Multiple Landscape Scales and Winter Distribution of Moose (*Alces alces*) in a Forest Ecotone

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Winter distribution and abundance of moose (*Alces alces*) were studied in relation to habitat use and habitat disturbance at local and regional landscape scales in Algonquin Provincial Park, central Ontario. Thirteen years of government aerial population survey data (1976-1988) were supplemented with spring pellet surveys of eight habitats to determine differences in forest species composition, winter habitat utilization, and habitat disturbance by spruce budworm (*Choristoneura fumiferana*) and non-clear-cut logging. At a local scale (< 100 km^2), moose select closed canopy habitats in winter. Hemlock (*Tsuga canadensis*) provided important winter habitats for moose in the Algonquin transition-zone ecotone; hemlock was disproportionately chosen in both 'high' and 'low' density aerial survey plots, and occurred in greater amounts in 'high' density plots than those in 'low' density plots ($p < 0.05$). At larger, regional scales (>1000 km^2), moose are selecting areas of canopy disturbance. Plots impacted by logging of more than 33% of their area supported more moose than plots with less than one-third of their area logged ($p < 0.05$). Similarly, spruce budworm defoliation created more browse material and consequently contained more moose in severely affected areas, but plots in moderately defoliated areas require additional logging activity to produce comparable amounts of browse and moose use. A methodology of combined pellet survey and aerial survey data appears to identify habitat requirements at different landscape scales.

Reference:

Forbes, G. J.; Theberge, J. B., Multiple Landscape Scales and Winter Distribution of Moose, Alces alces, in a Forest Ecotone. The Canadian Field-Naturalist, 1993 vol. 107, no. 2 (April-June), page 201,

Landscape Modeling of Moose Habitat in Algonquin Park

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A landscape planning model, BOREAL was used to examine the interactions between timber production and moose (*Alces alces* L.) habitat for a 5000 ha area in Algonquin Provincial Park, Ontario. The model projects outcomes of forest management alternatives in terms of future habitat conditions. The system is flexible and can be adapted to a variety of forest-planning scenarios.

References:

Puttock, G. D., I. Timossi, and L.S. Davis. 1998. BOREAL: A Tactical Planning System for Forest Ecosystem Management. The Forestry Chronicle. 74(3):413-420.

Puttock, G. D., P. Shakotko, and J. G. Rasaputra. 1996. An Empirical Habitat Model for Moose, *Alces alces*, in Algonquin Park, Ontario. Forest Ecology and Management 81(1-3) February 1996:169-178.