Hierarchical Den Selectionof Canada Lynx in Western Montana

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We studied den selection of Canada lynx (*Lynx canadensis*) at multiple ecological scales based on 57 dens from 19 females located in western Montana between 1999-2006. We considered three spatial scales in this analysis including the den site (11-m radius circle surrounding dens), den area (100-m radius circle), and den environ (1-km radius surrounding dens). Lynx exhibited habitat selection at all 3 spatial scales. Based on logistic regression, den sites differed from the surrounding den areas in having higher horizontal cover and lo' volume. Abundant woody debris from piled logs was the dominant habitat feature at den sites. Female lynx selected den areas with greater spruce-fir tree basal area, higher horizontal cover, and larger-diameter trees compared to random locations within their home range Eighty percent of dens were in mature forest stands and 13 percent in mid-seral regeneratin' stands; young regenerating (5%) and thinned (either naturally sparse or mechanically thinned) stands with discontinuous canopies (2%) were seldom used. Lynx selected den environs in topographically concave or drainage-like areas, and further from forest edges than random expectation. Maintaining mature and mid-seral regenerating spruce-fir forests with high horizontal cover and abundant woody debris would provide lynx denning habitat in concave, drainage-like basins. Management actions that alter spruce-fir forests to a condition that is sparsely stocked, e.g., mechanically thinned, and with low horizontal cover would create forest conditions that are poorly suited for lynx denning.