



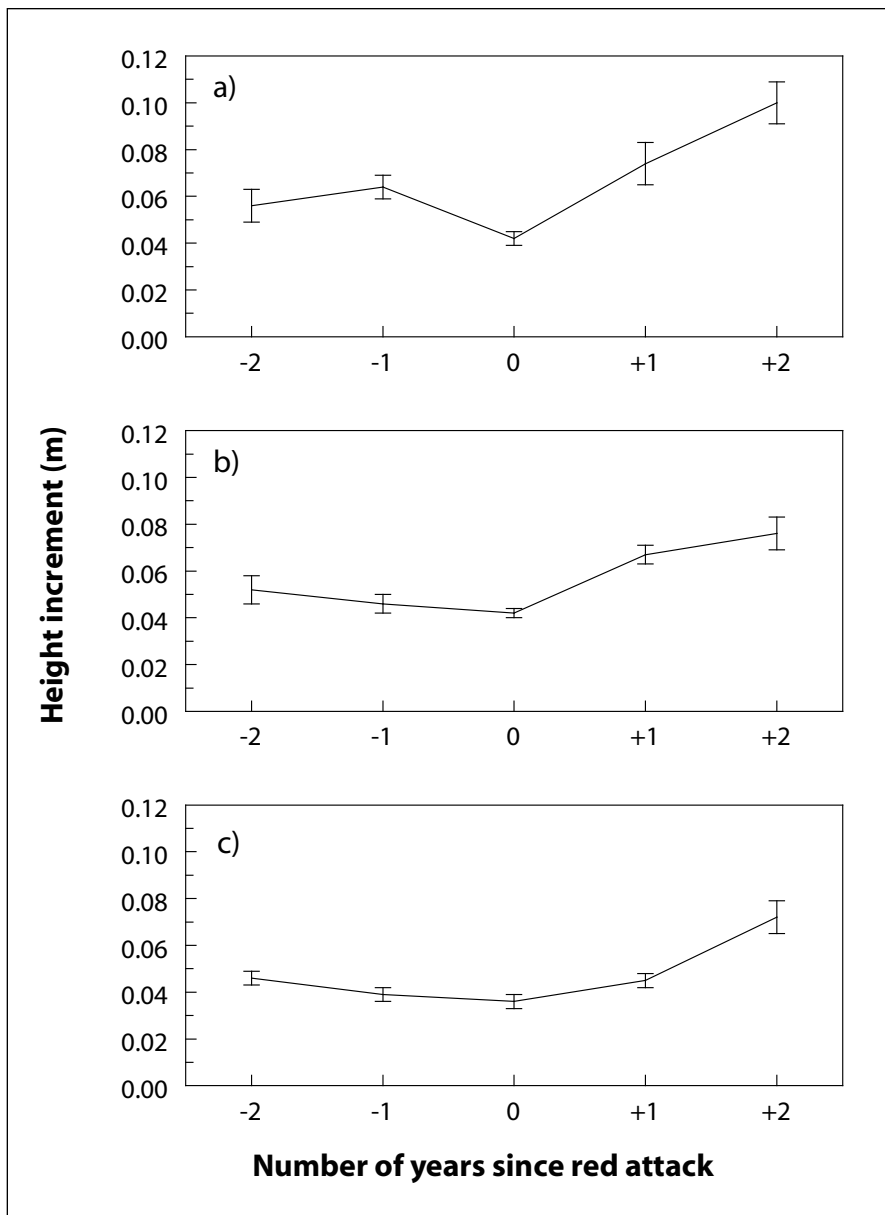
Life after the mountain pine beetle

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Deciding which MPB-affected stands to salvage harvest and which to leave to meet mid-term timber supply requirements or to serve as biodiversity reserves is a key planning issue. Helping address these issues and answer future questions are researchers who are monitoring a network of 48 permanent research plots.

Monitored since 2005, these plots are being used to examine ecological changes within lodgepole pine stands that have been heavily impacted by mountain pine beetle (MPB) (DeLong *et al.* 2007).

Height growth of a) hybrid spruce, b) black spruce, and c) subalpine fir in years prior to and following MPB red-attack stage.



Researchers are observing changes in stand structure (e.g., snag and log recruitment), vegetation (e.g., species recruitment and loss, and species cover changes), functional wildlife habitat, and tree mortality and growth.

Monitoring so far has revealed that live understorey is present in all stands in one of the regeneration layers. Lodgepole pine and hybrid spruce understorey are the most common on average sites and lodgepole pine is the most common on dry sites. There is a wide range in the amount of understorey present, but height-growth response to overstorey canopy death was positive for all species (see figure). Post-red attack, average-height increment was significantly greater than pre-red attack for all species examined (hybrid spruce N=39, $t=5.946$, $p=0.000$; black spruce N= 85, $t=6.052$, $p=0.000$; subalpine fir N=54, $t=4.469$, $p=0.000$).

In plots which had been burned by wildfire following MPB, the density of established seedlings 2 years following wildfire was 10,000–128,000 (mean 53,600) stems per hectare. Nearly all the established seedlings were lodgepole pine. The only plots that did not appear to have adequate stocking were those with a higher component of spruce and those on the edges of the burn where mineral soil exposure was reduced.

Many of the dead lodgepole pine showed evidence of recent bird feedings (i.e., bark removed and/or holes excavated). Browsing of some shrubs was also noted and, on some sites, berry production was high. Vegetation is changing slowly with mosses decreasing and ground cover, such as bunchberry and twinflower, increasing.

All evidence indicates that these stands have a wide range of ecological values. Some have higher stocking of advance regeneration, which means greater economic timber potential for the mid-term while others have more dispersed but larger live trees, which will provide important future habitat on a landscape where large live trees and snags will be rare. 🌲

Reference

DeLong, C., B. Heemskerk, and T. Milner. 2007. Monitoring ecological changes in MPB-impacted stands. FORREX Forest Research Extension Partnership. LINK 8(2). URL: http://www.forrex.org/publications/link/ISS40/vol8_no2_art7.pdf