



# PAHERNIK FOREST: A CASE FROM SLOVENIA

 Pahernikova  
ustanova

  
ZAVOD za GOZDOVE  
SLOVENIJE  
Slovenia Forest Service

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Oddelek za gozdarstvo in obnovljive gozdne  
vire  




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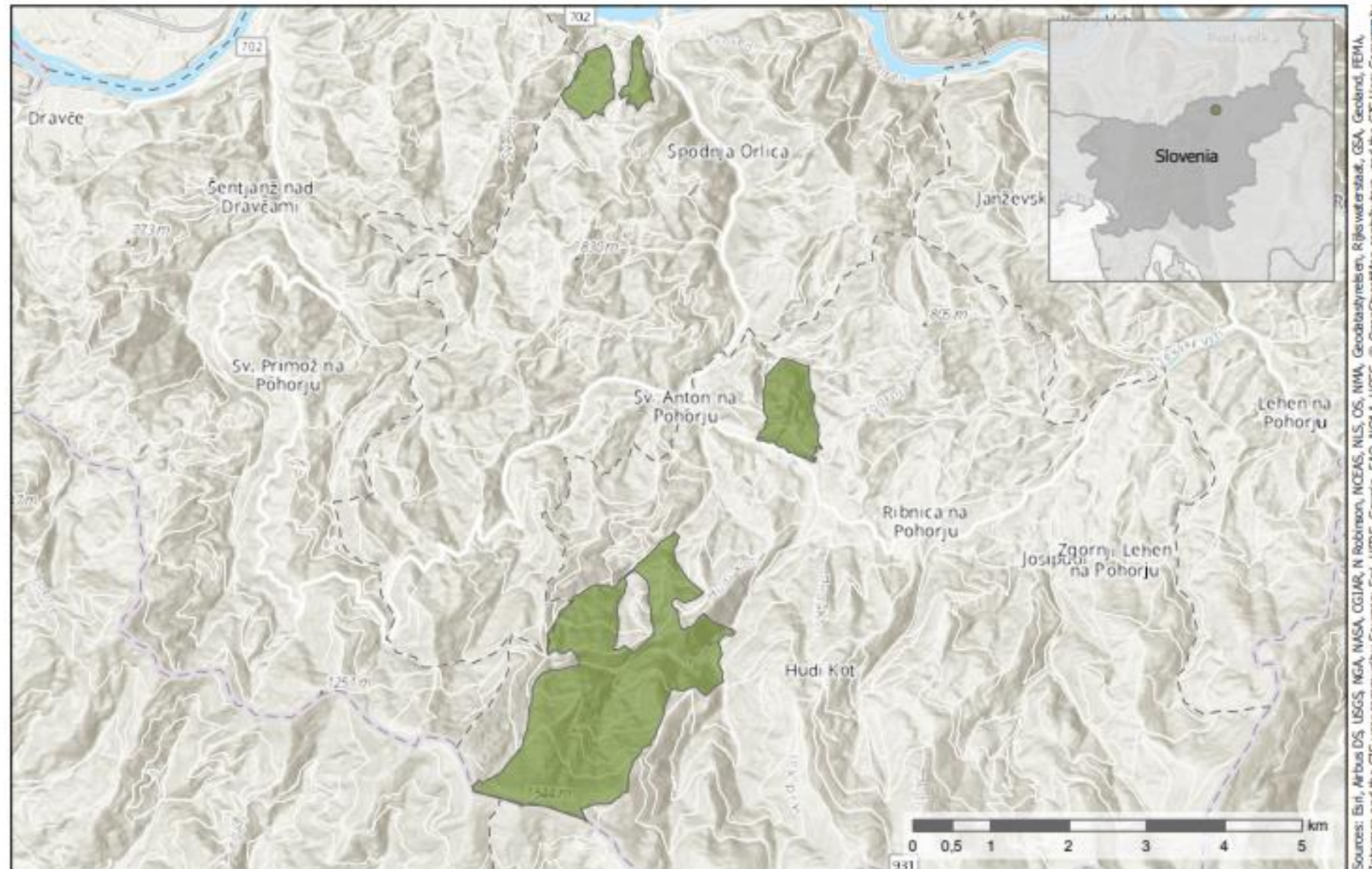
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 LIFE  
SYSTEMiC

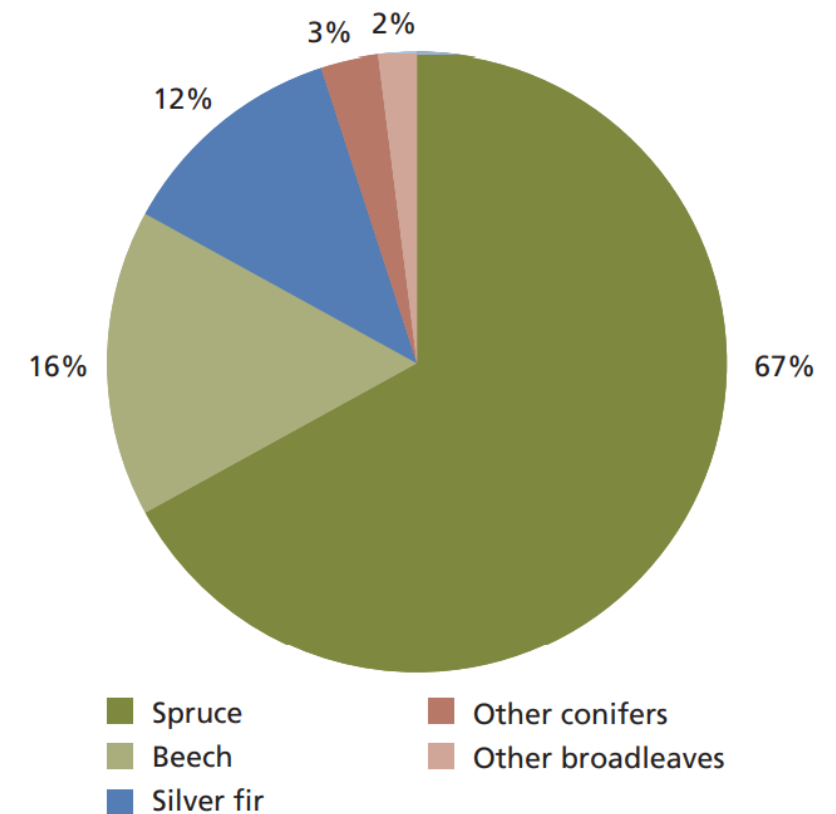
 LIFE GEN MON  
LIFE FOR EUROPEAN FOREST GENETIC MONITORING SYSTEM

PAHERNIK FOREST LOCATION: northern slopes of Pohorje mountain chain in northern Slovenia. Altitude: 370 m – 1542 m a.s.l)




# PAHERNIK FOREST: An example of sustainable and multifunctional management

Total forest area	570 ha
Predominant forest community	Luzulo – Fagetum, Galio rotundifolii - Abietetum
Main tree species	Spruce, beech, silver fir
Total volume	453 m <sup>3</sup> /ha
Forest structure	Multi-layered, uneven-aged, small areas of single-tree selection stands and pure even aged spruce stands
Main management types	Freestyle silvicultural system following natural principles (from single and group selection to irregular shelterwood)




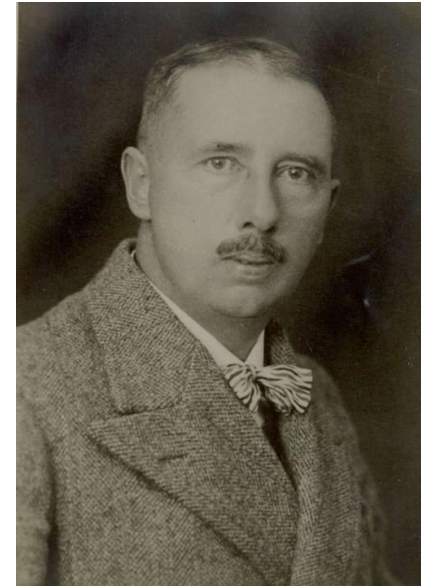


### HISTORY:


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- 1903: Forestry engineer Franjo Pahernik takes over the management after the death of his father.
  - Pioneer in applying close-to-nature forestry
  - Vida Ribnikar (daughter) inherit the forest.
  - 2005: She establish the Pahernik Foundation to manage the forest.

### TODAY:


- 
- Pahernik Foundation is the legal owner.



## AIM:

- 
- Manage the forest based on close-to-nature principles
  - With profits provide scholarships for forestry students and grants to researchers for implementing research activities.

## ORGANISATION:

- 
- Five-member board
  - President
  - Commission for scholarships and scientific research
  - The board is responsible for the organisation of the management.



## PAHERNIK FOREST: An example of sustainable and multifunctional management

- ❑ The growth conditions and the state of the forest enable sustainable wood production → economic basis for the activities and mission of the owner.
- ❑ A main focus is on WOOD PRODUCTION, which is emphasised on 96 % of the forest area.

*Management is based on **close-to-nature forestry techniques**, following natural principles. **The current Forest Act in Slovenia defines that close-to-nature, multifunctional and sustainable forest management has to be carried out in all forests.** The aim of forest management is to find a **balance** between wood production, ecological and socio-economic functions. Ecosystem conservation, the protection of soils, social functions, and timber production are equally important.*



## PRODUCTION FOCUS

- ❑ Close-to-nature management in Pahernik forest assures continuous economic returns.
- ❑ Within the last decade the annual economic surplus was about **190 €/ha**.
- ❑ The logs are sold to the local sawmill which is also equipped with a band saw suitable for sawing larger diameter logs.
- ❑ A high economic return is a result of 98 % of natural regeneration, indirect tending, and involvement of the Slovenia Forest Service with preparation of forest management plans.





**The mission of the Pahernik Foundation is providing grants scholarships for students and funds for research activities every year, starting from 2011 onwards.**



**40.000 € per year**

Scholarships and tuition fees for forestry students at the Master and PhD levels



**35.000 € per year**

Research and other activities connected to close-to-nature forestry

This money is provided by careful and planned management of the Pahernik forest.



## CONSERVATION FOCUS

Conservation of biodiversity is considered important in Pahernik forest.



331 ha NATURA 2000



14 ha set aside areas



Diverse habitats and rare and protected species

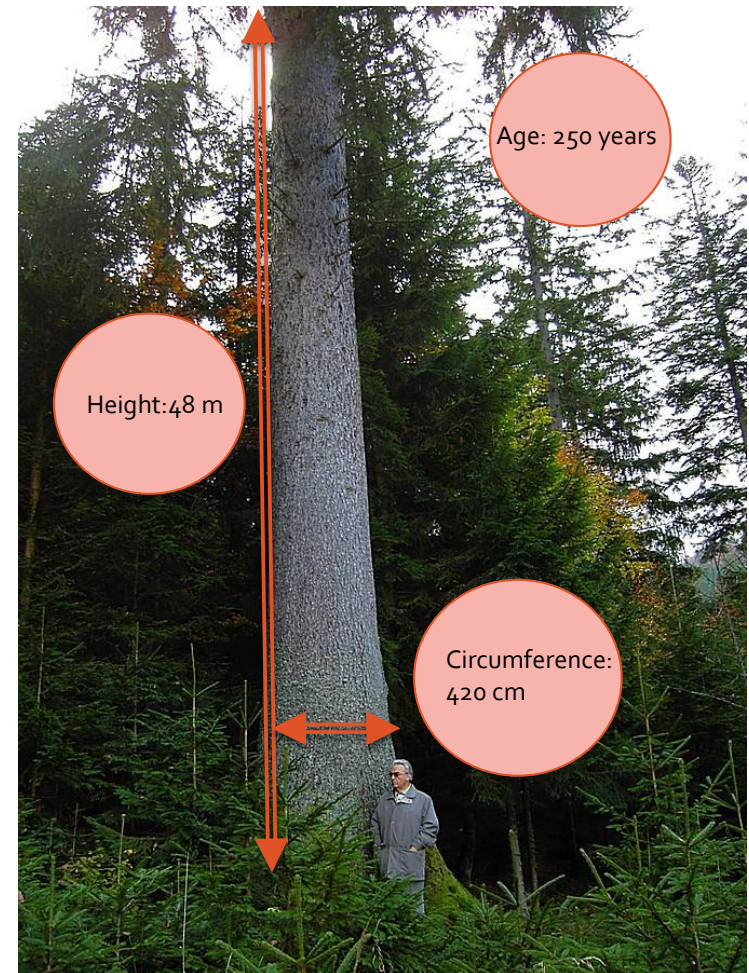


Retention of dead wood and habitat trees



## SOCIAL ASPECT

- ❑ Used for **research** and serves a for conducting **training courses and excursions**.
- ❑ **Pro Silva Exemplary forest** and **Marteloscope demonstration plot**
- ❑ Important from historical and cultural points of view, since it is a **good example of close-to-nature forestry practice**.
- ❑ Outstanding large and old trees, such as the **Pahernik spruce**. This spruce is one of the biggest in Slovenia and is a tree of national importance.





# MAP OF FOREST FUNCTIONS

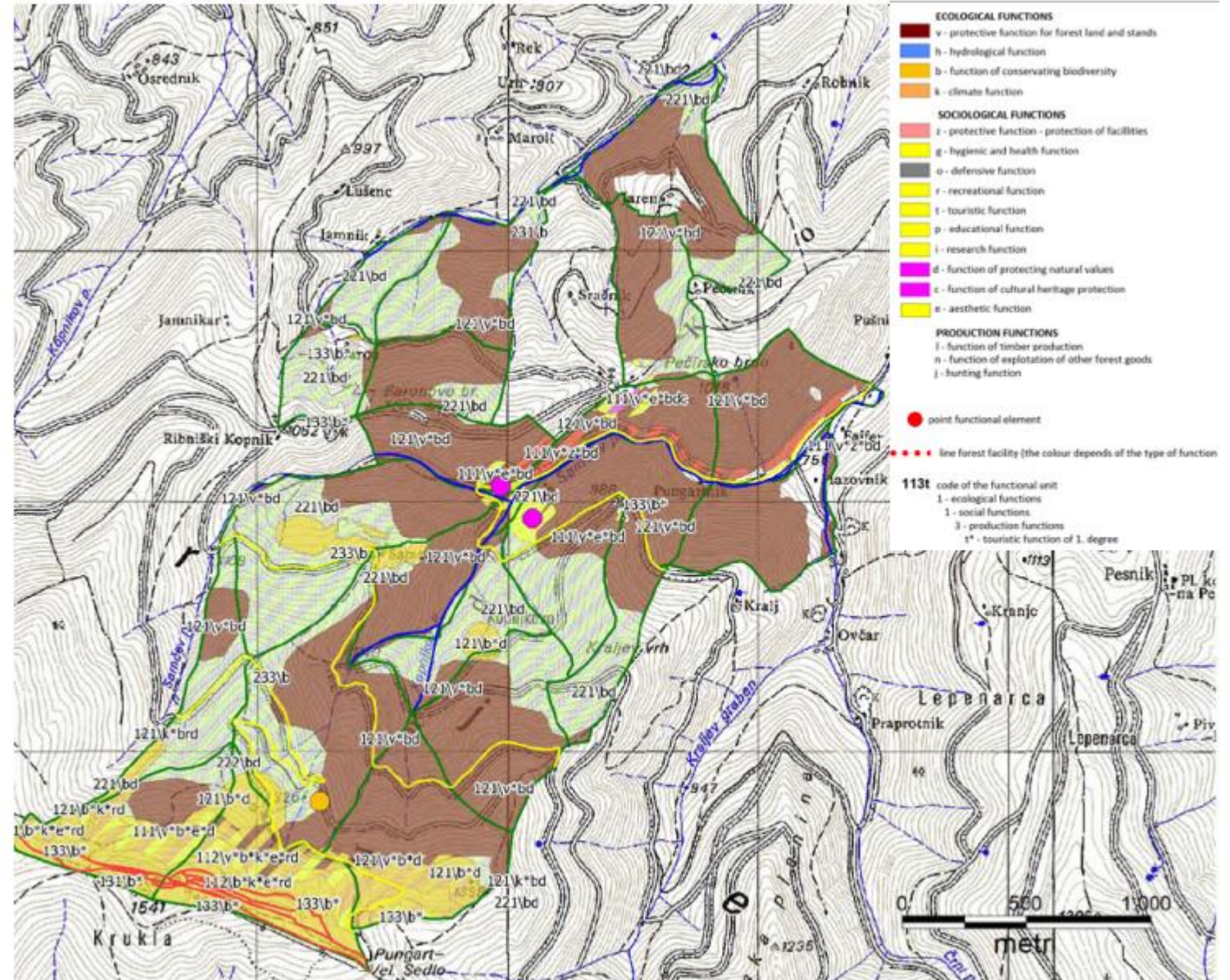
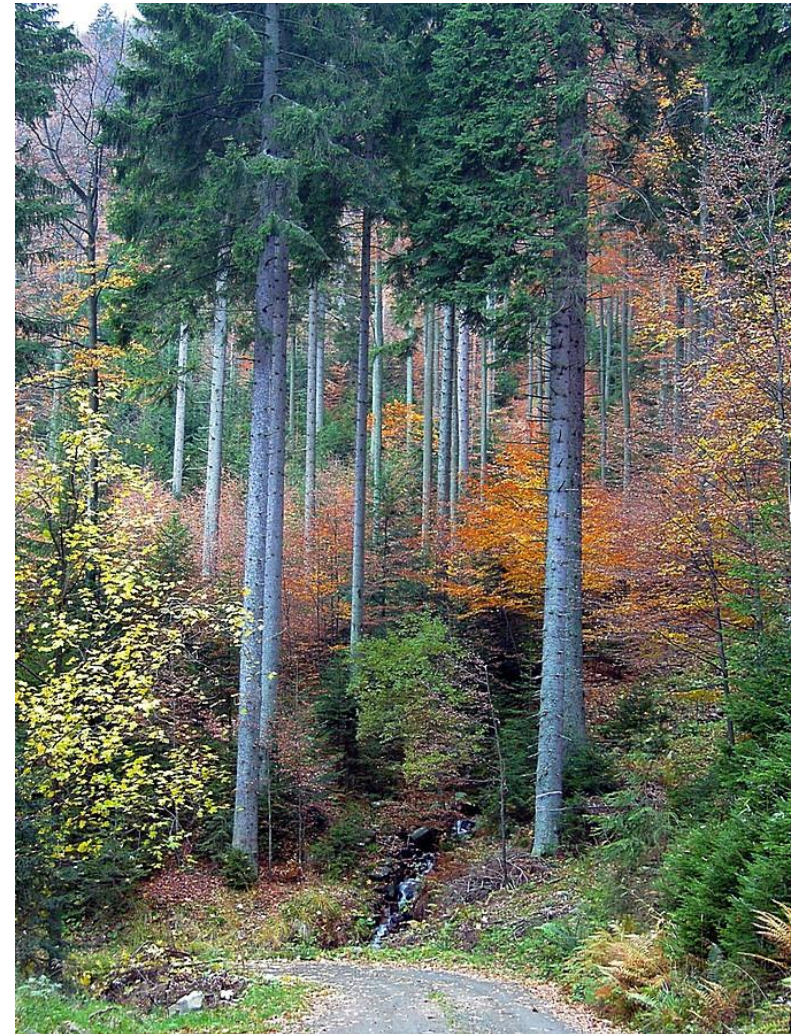


Fig. C6.10. Different functions in Pahernik forest (Source: Slovenia Forest Service).



## APPLIED MEASURES

- ❑ Continuous forest cover and a gradual transformation of the remaining Norway spruce plantations into more natural structures.
- ❑ Only a part of the growing stock has been cut – 18% of the growing stock or 75% of the increment.
- ❑ Natural regeneration and indirect tending are fully implemented.
- ❑ Maintaining high growing stock and increment, while simultaneously favoring a complex stand structure and regeneration on the entire area of the holding.
- ❑ Targeted management measures are applied to improve capercaillie habitat.
- ❑ Retention of habitat trees and deadwood.







## STRENGTHS

- ❑ Close to nature management which mimics natural principles .
- ❑ Consideration of different functions in forest management.
- ❑ Natural, uneven-aged, and mixed forests should have higher resistance to natural disturbances comparing with even-aged monocultures.

## WEAKNESSES



- ❑ Low average amount of deadwood, only 11.6 m<sup>3</sup>/ ha.
- ❑ In parts of the Pahernik property, pure even-aged spruce stands still remain as a result of planting and natural succession on abandoned agricultural lands.



The aim of the **LIFE SySTEMiC project (Close-to-nature foreSt SusTainable Management under Climate Changes)** is to use the “tool” of genetic diversity to protect our forests against climate changes. The basic idea is relatively simple: the higher the genetic diversity of the trees in a forest, the more likely it is that some trees will have genetic characteristics that make them more adaptable to climate change, thereby increasing the resistance and the resilience of the forest system. <https://www.lifsystemic.eu/>

**LIFEGENMON (Life for European Genetic Monitoring System):** Genetic diversity ensures survival and adaptability of forest trees under changing environmental conditions and is needed to maintain the vitality of forests to cope with pests and diseases. Forest genetic resources face a large number of increasing threats. By introducing **genetic monitoring** into conservation programs and sustainable forest management one has the tool in hand to assess information on relevant changes of a species and populations’ adaptive and neutral genetic variation through time. Based on indicators and their verifiers it can serve as an early warning system to aid the assessment of a species response to environmental change at a long-term temporal scale. <http://www.lifegenmon.si/>





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