

# Sustaining growth and genetic diversity in planted Scots pine stands in Latvia: The Forest4LV contribution

Pauls Zeltnis

Latvian State Forest Research Institute "SILAVA"



## T 1.1. Improved adaptation

### A 1.1.2. The impact of planted Scots pine stands on the genetic diversity at the forest landscape level



**Methodological Approach:** Analysis of pine genotyping data to assess the impact of planted stand proportions on species genetic diversity at the forest landscape level.

**Data from:**

1. Mature pine stands, regenerated naturally.
2. Seed orchard progeny (representing the genetic diversity of planted stands).

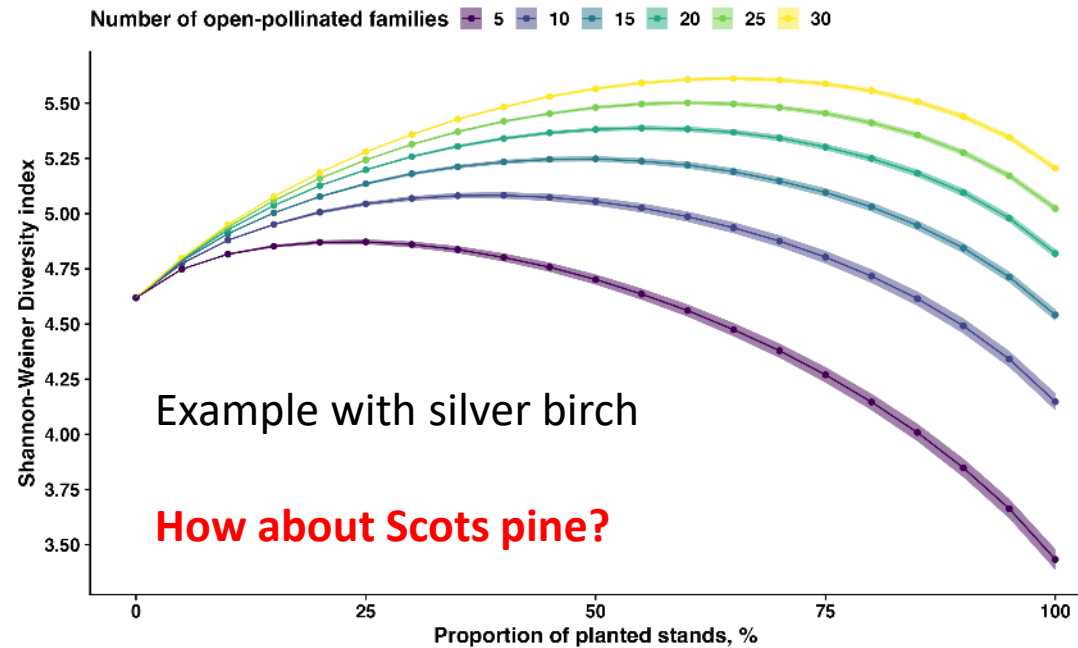
**Simulation analysis** to evaluate the impact of varying proportions of planted stands and different number of genotype in planting material on genetic diversity at the forest landscape level.





## T 1.1. Improved adaptation

### A 1.1.2. The impact of planted Scots pine stands on the genetic diversity at the forest landscape level



Bāders, E., Zeltniš, P., Elferts, D., Ruņģis, D., Gailis, A., & Jansons, Āris. (2024). Trends in genetic diversity of silver birch: Insights from varied planting scenarios. *Baltic Forestry*, 30(2), id759. <https://doi.org/10.46490/BF759>



## T 1.2. Advanced forestry

### A 1.2.6. Interaction of thinning and selection effects in Scots pine stands



- Progeny trials (4) of Scots pine families
- Commercial thinning of various intensity (remaining basal area 8 – 20 m<sup>2</sup> ha<sup>-1</sup>) at the age of ~ 30-40 y.
- Measurements before and after thinning



Progeny trial No.41, 10 years after thinning (age 45 y)





## T 1.2. Advanced forestry

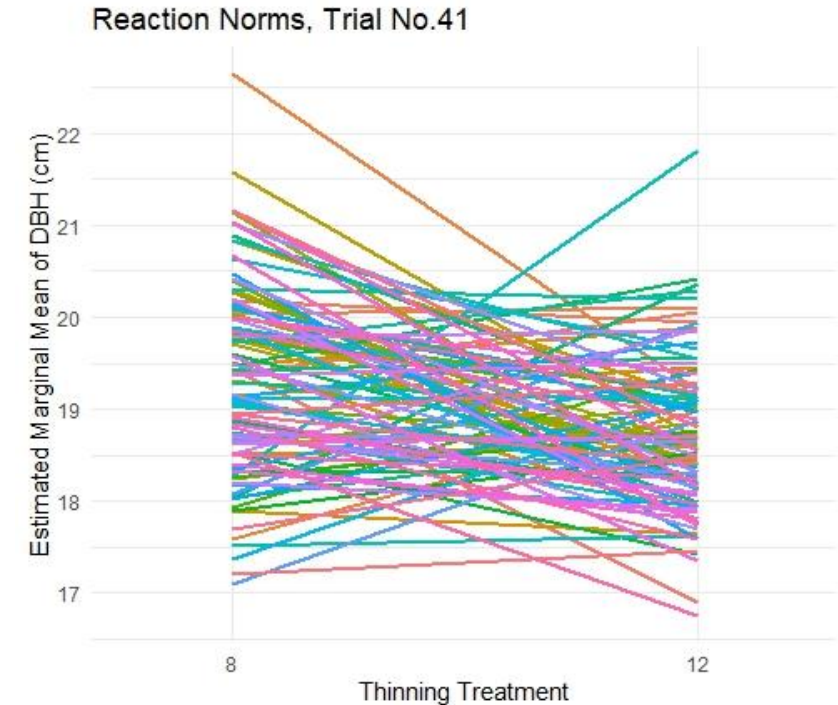
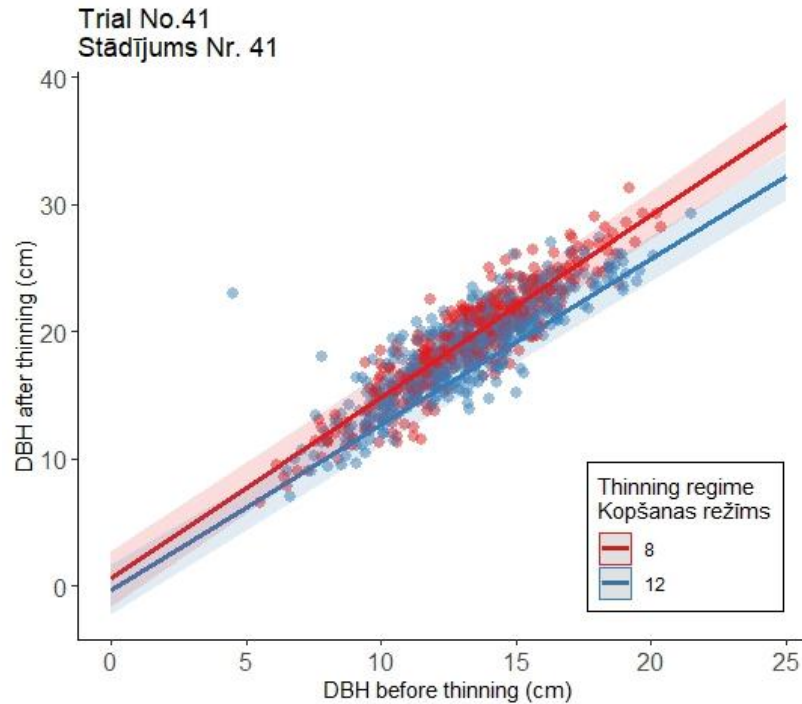
### A 1.2.6. Interaction of thinning and selection effects in Scots pine stands



**Thinning did not reduce the breeding effect:** After thinning, genetic variance of productivity-related traits was higher compared to the pre-thinning state.

Genotypic diversity similar before/after thinning.

The selection of the best families, combined with an appropriate management regime, enhances stand productivity by allowing the genetically determined fast growth of selected genotypes to be expressed.



5 years after thinning



Innovation in Forest Management and Value Chain for Latvia's Growth: New Forest Services, Products and Technologies (Forest4LV), Project No. - VPP-ZM-VRIILA-2024/2-0002

# Sustaining growth and genetic diversity in planted Scots pine stands in Latvia: The Forest4LV contribution

Pauls Zeltiņš

[pauls.zeltins@silava.lv](mailto:pauls.zeltins@silava.lv)

Latvian State Forest Research Institute "SILAVA"

