

Linking Long-term Ecosystem Monitoring to Forest Management for Multiple Ecosystem Services

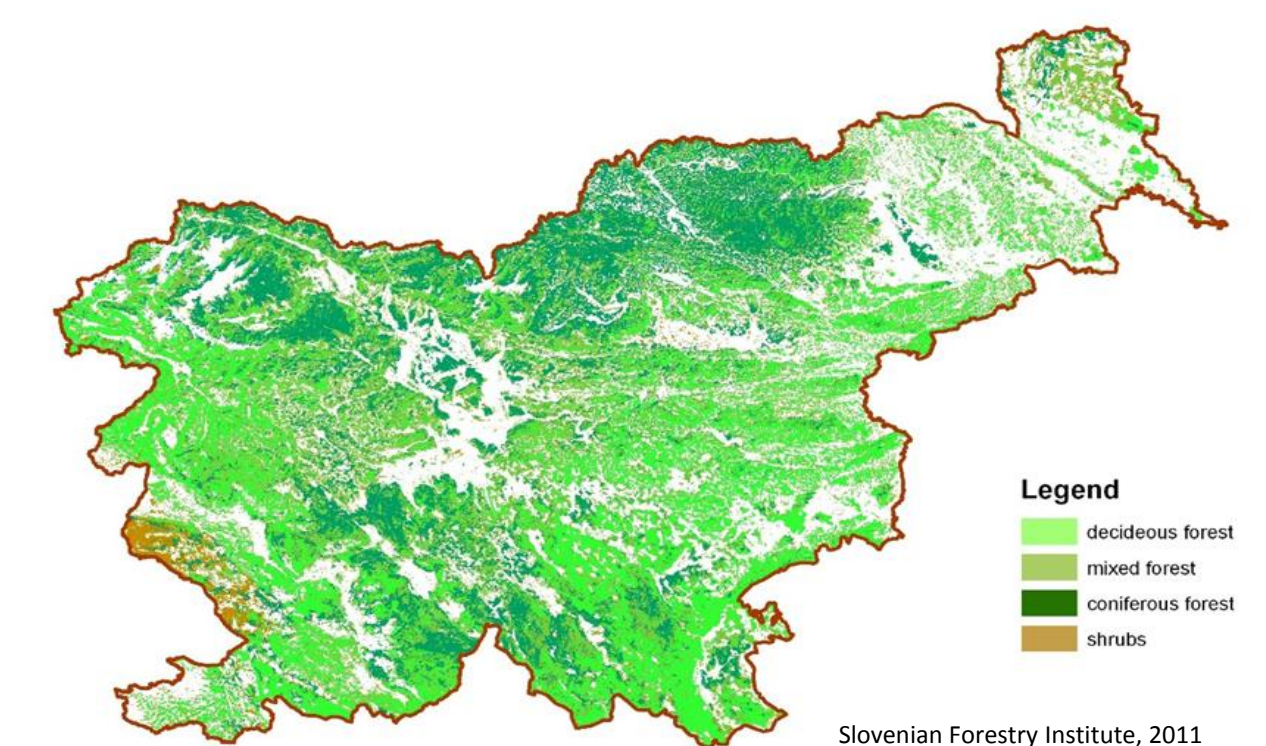
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OBJECTIVES

The demand for comparable, long-term, high quality data on the status of ecosystems, their ecosystem services and the changes is increasing at the national and global levels.

Long-term observations of different forest ecosystem compartments, using internationally harmonized methodologies, can be linked to sustainable forest management principles and provision of multiple ecosystem services by forests, e.g. biodiversity, carbon sequestration, clean air and water production, etc.

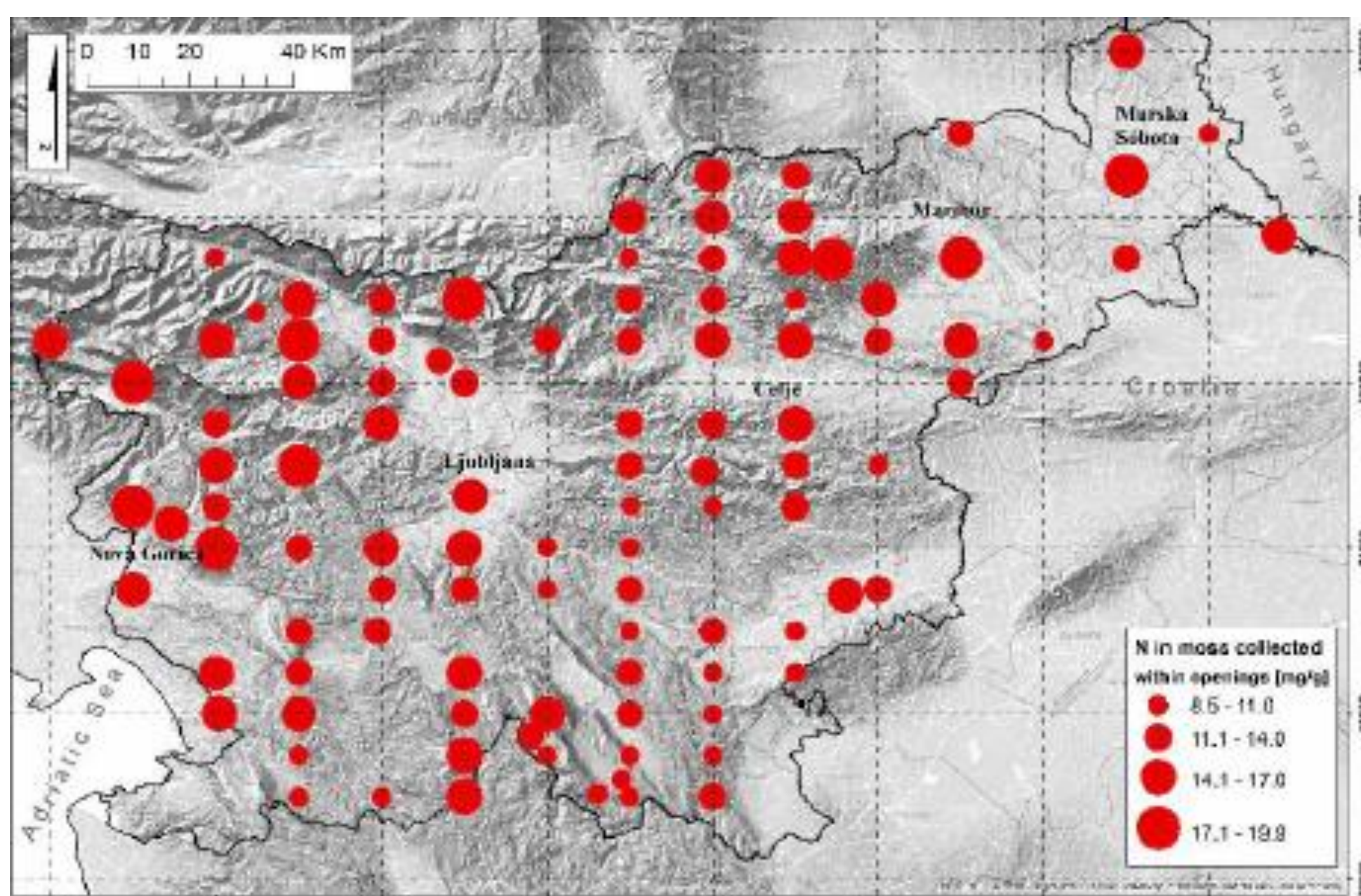


Slovenian Forestry Institute, 2011

Forest covers about 60% of Slovenia and is a symbol of the country's sustainable and close-to-nature forest management system for multiple ecosystem services.



In winter 2014, forest area of around half a million hectares was damaged.



Long-term Ecosystem Monitoring

The Forest monitoring programme in Slovenia has been taking place informally since 1986 and from 2004 onwards within the framework of the ICP Forests Programme, widely implemented in most European countries as well as in Canada, USA and some Asian countries. The transnational network of monitoring plots, including their installation and equipment, is an outstanding asset for European scientists in forestry, meteorology, modelling, medicine and decision makers.

DEMONSTRATION PROJECTS

Forest monitoring approaches are used to address specific forest management for multiple ecosystem services:

1. Monitoring ecosystem services provided by urban forests within the Life+ project EMoNFuR

- Urban ecosystems differ from natural ecosystems in importance and prevalence of certain disturbances.
- Harmonized methodology for monitoring multiple ecosystem services in urban forests and plantations as an example of adaptive forest monitoring.

2. The project Life+ ManFor C.BD where the impact of different forest management options on carbon cycling, biodiversity and social well-being were monitored.

- Sustainable forest management principles are continuously challenged by innovative forest management practices.
- The provision of multiple ecosystem services by managed forests, e.g. biodiversity and carbon sequestration was assessed by linking long-term forest monitoring plots and research activities with different forest management practices, relating the results to the Pan-European indicators for Sustainable Forest Management.



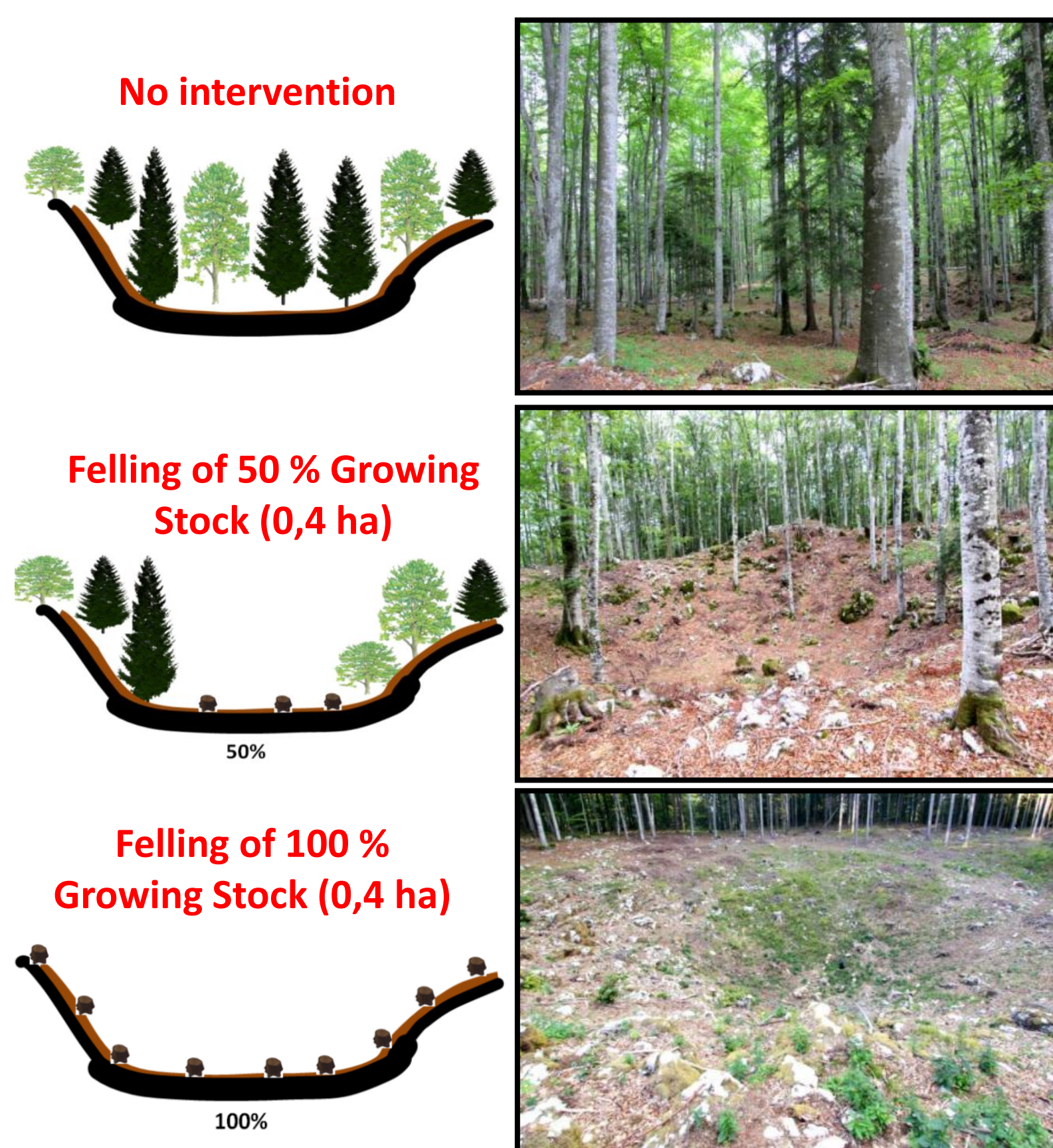
The content of lead (Pb) exceeds the warning value (100 mg kg^{-1}) on one location in the urban forest of the City of Ljubljana, Slovenia.



Deposition samplers at forest monitoring plot Brdo



Streamflow quality and quantity in urban forest of the City of Ljubljana, Slovenia.



FUTURE CHALLENGES

Forest monitoring should be continuously evolving and adapting in order to reflect emerging priorities:

- Air pollution,
- Climate change and large scale disturbances,
- Forest genetic monitoring,
- Forest pests, diseases and invasive alien species,
- Multipurpose ecosystem services, ect.

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