Structural and compositional responses to timber harvesting for an old-growth forest on Changbai Mountain, China – Short Communication

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Broadleaved-Korean pine (Pinus koraiensis) mixed forest is a dominant native vegetation type in the eastern Eurasian Continent. We intended to examine the implications of high-intensity timber harvesting (ca 70% of stand volume) for the sustainable management of a mixed forest ecosystem. We measured trees at three sites: control without cutting, older-cut site cut in 1987 and newer-cut site (cutting in 1997). There were significant differences in structure and composition between these three sites in 2003. There were 4,441 trees of 14 species with basal area 56 m^2 at control plot, 6,314 trees of 16 species with basal area 9 m^2 at newer-cut site and 8,438 trees of 21 species with basal area 31 m^2 at older-cut site (all on the area of 1 ha). The high-intensity timber harvesting system helped promote natural regeneration and the growth of small trees but it also allowed light-demanding tree species to invade into the forest. Dominant position and suitable diameter distribution of economically important species (Pinus koraiensis and Tilia amurensis) were maintained across the three sites. The existing timber harvesting appears to consider short-term economic values to a larger extent than long-term ecological values. To manage the broadleaved-Korean pine mixed forest for both timber production and biodiversity conservation, timber-harvesting intensity must be lowered.

Keywords:

forest harvesting; stand structure; species composition; northeast China; forest conservation; Pinus ko-raiensis

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