Title: Growth of Sitka spruce and Douglas fir in European hemiboreal forests, Latvia

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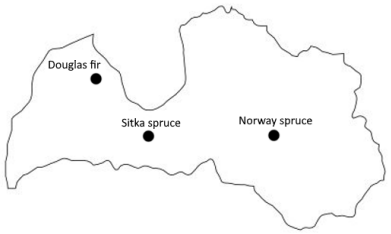
BACKGROUND:

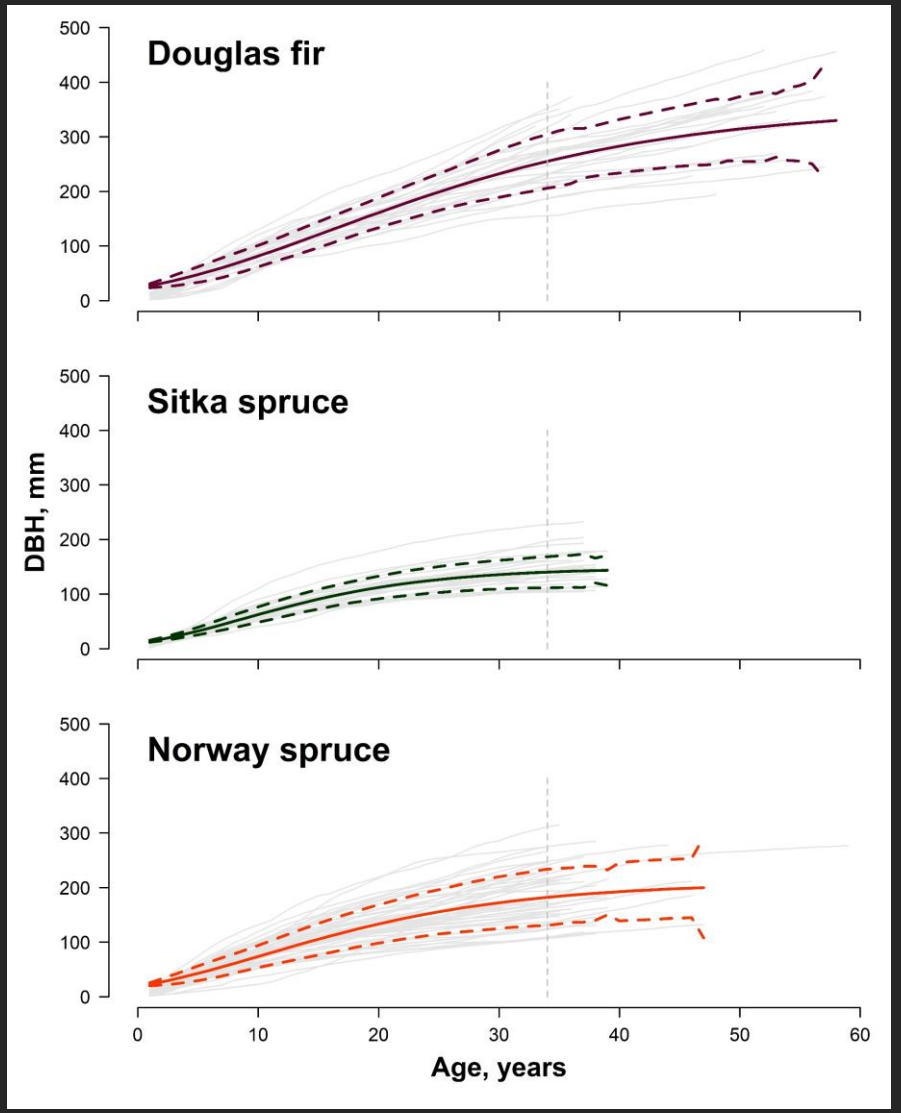
Climate is one of the main factors affecting tree growth in the forest ecosystems. Due to the global warming, mean temperatures are predicted to increase. This means change of current climatic conditions, therefore trees need to adapt. As native populations may be unable to naturally migrate quickly enough, assisted migration can be used and new, possibly more suitable, species can be introduced.

METHODS

- The study was done in European hemiboreal forests, Latvia (56ºN, 24ºE) during period 2019 – 2020.



Douglas fir demonstrates good radial growth in Latvia.



- Study sites had similar growth conditions and silvicultural history. 60 core samples were taken per stand, two samples from each tree in opposite directions.
- Tree ring width was measured manually. Visual and statistical cross dating was done for the tree ring measurements (TRW) to assure quality.
- DBH development was reconstructed.
- Growth curves assessed using Gompertz model.

RESULTS

- All analysed conifers showed similar tendency: faster growth at the younger age that started to plateau after 30 years. Douglas fir had significally higher increment than other analysed conifer species.
- First results indicate that Douglas fir may be suitable to be grown in Latvia. Further studies shall focus on these species sensitivity to various meteorological factors.

Acknowledgements:
Study was funded by LVM project «Support for Forest Tree Seed Production»

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