



An experimental laboratory in forestry on the classified site of Mont Beuvray

Introduction

Covered by a 950 ha forest estate managed by Bibracte, Mont Beuvray constitutes an exceptional archaeological and natural site, recognized for its landscape quality and for its important heritage dimension: it sheltered the capital of the Aedui, a Gaul people Celtic, in the 2nd and 1st centuries BC. The last few years of severe drought have had a strong impact on the forest area. Since 2018, spruce stands (around 100 ha) have had to be fully exploited (clear cuts) following massive bark beetle attacks, while beech and silver fir stands also show serious signs of dieback. Faced with the challenge of adapting forests to climate change, forest stakeholders must also implement multifunctional silviculture, capable of producing quality wood while preserving biodiversity and the environment as well as societal uses of the forest.

Methodology and results

In a regional context presenting a strong demand for involvement from civil society in forest management, the project partners have set themselves the objective of setting up an experimental system intended to study changes in the forest ecosystem, to experiment with different sustainable management methods and to open a space for dialogue on forestry subjects.

This forest laboratory will take into account in a concerted manner three issues related to forest management in the face of climate change: the preservation of wood resources, the characterization and preservation of ecosystem services, and the social acceptability of silvicultural practices. The 2nd objective of the project consists of setting up observation protocols, carrying out a first series of field data collection campaigns and initiating the analysis of this data. Finally, the project partners intend to establish and lead a permanent consultation system in order to consolidate the laboratory and strengthen cooperation between scientists, practitioners and residents.

Several actions have already been implemented:

1) Design and organize a laboratory

- 50 organic matter sampling points as part of a thesis.

- Opening of 30 soil pits and associated analyses.
- Installation of 3 soil temperature and hygrometry probes as well as soil respiration measuring devices.
- Geological identification of the substrate and petrographic analyses.
- Compilation of available data on the history of the forest massif.
- Establishment of a shared cartographic tool for sampling soils and forest stands.

2) Observation, collection and analysis of field data

- Regeneration of 96 ha of old spruce stands with experimental afforestation methods on 68 ha.
- Conducting a wave of measurements of forest stand observation plots (PSDRF protocol).
- Monitoring of experimental plantings (1200 permanent seed plots) and dieback.
- Summer hunting experimentation on approach in order to contain the deer population.

3) Establish and lead a consultation system

- Practical workshops in the forest with the general public.
- Study trip to Central Europe to meet forest professionals and experts.

Lessons learned

The project brings together stakeholders wishing to be integrated into forest management around a common subject of concern: the future of forest areas under climatic constraints. The result will be technical forest management decisions, scientifically supported and representative of the diversity of opinions and issues.

Carried out on a small territory, the project allows for extensive transdisciplinary experimentation with precise results and easy local action possibilities. The size of the territory nevertheless remains a technical challenge for carrying out certain studies (such as climate modeling) in which the project is part of a larger scale on a cooperative basis.



The data could also be shared with the scientific and technical community via the Sentinel Forest Observatory of the Natural Reserves of France.

The information presented in this factsheet was developed by the FOREST4EU partner, drawing on the innovations and knowledge generated by the indicated operational group with their explicit authorization.

Further information

<https://forestlab.hypotheses.org/>



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