

CHARACTERISTICS OF DAMAGES IN NORWAY SPRUCE STANDS

Guntars Snepsts



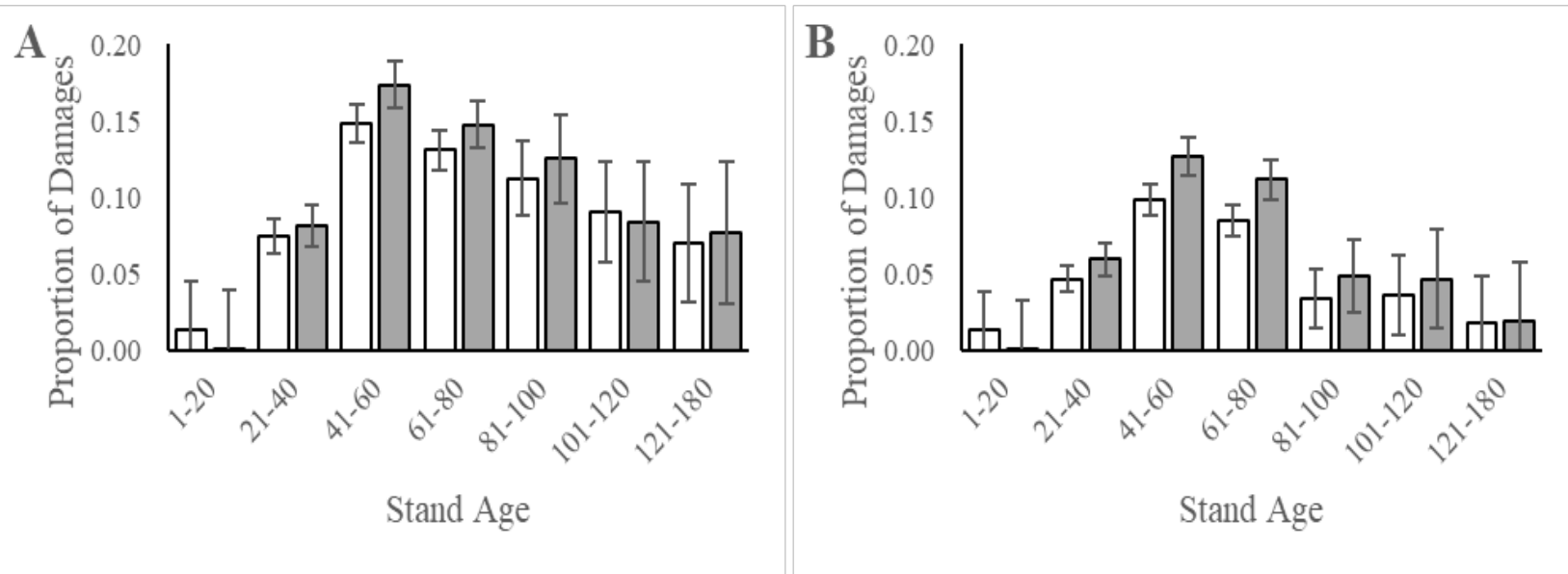
Materials and methods



Data from 635 sample plots of National Forest Inventory (NFI) (obtained in year 2004—2009) sampling network (evenly distributed across the territory of Latvia) with spruce as dominant species in first layer were analysed.

- Pure stands (PS) were defined as stands, where at least 75% of first layer trees were spruce; remaining stands were classified as mixed (MS). In total 360 and 275 PS and MS were distinguished, respectively.
- According to soil types, PS were subdivided into another three distinct groups such as PS on dry mineral soils (DM); PS on waterlogged mineral soils (WM) and PS on peat soils (PT). The distribution of sample plots is representative (Table 1) allowing appropriate analysis of damages in spruce stands in Latvia.
- Stands were divided into seven age groups with a step of 20 years (1-20; 21-40; 41-60; 61-80; 81-100; 101-120; above 121) to analyse the effect of age on the proportion of damaged trees.
- According to methodology of the NFI, damages were distinguished in distinct groups in respect to cause—1 (wind tipping, wind breakage, snow breakage, snow bend), 2 (water logging), 3 (animal damage), 4 (fire), 5 (diseases), 6 (pests) and 7 (other).

Results



- The mean basal area of damaged trees is $10.4 \pm 1.0\%$ from total basal area of stand. However, basal area of damaged spruces is $11.6 \pm 1.1\%$ from total basal area of spruces.
- Highest proportion of damaged trees is in stands between 41-80 years, which is statistically significantly higher compared that in up to 20 year old stands.



Results



- No statistically significant differences in dimensions were observed between damaged and undamaged trees. The proportion of damaged trees does not differ significantly between both PS and MS and soil types.
- Spruce is prone to browsing damages: one third of all damaged trees had animal damages; however, this cause of damage for spruce was found for three quarters. This is the major cause of damage, that does not kill the tree and thus its occurrence in analyzed sample is not affected by the sanitary cuttings (salvage logging).
- *Decay was found in 13-50% of investigated wounded P. abies trees depending on study site (mean 26.7%). All injuries were open wounds. Area of exposed sapwood was 7 – 6142 cm². The most commonly isolated fungi were ascomycetes Neonectria fuckeliana, Sarea difformis and Phialocephala sp., and basidiomycetes Cyllindrobasidium evolvens and Amylostereum areolatum*



Thank You!

Paldies !