

Information calculated from the forest development models is now used for an economic analysis to understand the potential of small-scale forest owners on the timber market (national and European) and a multi-criteria analysis to find potential **TRADE-OFFS** between wood production, ecosystem services and forest resilience.



BIOECONOMY

The **BIOECONOMY** means using renewable biological resources from land and sea, like crops, forests, fish, animals and micro-organisms to produce food, materials and energy.



Forests are an important contributor in the transition to bioeconomy, with timber as a material and as a substitute for nonrenewable resources.

Small-scale forest owners have a strong potential to preserve healthy forests and safeguard the multiple forest ecosystem services. They perceive all forest values as important, however, environmental and social values are seen as somewhat more important than economic values. These values, forest ecosystems, forest management traditions and legislation vary among countries resulting in different perceptions of management activities. Such differences influence the implementation of a common multifunctional forest management and call for national approaches to balance the trade-offs between timber production, carbon stock, biodiversity, and other ecosystem services.



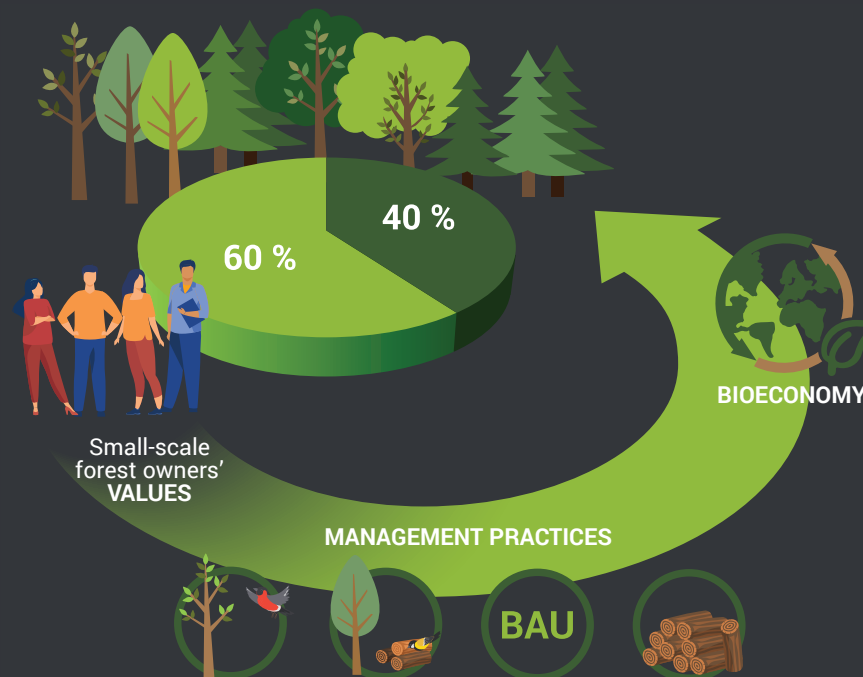
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SMALL FORESTS - BIG PLAYERS: VALORISING SMALL-SCALE FORESTRY FOR A BIO-BASED ECONOMY



ValoFor is supported under the umbrella of ERA-NET ForestValue project (<https://forestvalue.org/>). This project is to promote increased innovation and competitiveness of the forest-based sector in Europe and support its transformation from a resource-intensive to a knowledge-intensive, productive, resource-efficient and resilient sector. A research programme that has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 773324.



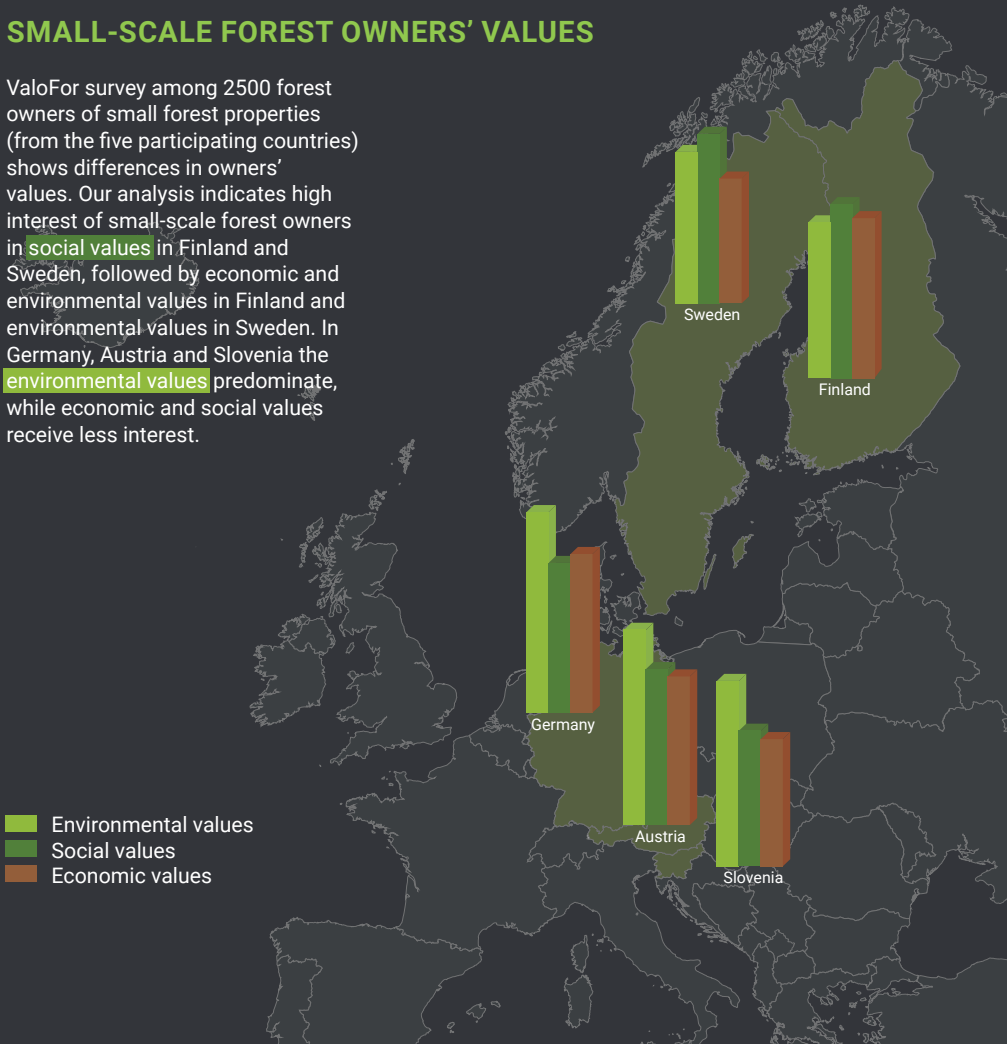


SMALL-SCALE FOREST OWNERS

In the EU, about 60% of the forest area is privately owned. Almost 90% of private forest holdings are smaller than 10 hectares. They provide a large share of wood for the growing bioeconomy.

SMALL-SCALE FOREST OWNERS' VALUES

ValoFor survey among 2500 forest owners of small forest properties (from the five participating countries) shows differences in owners' values. Our analysis indicates high interest of small-scale forest owners in **social values** in Finland and Sweden, followed by economic and environmental values in Finland and environmental values in Sweden. In Germany, Austria and Slovenia the **environmental values** predominate, while economic and social values receive less interest.



- Environmental values
- Social values
- Economic values

SMALL-SCALE FOREST OWNERS' MANAGEMENT PRACTICES

Small-scale forests owners' values influence their management practices. Four potential management scenarios were defined: no management, close-to-nature, business as usual and increasing wood production. Forest development models were used to calculate the future growing stock, harvest, biodiversity indices etc, not only under the four management scenarios but also under different climate change scenarios. The graphs below show two 'extreme' scenarios:

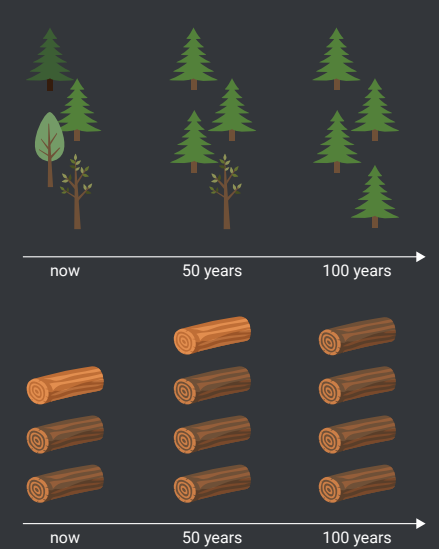
LOW INTENSITY



Low intensity management practice leads to:

- ▶ wider wood assortment,
- ▶ more biodiversity.

HIGH INTENSITY



High intensity management practice leads to:

- ▶ thinner wood assortment,
- ▶ less biodiversity.

The presentation of the scenarios above is simplified.