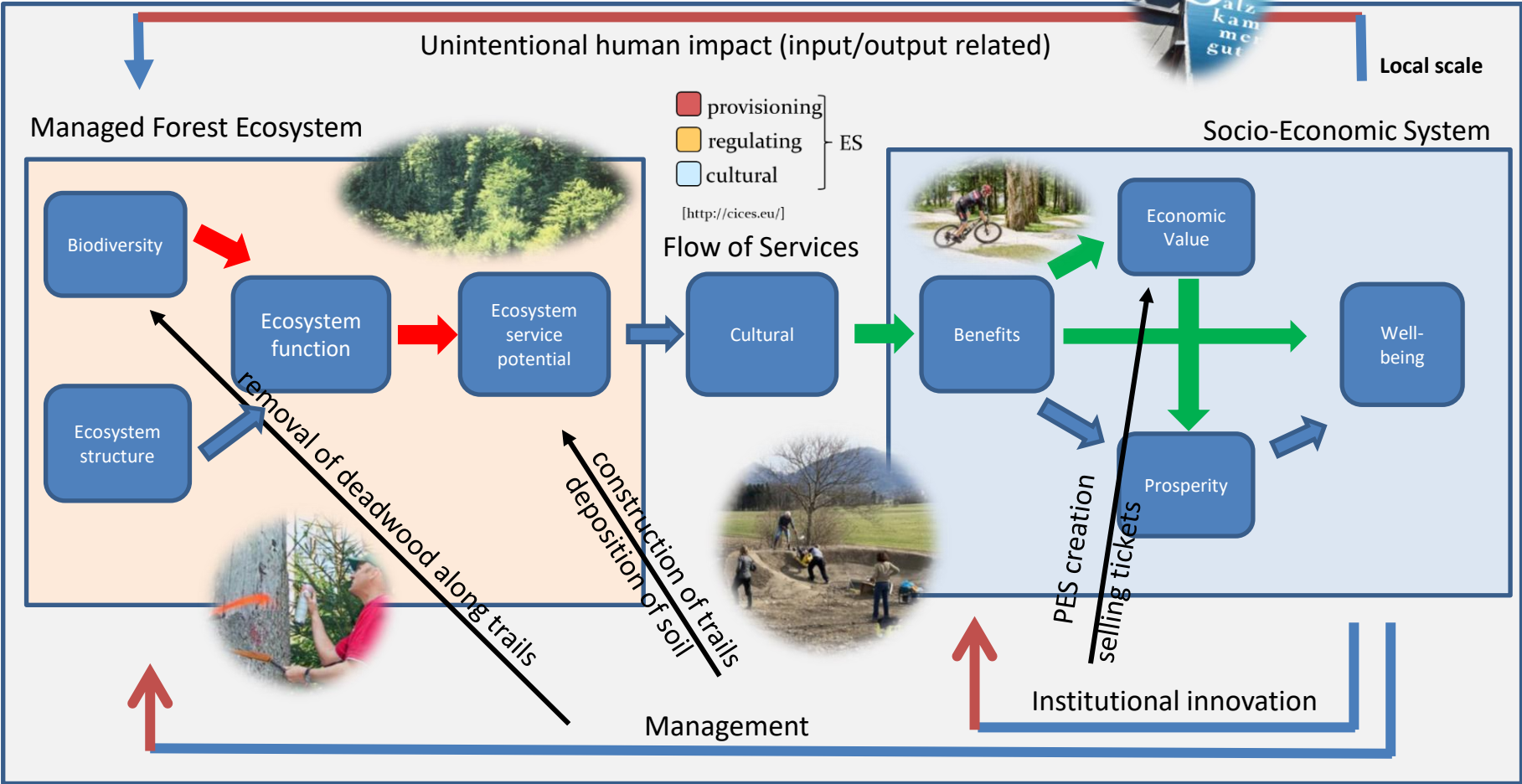
185 case studies were analyzed:

- (a) extent to which the goals of the PES scheme were met,
- (b) overall improvement of the ecological, economic and social conditions of the region
- (c) Factors leading to a successful implementation

(Nazari 2020; Grima et al , 2022)



FOREST ECOSYSTEM SERVICES CASCADE



Results: Auctioning web-platform

ECOSSEL
ECOSYSTEM SERVICES

MEMBER LOGIN

Why Ecosel? Land Campaigns Manage Account

Ecosel puts forest management in *your* hands.

Here's How It Works:

- Step 1**
Select land
- Step 2**
Bid on a plan
- Step 3**
Winning plan implemented

Select a land campaign you care about + Think about what's important to you + Compare various plans

BIDDERS GO HERE >
LANDOWNERS GO HERE >

About ECOSSEL

ECOSSEL provides a way for the public to join forces and bid collaboratively or competitively to influence forest management on private land. The management alternative that attracts the most bids will be implemented by the landowner through a legally binding conservation easement. [learn more »](#)

Current Land Campaigns

Paccar Hall Open Space
Support the University of Washington's effort to create open space at Paccar Hall. [learn more »](#)

Pack Example
University of Washington's 4,300 acre working forest seeks revenue to continue the tradition of training students & demonstrating sustainable forestry in the face of budget cuts. [learn more »](#)

Land Management: What's Important To You?

- Habitat Preservation**
Concerned with the integrity and health of a particular ecosystem? ECOSSEL allows you to promote conservation easements. [learn more »](#)
- Recreation**
- Wood Products**
- Carbon Sequestration**
- Restoration**

Support the University of Washington's effort to create open space at Paccar Hall.

Home > Land Campaigns > Campaign Details

Paccar Hall Open Space

Details

Summary: Support the University of Washington's effort to create open space at Paccar Hall.

Open: 8:00 AM on 3/22/2012 to 12:00 AM on 1/1/2020 Pacific Standard Time

Location: University of Washington, Seattle

Type of Auction: Public

Notes:

- (1) Bidders are allowed and bids are not final until the auction is closed.
- (2) Communication between bidders is facilitated.
- (3) Reserve prices for management portfolios ("bundles") are disclosed.
- (4) Bidders of \$2000 are not required.

Latest Activity

koolerthankatz bid \$ on Rhododendron Garden at 3:29 PM on 8/4/2014

koolerthankatz bid \$500 on Rhododendron Garden at 3:28 PM on 8/4/2014

hwrogers bid \$ on

Home > Land Campaigns > Campaign Details > Management Plan

Option: Owl Habitat

Summary

Manage for owl habitat

Description

Land would be managed to foster the local owl population and native plant species. The plan would consist of installing owl boxes on the proposed parcel in order to increase the biodiversity of the campus. Native plants would be seeded in order to maintain the owl's natural habitat. The primary use of the land would be to ensure owl prosperity and thus not designed for pedestrians or general use by people.

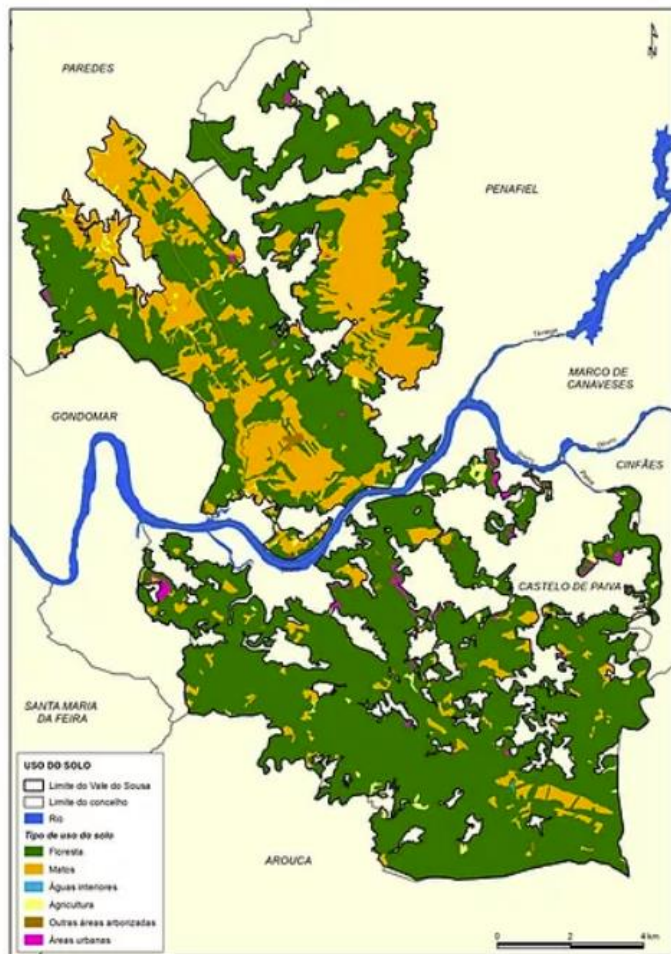
• Ecosystem Services: Pest Control
• Time of Fully Execute: 1 Year

Additional Resources

- Option Details (.pdf)
- Legal Info (.pdf)
- Summary (.pdf)

LOGIN TO BID

Toth et al. (2019)



Example for Impact:

- Testing Auctioning platform with stakeholders in pilot study Portugal
- Different combinations of ecosystem services in a participatory approach defined
- corresponding management plans selected
- Bidding process implemented in different settings

Int Lab Session

adores : Cynthia Zurita, Miguel Sottomayor, Alexandra Leitão & Logan Bingham

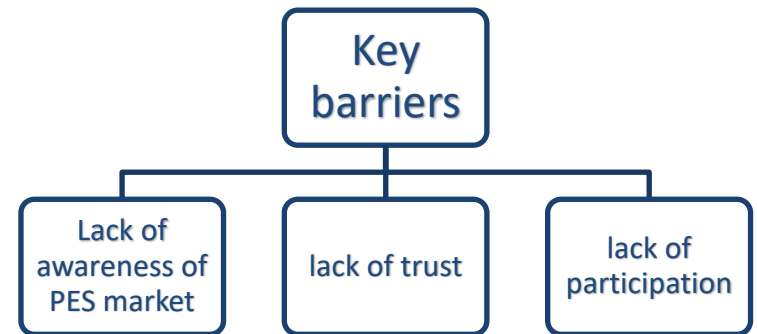


Photo credits : Nahorna, O (Set. 2021)



Example for further research: Supporting PES with social media

- How can social media influencers facilitate to overcome the barriers in PES initialisation, implementation and ES provision?



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Policy Brief

Four pathways to govern Europe's multiple forest ecosystem services

Europe's forests provide many different products and services, such as wood, hunting, and tourism, among many others. Yet, some services of great value to people are not usually traded on markets: these include **carbon sequestration, water regulation, biodiversity conservation, and recreational experiences**. With markets absent, private forest owners do not have sufficient incentive to enhance quality and quantity in supplying these services, a costly market failure.

This policy brief outlines **four pathways** to secure better alignment between landowner incentives, stakeholder interests, and societal objectives towards Forest Ecosystem Services (FES) in Europe. These pathways are primarily based on findings from the H2020 project **SINCERE** and ERA-NET project **NOBEL**.



1 Enhance policy integration to align policy targets and financial means



An integrated forest policy framework is critical to ensure that various forest related policies at EU and member state level do not impede each other but work together in a manner that supports the management of Europe's forests for multiple FES. Increasing policy coordination and consistency in forest policy decision-making, in congruence with addressing trade-offs in implementation, implies: (a) aligning different forest-related policy instruments and ensuring that their objectives are backed-up by legal and financial means.

Those instruments should be flexible enough to meet regional priorities and socio-economic demands; (b) involving concerned societal groups and scientists systematically in goal formulation and implementation processes; and (c) monitoring policy implementation and adapting policies based on information.

2 Develop an EU-wide system for payments for forest ecosystem services (PES)



An EU-wide PES system holds significant potential to advance the provision of such services in line with the novel EU forest policy framework. Guiding principles for establishing an EU-wide payment system for forest ecosystem services to incentivize their provision are: (a) pre-agreeing on systemic objectives and funding; (b) selecting cost-effective and flexible implementation mechanisms; (c) combining scientific knowledge with participatory co-design; (d) adopting long-term perspectives and commitments; and (e) identifying priority areas for different FES (e.g. biodiversity hotspots, FES demand hotspots such as peri-urban forests).

However, some FES, such as watershed protection, are more locally rooted – and may thus also be better addressed through locally or nationally conceived incentive systems.

3 Support innovation and experimentation through bottom-up participation



Innovations relating to multiple FES exist across Europe, but forest policy has been traditionally focusing on innovations for wood supply. There is a need to encourage and support innovation for the provision of multiple FES across Europe, through stakeholder engagement, and networking across sectors and policy levels.

Participatory approaches in forest modelling and planning can reduce conflicts and secure societal acceptability of selected management alternatives. Based on experimentation with various policy instruments, coordination (or competition, where appropriate) between landowners could enhance the effectiveness of supplying multiple FES.

4 Improve information to monitor FES supply and demand



Improving the system for monitoring FES supply and demand is crucial, especially for regulating services (e.g. habitat provision and improvement of air quality) and cultural services (e.g. education and recreation). Agreeing on harmonized FES definitions, accompanied by standardized indicators, could greatly improve their monitoring on different spatial and temporal scales.

It is important to link this with spatially explicit information about societal demand for FES and forest owners' preferences.

Find out much more in a commentary paper available here
<https://doi.org/10.5281/zenodo.6393968>



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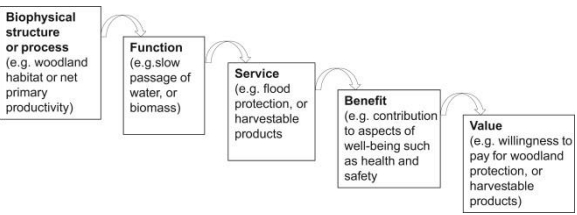
Georg Winkel - Wageningen University & Research





Unexpected peculiarities

- COVID-19 pandémie reduced the options for interaction with stakeholder and **less face to face meetings** caused higher effort for the planning of online meetings to engage with partners
- Rules and expectations from **different national funding organizations** caused administrative work
- lack of awareness about the PES market mechanisms caused **low participation or mistrust**



- Offline / online **workshops** for different groups made stakeholders (especially forest owners) aware of the opportunities related to PES
- The Ecosystem Service Cascade model was identified as useful **analytical framework** for the system analysis on rural/social innovations in forest sector

The ecosystem service cascade model (Potschin and Haines-Young, 2011)

The value of scientific cooperation

- Different **mechanism and business models** for forest ecosystem services were explored at national and regional level in Europe
- Broad expertise from scientific partners allowed to analyze also the **socio-economic and political dimension** of PES schemes with different methodological approaches
- Learning about the **demands from forest owners** and the willingness to support PES by the public through surveys



- Auction platform provides **easy access** to harmonized information about forest ecosystem services and bring providers and buyers in the market together
- **Policy brief** worked out in collaboration with SINCERE project, additional value beyond ForestValue



Thank you!



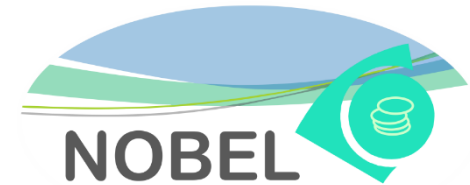
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ForestValue

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