

Latvian State Forest Research Institute “Silava”



Latvia's perspective on defining old-growth forests

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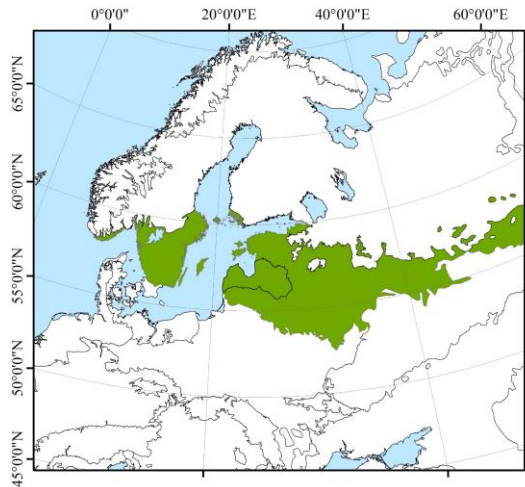
INTERNATIONAL CONFERENCE
Old-growth forests: policy and practice

October 10, 2024

Assessed old-growth stand in Latvia

n6 old-growth (OGF): stand-scale ecosystem distinguished by old trees and related structural attributes – late stages of stand development, great amount of large-size deadwood, multiple canopy layers, rich species composition with wide variation in tree size and spacing (FAO, Buchwald, 2005).

○ **old-growth stand** –forest stand where old trees still form the dominant cohort and no documented information or signs of former logging, like stumps, sawn surfaces of logs indicating past management activities.



Buchwald, E. (2005) A hierarchical terminology for more or less natural forests in relation to sustainable management and biodiversity conservation. *Proceedings: Third expert meeting on harmonizing forest-related definitions for use by various stakeholders* Food and Agriculture Organization of the United Nations, Rome, 17-19 January 2005.

Assessed old-growth stand in Latvia

In total assessed 188 stands (1128 sample plots). Stands without signs of management with old trees still being the dominant element.

Mineral soil

Spruce, mean age 182 ± 2 yrs.

Pine, mean age 179 ± 6 yrs.

Birch, mean age 131 ± 4 yrs.

Aspen, mean age 112 ± 3 yrs.

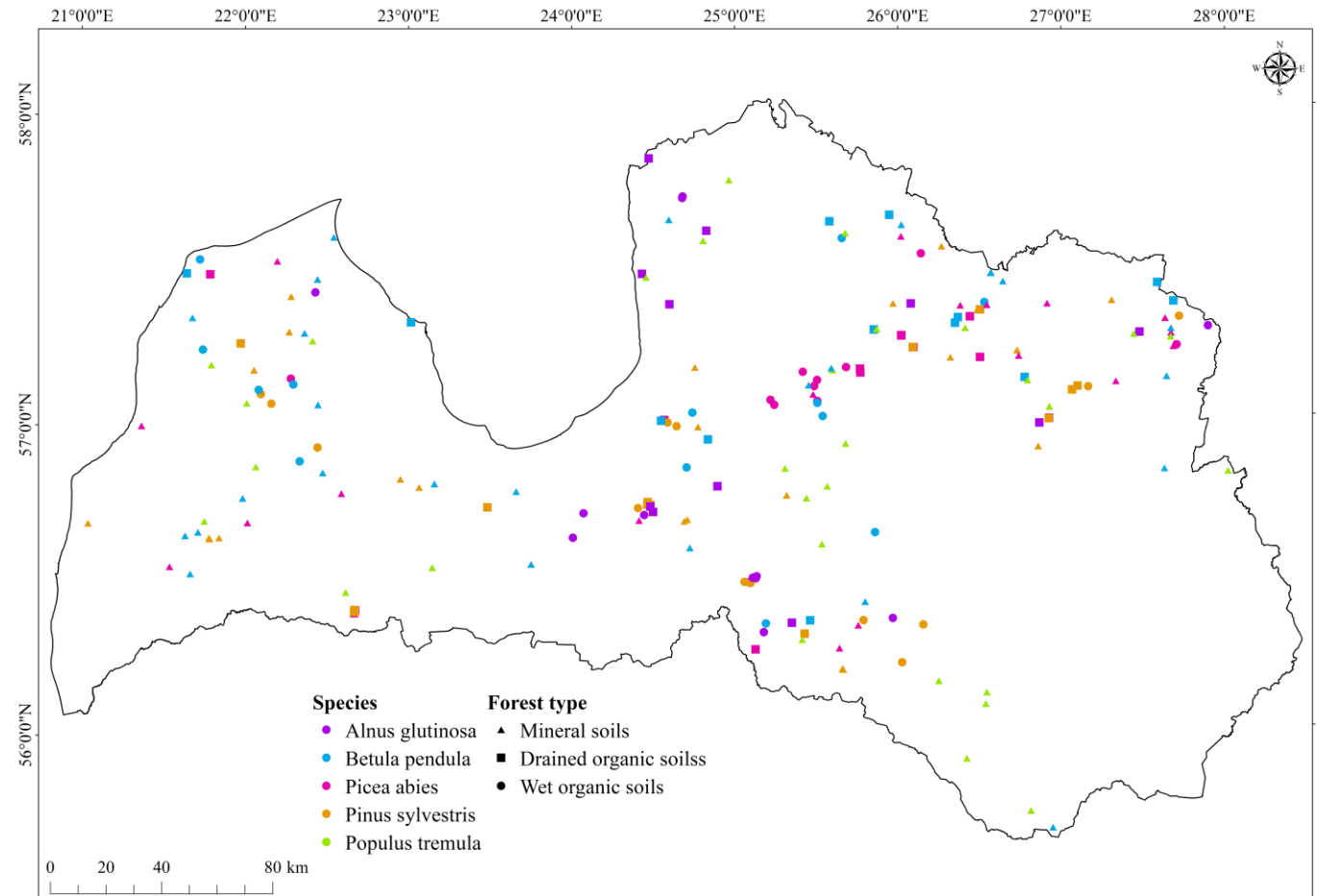
Organic soil

Spruce, mean age 147 ± 7 yrs.

Pine, mean age 159 ± 7 yrs.

Birch, mean age 124 ± 5 yrs.

Black alder, mean age 128 ± 3 yrs.



EU Biodiversity & EU Forest Strategies for 2030



The purpose of establishing old-growth forest areas:

1. To ensure continuous presence of old-growth traits important for set of living organisms;
1. To study long-term development of stand characteristics and implement its elements in closer-to-nature forestry practices.



Hemiboreal old-growth forest – how to define?

Old-growth characteristics will be influenced by site conditions. In Latvia the composition of forest growing conditions are as follows: forests on dry mineral soils (49%), forests on wet mineral soils (periodically waterlogged mineral or organic soils) (21%), forests on drained soils (mineral and organic soils) (30%).

Delineation of old-growth forests for protection has to be country/region specific, since the conditions vary between the eco- and forest history regions.



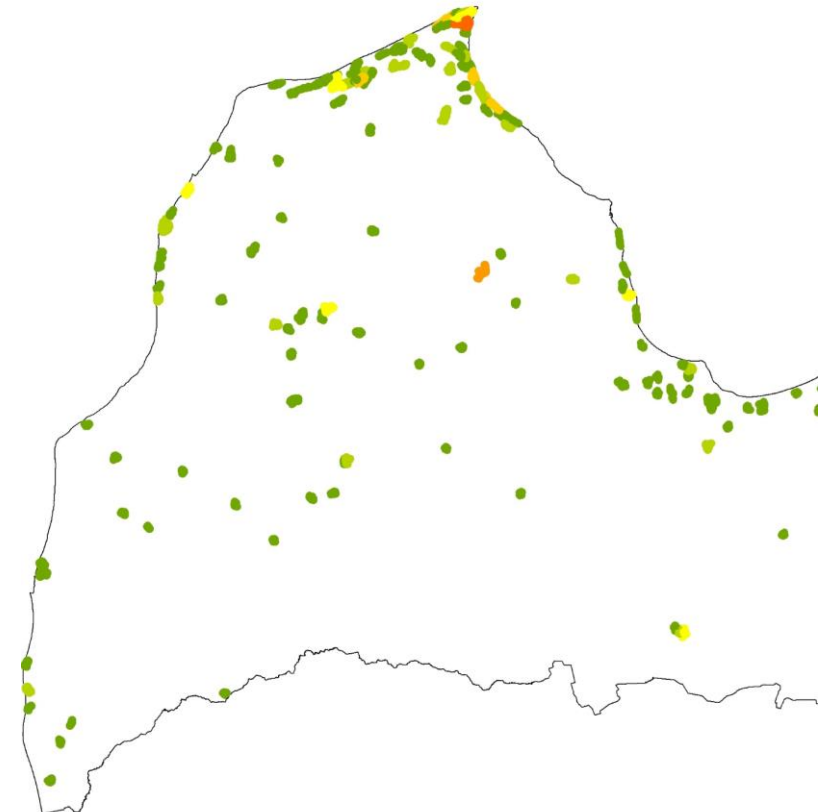
Hemiboreal old-growth forest – how to define?

○ **old-growth forests** – continuous forest area* dominated by naturally regenerated, old** stands of native tree species, typical of late successional stages or younger stands, originating from them as a result of natural disturbance, characterized by high structural complexity, amount of deadwood, and only a limited proportion*** of it containing traces of anthropogenic influence.

* Continuous area – at least 50 ha;

** Old stands - coniferous > 150 years;
noble broadleaved > 150 years;
other broadleaved > 120 years;

*** Limited proportion (<15% from the total area)



Main indicators for hemiboreal OGF

For hemiboreal forests the following indicators are considered:

1. Average age (broadleaves 120 yrs; coniferous 150 yrs.);
2. Native species, deadwood, old or large trees based on (COM, 2023);



Complementary indicators for hemiboreal OGF

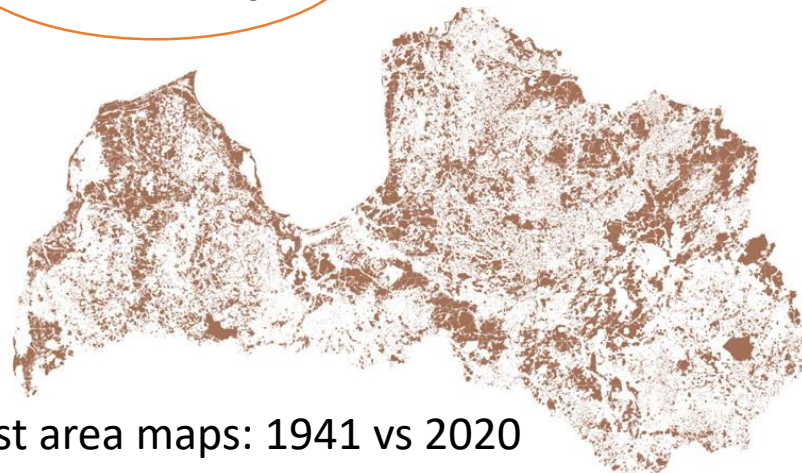
For hemiboreal forests the following indicators are considered:

3. Unaltered forest soil (no drainage min. 15% of area);
4. Forest continuity defined as established forest prior 1940;
5. A minimum patch size of 50 ha, allowing for the dynamics of natural processes;
6. Information from previous forest biodiversity inventories (including Nature Census).

**No
drainage**



**Forest
continuity**



Forest area maps: 1941 vs 2020
(J.Donis et al.)

**Minimal
patch size**



**Biodiversity
inventories**

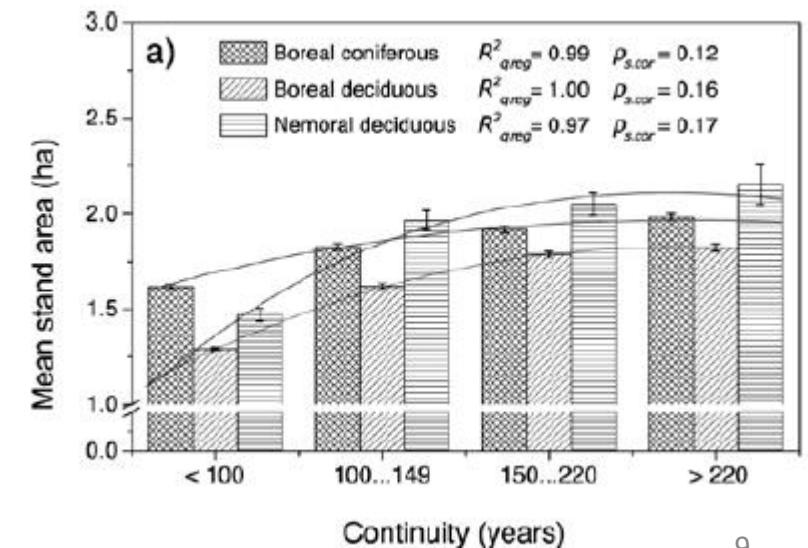
Complementary indicators: patch size

Considering the minimum continuous area (at least 50 ha) of delineated old-growth forests we underline, that it should be **large enough to maintain continuity of presents of old-growth stands while being affected by various natural disturbances and succession.**

Also recent studies involving scientists across Europe, demonstrate insufficiencies of small scale nature reserves to ensures high continuity of high ecological values. (Nagel et al. 2024 (unpublished)).

The mean stand area is positively correlated on forest continuity for all foret types (Fescenko et al., 2016).

Mean stand area by forest types vs. forest continuity



Conclusions



1. Old-growth forests and old forest stands are not the same. Within old-growth forests can grow not only old forest stands as dominating element, but it is also possible that e.g. due to natural disturbances old stands are lost and with regeneration replaced by young stands as the dominated element.
2. Considering the diversity of forest ecosystems in Europe, it is possible to adjust OGF indicators for national circumstances, including complementary indicators. Indicators such as patch size, unaltered forest soil, natural regeneration and forest continuity support the definition of OGF in the hemiboreal zone.

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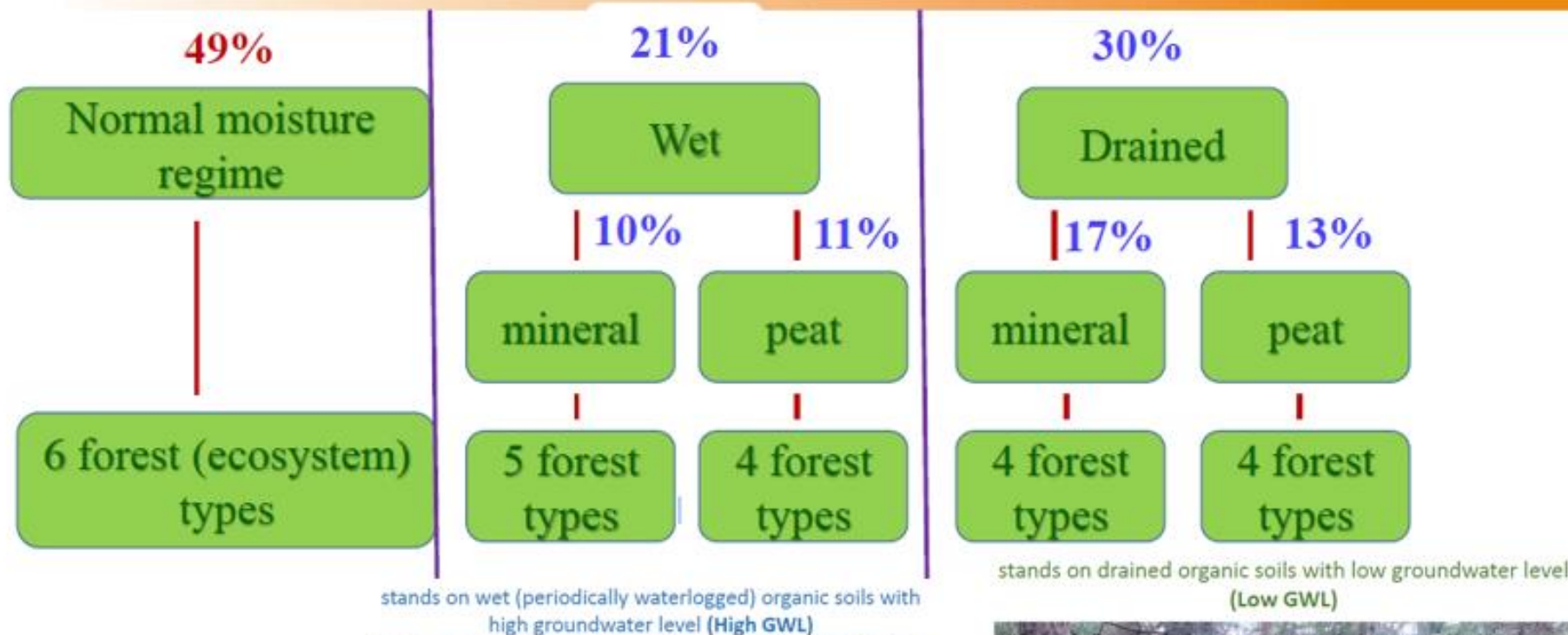
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Different forest growing conditions in Latvia



More than 20 different forest types!

