

INFLUENCE OF FOREST PRACTICES ON STAND-SCALE HABITAT SELECTION BY LYNX IN NORTHERN MAINE: PRELIMINARY RESULTS

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Canada lynx (*Lynx canadensis*) occur across much of the northern United States and Canada, but little is known about lynx-habitat relationships in eastern North America. Results of the few habitat studies conducted on lynx throughout their North American range have been extrapolated to areas with potentially unique ecologies, including differences in climate, prey abundance, predator-prey communities, and rates of forest succession. Data on lynx-habitat relationships is lacking for eastern North America; Maine supports the only verified population of lynx east of Minnesota in the United States. Lynx have recently been provincially listed as an endangered species in Nova Scotia, and are of increasing management interest throughout eastern Canada.

Lynx are considered specialists on snowshoe hare (*Lepus americanus*), and habitat use by lynx is closely associated with density of snowshoe hares. It is important to determine the direct and indirect effects of silvicultural practices on habitat choice by wide ranging species that depend on hares, such as lynx. Within the Acadian forest, hares are closely associated with regenerating stands with an abundant coniferous understory. Silvicultural practices that create early-successional stages may increase densities of snowshoe hares and associated foraging opportunities for lynx. However, habitat use by lynx may be associated with more than just access to snowshoe hares, but with overstory and understory features related to protection from predation. Partial harvesting has the potential to reduce habitat quality for lynx because partially harvested stands had the lowest densities of snowshoe hares during winter among all overstory types (including regenerating clearcut, coniferous, deciduous, and mixedwood stands) sampled in north central Maine. Partial harvesting is commonly practiced in Maine and eastern Canada, but it is unknown how lynx respond to the forest structure and reduced density of hares in these stands. Thus, we evaluated the stand-scale effects of forest practices, including partial harvesting and clearcutting, on lynx in northern Maine.

We evaluated habitat selection at the scale of the forest stand by comparing the distance traveled by lynx in each overstory type to the percent of those overstory types within the home range of each lynx. We snowtracked six radio-collared lynx (3 females, 3 males) for 64 km January - March, 2002 and 2003. We utilized continuous GPS sampling to track lynx and recorded overstory type along the lynx trails. Habitat selection by lynx was strongest for short mid-successional regenerating clearcuts (11-14' tall, 11-22 years old). Partially harvested stands (1-10 years old) were also selected for, but were ranked below short mid-successional regenerating clearcuts. Lynx selected against tall mid-successional regenerating clearcuts (15-24', 11-26 years old) and strongly selected against mature second-growth stands. There was extremely low use of early regenerating clearcuts (<11 years old) and these stands were avoided at the scale of the home range likely because of very low densities of snowshoe hares.