

# PNW conifers play no role in Finnish forestry, but climate change may increase the importance of lodgepole pine and Douglas-fir

## Pacific Northwest Conifers in Finland

Seppo Ruotsalainen<sup>1)</sup> & Matti Haapanen<sup>2)</sup>

Experiments with PNW conifers started in Finland in the early 20th century. About a dozen conifer species have been tested, most intensively lodgepole pine (*Pinus contorta* ssp. *latifolia*) and Douglas-fir (*Pseudotsuga menziesii*).

The share of all non-native tree species of Finland's forest area is far below 1%.

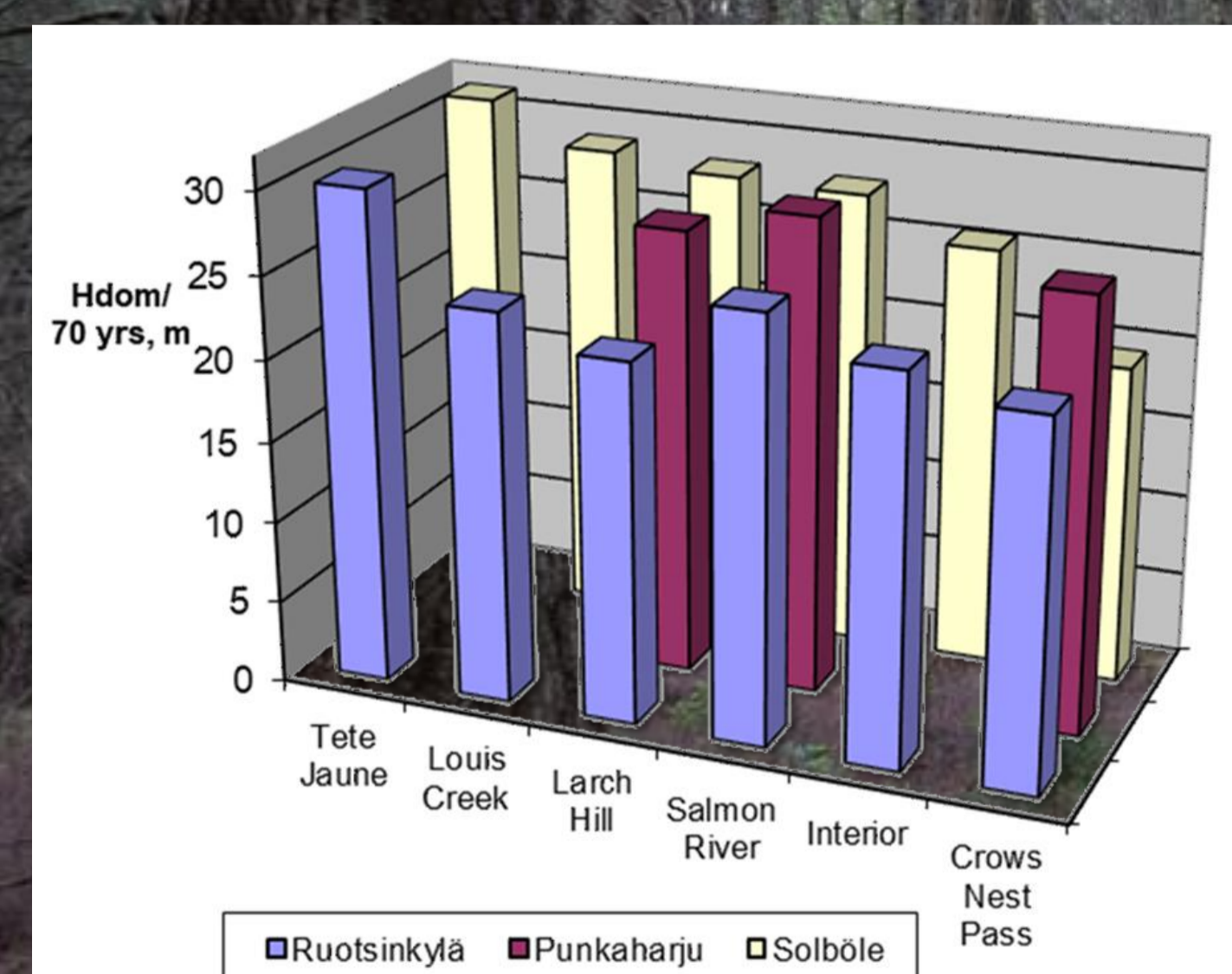
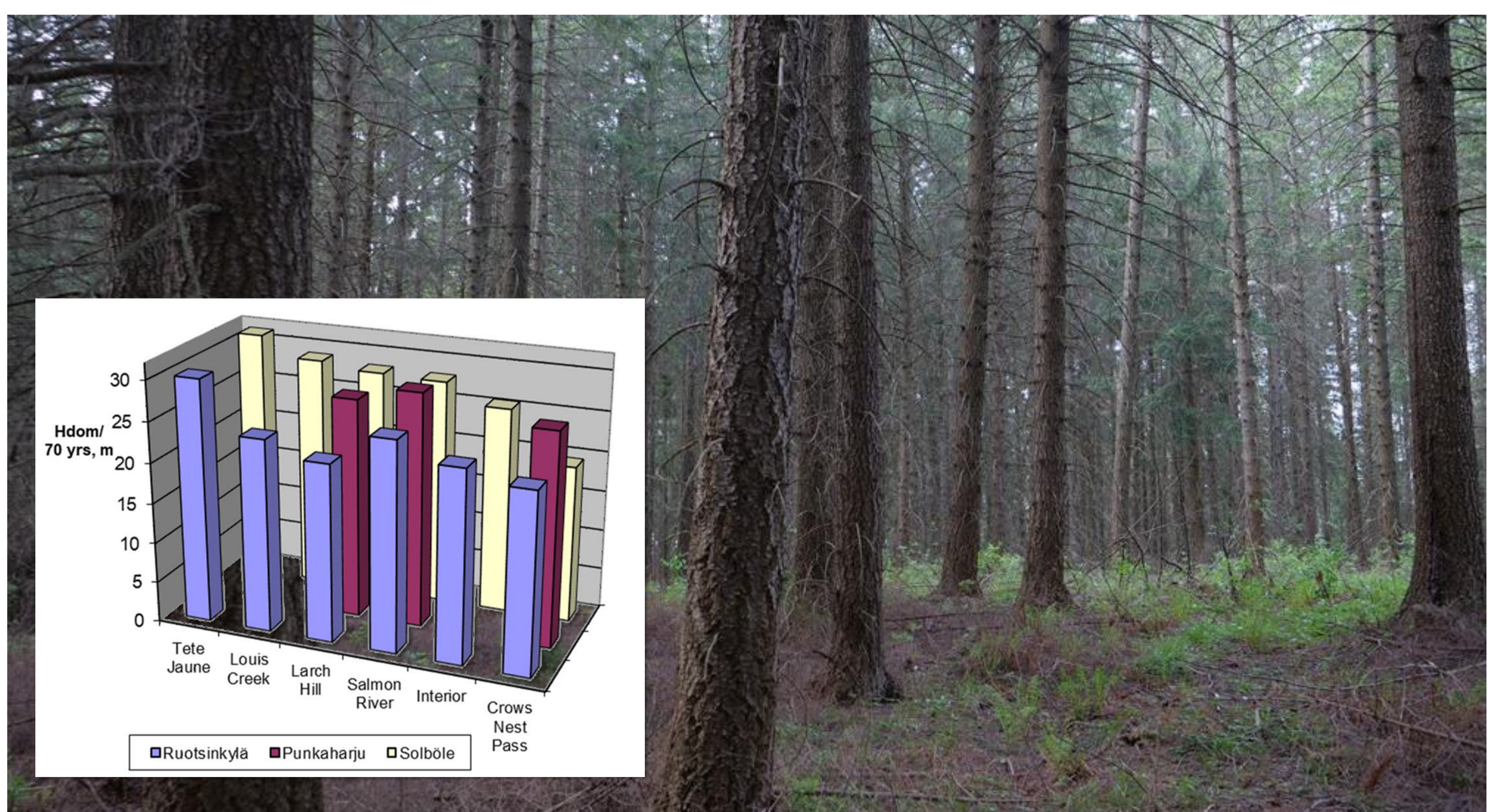
- **Lodgepole pine** produces 30% more stem biomass and has better resistance against some insects and fungi than native Scots pine (*Pinus sylvestris*). However, the stem quality of lodgepole pine is inferior to that of Scots pine.
- The most suitable provenances for use in southern Finland are from southern and central interior British Columbia whereas more northern provenances are performing better in northern Finland.
- **Douglas-fir** suffers from frost damages and flat terrain, but a few successful stands from the pre-war era have helped to keep the interest in this species alive. The best provenances to Finnish conditions seem to come from the central part of interior British Columbia (e.g., Tête Jaune).
- Douglas-fir appears to be relatively drought-hardy and thus less threatened by ongoing climate change than native Norway spruce.
- Lodgepole pine has a greater commercial potential than Douglas-fir because of its wider climatic and edaphic adaptability to the whole of Finland. Douglas-fir thrives only on the best sites of southern Finland.
- Timber quality of both species should be improved either by means of selective breeding or silvicultural measures.
- **Other PNW conifers** tested include, e.g., western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), Sitka spruce (*Picea sitchensis*), subalpine fir (*Abies lasiocarpa*), black spruce (*Picea mariana*), white spruce (*Picea glauca*) and Engelmann spruce (*Picea engelmannii*).
- None of these minor species has proven enough silvicultural benefits over native conifer species. In Finland, their commercial importance is insignificant and they are mostly found in arboreta.



A successful 90 years old experimental stand of lodgepole pine (Olds, Alberta provenance) in southern Finland (60°21'N).



A 40 years old lodgepole pine stand in southern Finland shows wind and snow damages due to silty soil (60°21'N).



Predicted dominant height of various provenances of Douglas-fir in three experimental forests (age 70 years) in southern Finland. The order of the provenances is from north to south.

An 80 years old experimental stand of Douglas-fir of Tête Jaune, BC provenance in southern Finland (60°21' N).