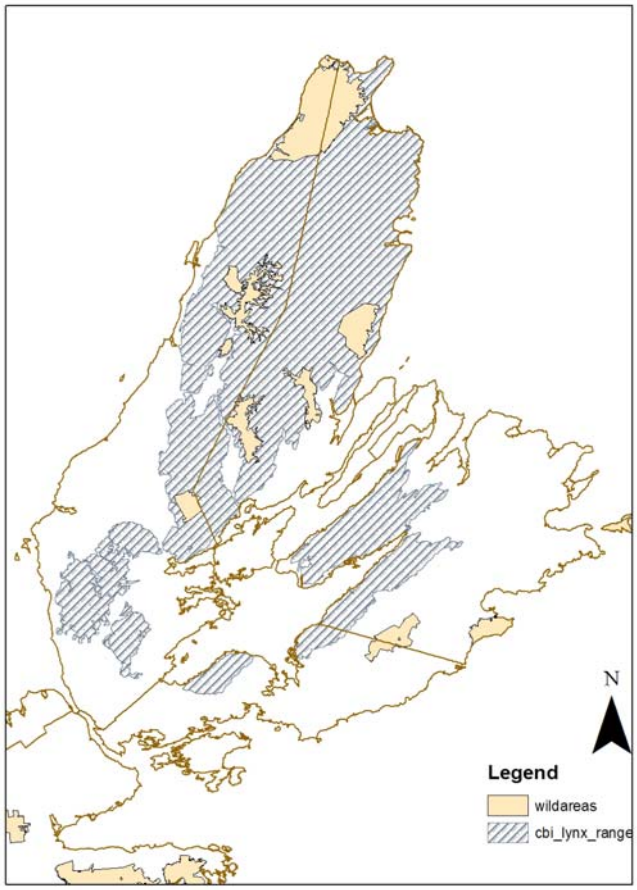
Endangered Canada Lynx Special Management Practices

Canada Lynx are listed as an endangered species under the Nova Scotia Endangered Species Act, due to their small population size and limited localized occurrence to highland areas of Cape Breton Island. Increased occurrence in adjacent lowland areas of Cape Breton has been noted during a recent peak in local snowshoe hare populations. Lynx have been essentially absent from mainland Nova Scotia for at least 40 years. Occasional occurrences on the mainland are thought to be transient, and are likely a result of long range emigration during periods of low prey availability. These observations have only occurred in mainland areas that are most likely to have potential to support lynx (Hants County and southwestern Nova Scotia).



Small isolated lynx populations are always at elevated risk of localized extinctions However, protection of lynx from harvest (season closed since the late 1970's) and application of special practices during forest harvest planning, and possibly other forms of land use (i.e. pipelines,

roads, hydro and wind developments, mineral exploration and development, recreational trails) may facilitate population persistence. Requirements of the Forestry/Wildlife Guidelines and Standards likely favour at least minimal habitat for lynx on Crown Land through retention of old growth, maintenance of a 20m buffer zone along water bodies/courses, inclusion of other wildlife features such as corridors and clumps, and a distribution of forest age classes representative of the landscape. Lynx benefit from a continuum of stand ages that exhibit a normalized distribution at different spatial scales.

The core area for lynx, the highland plateau, was considerably altered by spruce budworm forest kill and extensive forest salvage harvesting of the affected forest in the 1970's. The most important prey species of lynx, snowshoe hare, generally benefits from an interspersion of regenerating forest. However, the current age-class distribution across the landscape (particularly in the industrial forest south of Cape Breton Highlands National Park - CBHNP) is younger than would have been otherwise occurred in the absence of the budworm outbreak. Increasing interspersion and the amount of 'edge' between older and younger age classes favours snowshoe hare populations. Interspersion facilitates travel and use of favourable habitat across the landscape, while mature forest corridors are important for connectivity and lynx movement.

The following are special management practices developed by Department Regional Wildlife Biologists and Wildlife Resource Managers and are based upon a review of published literature. This includes the exhaustive and comprehensive synthesis of current scientific knowledge and thought on the ecology and management southern lynx populations in North America prepared by the United States Fish and Wildlife Service to facilitate consideration of the proposed endangered species listing of lynx in the contiguous 48 states. During periods of low snowshoe hare abundance, lynx must rely on alternate prey. Additional measures to provide for specific habitat needs of alternate prey species of lynx and to discourage incursions of aggressive competitors have been identified.

These are minimum required practices. They may be adjusted/modified by the regional wildlife biologist, depending on topography, hydrology, forest cover, past management practices, land ownership patterns, and other local considerations.

A: ALTERNATE PREY HABITAT COMPONENT: RED SQUIRREL HABITAT

Lynx are known to be highly specialized towards snowshoe hare as their main and preferred prey species. Consequently, lynx populations are also subject to extreme fluctuations in response to changes in populations of their primary prey species. During the trough of the population cycle, the risk of localized extinctions of isolated populations of lynx is greatly increased. This situation is aggravated by the unpredictability and irregularity of snowshoe hare population fluctuations in Nova Scotia, which may result in extended periods of low hare densities over large areas of the province. Red squirrels are considered to be an important alternate prey species necessary to carry the lynx through periods of low population density populations to the beginning of the next hare population expansion. Mature/over-mature softwood and mixed-

wood stands interspersed across the landscape would favour increased availability of red squirrel habitat and, therefore, red squirrels.

Special Management Practices:

1. Highland bogs tend to have a gradation of older krumholtz to taller spruce stands surrounding them. These stands tend to be relatively stable and are reliable producers of cone crops. To supplement red squirrel habitat, a wider buffer strip of 100 m of unharvested forest should be left around all bogs.

B. COMPETITOR HABITAT COMPONENT: ACCESS TO HABITAT BY COYOTES

Coyotes are an adaptable and aggressive predator/competitor of lynx, known to be capable of successful establishment in a wide range of habitats and situations. Coyotes arrived in Nova Scotia in the mid- 1970's (Cape Breton shortly thereafter) and are a new and previously unexperienced threat to native lynx populations. Coyotes are known to make extensive use of roads and road-like corridors as dispersal routes and thus access and utilize wider areas of habitat throughout the year. Within the literature, the establishment and maintenance of highway corridors and/or road networks has been reported to have facilitated incursion and permanent establishment of coyotes in areas previously occupied exclusively by lynx, with resultant negative effects on lynx populations. These effects are probably most acute and critical in winter. While road networks create winter travel lanes for coyotes, this situation is undoubtedly aggravated in the highlands by the extensive recreational use of road networks for snowmobiling. This activity creates a web of hardened trails across the landscape, particularly in the areas south of CBHNP.

Special Management Practices:

1. Where possible, decommission secondary, non-main trunk forest access roads following completion of harvest of the forest in the area accessed by a particular road. Also:
   - discourage travel/recreational use by blocking, pulling bridges/culverts or other means.
   - re-vegetate portions of old road beds and minimize new road construction.
2. Plan access roads to minimize opportunity for connecting through travel (dead ends).
3. Plan harvesting to allow decommissioning of sectors of road networks.
4. Where possible, narrow and orient road right-of-ways to create shade conditions to prevent/reduce hardening and compaction of snow by natural processes, thereby reducing ease of travel for coyotes.
5. Plan connective corridors to create shaded sections of roads at strategic locations.
6. Solicit cooperation of recreational users to reduce habitat access for coyotes and encourage concentration of use on only a few main routes.

C: MAINTENANCE OF LYNX/SNOWSHOE HARE HABITAT

Lynx benefit from forest practices that create landscapes (100's km2) with extensive, young, dense stands of regenerating softwoods that support high populations of snowshoe hares. Young stands between 10-35 years are especially important, and tree height is above average winter snow levels. Habitats supporting abundant snowshoe hares must be present in a large proportion of the landscape to support a viable lynx population.

Special Management Practices:

1. Maintain a continuous supply of >50ha patches of mid-regeneration (15-35-year old) conifer dominated habitat that supports high densities of snowshoe hare over each lynx management unit (LMU) of ~14,160ha (141 km^2). At any time about 20% of the area in a LMU should be in the optimal mid-regeneration condition while recognizing that a) an additional 20% of the landscape may be comprised of younger, recently harvested stands that will provide future lynx habitat; b) 20% of the landscape may be comprised of older forests completing the final decades of a forest rotation, and c) a percentage of the landscape (e.g. lakes, roads, shoreland zones) will be in non-forested or non-harvested conditions. (Note: These age-distribution guidelines are for lynx only. It may be difficult to simultaneously manage for marten.)
2. Create a landscape that will maintain a continuous presence of a mosaic of successional stages, especially mid-regeneration patches that will support resident lynx.
3. Employ silvicultural techniques that create, maintain, or prolong use of stands by high populations of snowshoe hares.
4. Retain coarse woody debris for denning sites.

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