

Finland – North Karelia case study

Case study forest area: 1,520 ha

Forest goods and services:

Sustainable production of timber and energy biomass
Recreation, foraging for mushrooms and berries, hunting

Ownership: 100% Private

Special local conditions:

Free public access to the forests
Hunting rights belong to forest owner

Stakeholders

The Finnish Forest Centre (North Karelia regional unit) – an advisory and regulatory body
Nature Conservation Association
Hunting Association.

Management and governance issues

The forestry experts of the Regional Forest Management Associations have a major role in providing support and guidelines for forest owners with regard to silvicultural issues, timber trade, forest planning and implementation of practical forest management. In addition, the forestry experts of the Finnish Forest Centre and Forest companies help in these tasks.

Proportion of species of North Karelia

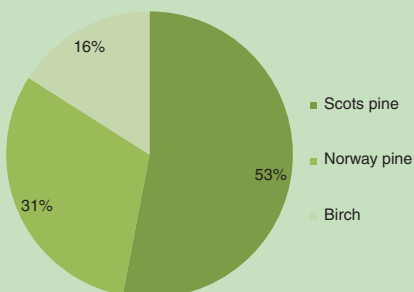


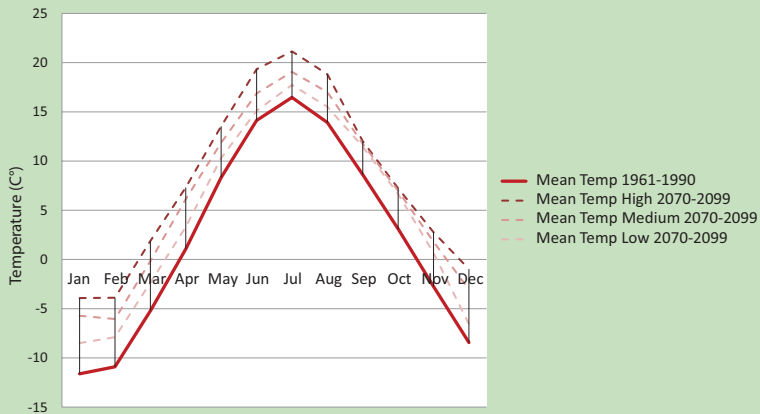
Photo: Michael den Helder



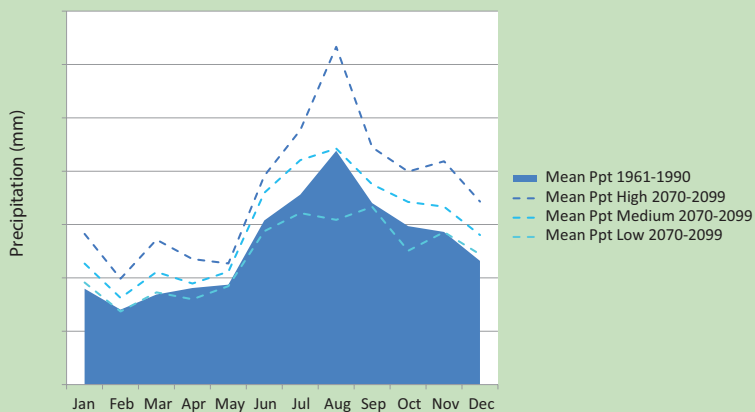
Climate change challenge

Due to changing climate, it is expected that the duration of frozen soil period will decrease significantly along with increase in annual mean temperature. Any increase in the frequency of strong winds during unfrozen soil period may increase the risk of wind and snow damages.

Mean Monthly Temperature



Mean Monthly Precipitation



Under changing climate, the growth of forests will in general increase significantly towards the end of this century, and in relative sense the most in Northern Finland. However, the growth of Norway spruce is expected to suffer from water stress especially in the southern Finland on sites with low water-holding capacity.



Photo: Michael den Herder.



Photo: Heli Peltola.

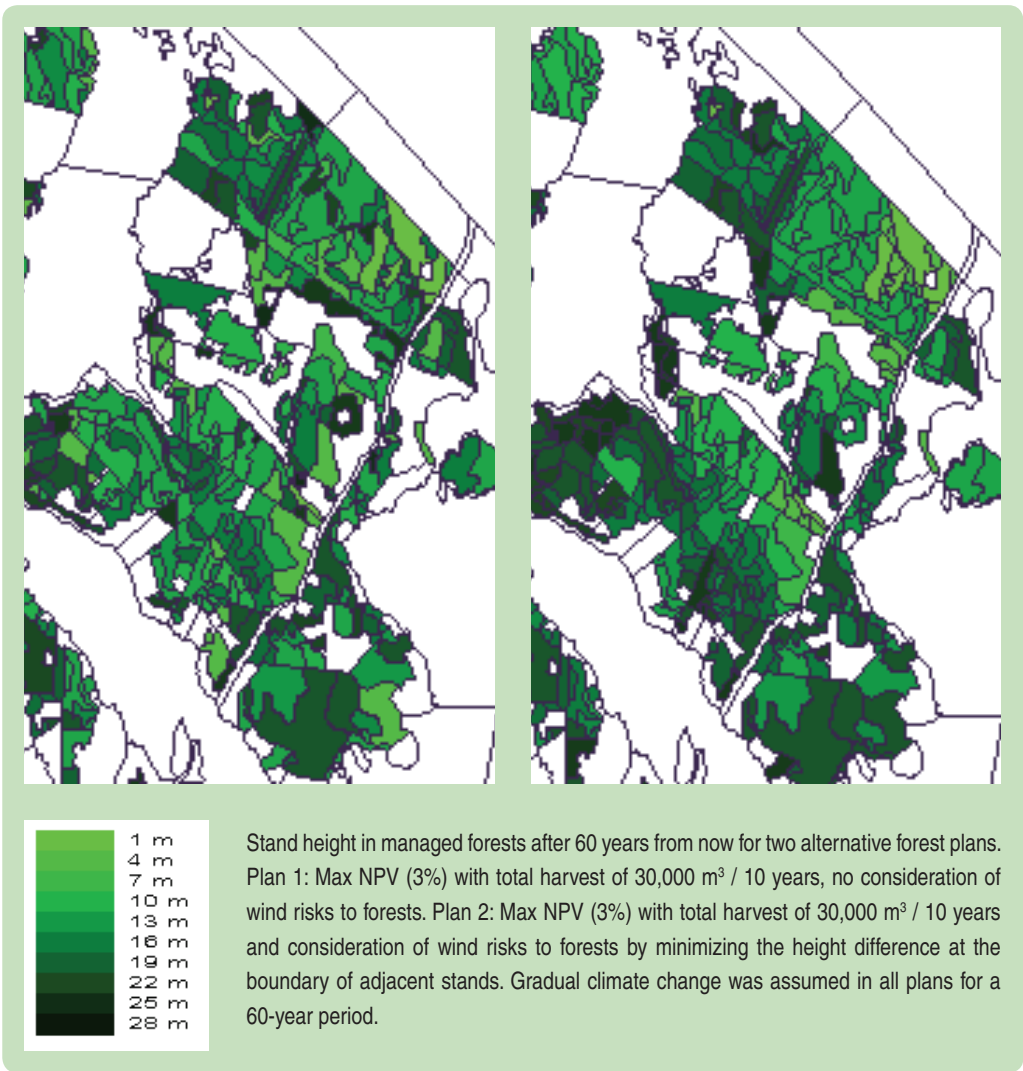
Under the warming climate, the decrease in duration of frozen soil period will increase the risk of wind and snow damages in forests regardless of any change in windiness.



Photo: Heii Viiri.

Risks from wind are highest in Norway spruce with shallow anchorage but Scots pine and birch (in leaf) are also vulnerable.

Wind risks to forests can be decreased in forest planning by decreasing the mean height difference at the boundary of adjacent stands by applying proper temporal and spatial patterns of interventions such as final harvesting (clear cut). In this way it is possible to decrease the risks to forests by wind even without decreasing the Net Present Value significantly.



Conclusion

With gradual and proper adaptation of forest management, we can successfully minimize the expected negative impacts of climate change, while gaining on the positive ones. Proper and timely management of young stands will be particularly important for the resistance of stands against abiotic and biotic damages.