

White Paper

Incorporating Fisher Habitat Conditions and Targets into Forest Planning:

Recommendations for Harvesting in the Interior Cedar Hemlock Zone

August 2024



Executive Summary

The Interior Cedar-Hemlock (ICH) biogeoclimatic (BEC) zone is a part of the Sub-Boreal Fisher Habitat Implementation Zone that provides habitat for fishers and requires the retention of important forest elements. Although fishers are regularly found in the ICH, comparisons of trapper harvest levels of fishers between the ICH and other BEC units in fisher habitat indicate that fishers are likely to be found at lower densities in the ICH zone. To address this difference, we are recommending that forest development activities can use reduced targets for fisher habitat features based on adjacency of the ICH subzone containing the proposed development to BEC units of higher value to fishers, such as the Sub-Boreal Spruce (SBS) and Interior Douglas-fir (IDF) zones.

The following summarizes recommendations for applying fisher habitat retention targets to forest harvesting in the ICH zone:

- Proposed developments contained in an ICH subzone that is directly adjacent to SBS and/or IDF BEC units can reduce fisher habitat retention targets listed for the Sub-Boreal Moist-wet subzone by 25%.
- Proposed developments contained in ICH subzones that are not directly adjacent to SBS and/or IDF BEC units can reduce fisher habitat retention targets listed for the Sub-Boreal Moist-wet subzone by 50%.
- These reductions apply only to targets for retention. Areas identified with “Harvest Impact Warnings” cannot be reduced and WTRA selection should favor these stands.

1.0 Introduction

Fishers (*Pekania pennanti*) are forest-dependent carnivores in the weasel family that are an important component of healthy ecosystems. Declining fisher populations indicate forest ecosystems may not be healthy, as they are failing to provide one or more fisher life requisites. All fisher life requisites and activities occur in forested environments and several aspects of their ecology require the use of structural features found more frequently in late-successional forests than in intensively managed landscapes. As example, fishers depend on specific forest features that provide protection from weather and predators when rearing young or resting. These features, such as trees with large cavities or large pieces of woody debris, are rare even in unmanaged landscapes because they are the result of the natural (and slow) processes of disease, decay, and tree death. Subsequently, fishers are susceptible to forest-harvest activities that remove these important features, and the loss of forest habitat is thought to be the primary threat to fisher populations across their range (Proulx et al., 2004).

In British Columbia, fisher habitat is generally found in low to mid elevation interior forests north of Kamloops, BC. The area that fisher occupy has been divided into three Fisher Habitat Zones (boreal, sub-boreal, and dry) based on fisher habitat requirements. The Interior Cedar Hemlock (ICH) Biogeoclimatic (BEC) zone is found in the Sub-boreal Fisher Habitat Zone and several characteristics of the ICH indicate that adjustments to fisher habitat targets may be warranted.

The ICH zone is found at low – mid elevations on the western side of the Rocky Mountains and over much of the Shuswap and Quesnel Highlands. There is also area of ICH zone east of the Coast Mountains in the Nass Basin and adjacent parts of the Hazelton and Skeena mountains of west-central BC. The climate in the ICH is characterized by cool wet winters and dry warm summers. The ICH is one of the wettest zones in the province with 500-1200 mm of mean annual precipitation of which 25-50% falls as snow (Meidinger, 1991). ICH subzones vary in dryness from the ICHdk (dry-cool), which is only slightly wetter than the Sub-Boreal Spruce dry-warm (SBSdw) BEC unit (Steen, 1997), to the ICHvc (very wet-cold) subzone which has reported snowfall amounts of 3-6 m¹.

Fishers appear to be sensitive to snow conditions and periods of deep soft snow have been reported to reduce the activity of fishers in eastern North America (Leonard, 1980; Raine, 1983). Subsequently, high elevation BEC units that receive deep snowpacks (e.g., Englemann Spruce Sub-alpine Fir) are not classified as fisher habitat in BC, in part, due to the deep snow in those zones². Trapping records from fisher BEC zones in BC between 2010 – 2015 indicate that the fisher harvest per unit area of fisher habitat in the ICH was 5 times lower than adjacent

¹BC Government. Biogeoclimatic Ecosystem Classification Program. Accessed March 23, 2021 at https://www.for.gov.bc.ca/hre/becweb/Downloads/Downloads_SubzoneReports/ICHvc.pdf

² BC Fisher Habitat – British Columbia Fisher Habitat and Web Module – Habitat Tools. Accessed March 23, 2021 at <https://www.bcfisherhabitat.ca/habitat-tools/>.

fisher BEC zones, such as the SBS and Interior Douglas-fir (IDF)³. Given that the ICH zone generally occurs in valley bottom habitats that are accessible by trappers, fishers appear to occur at lower densities compared to elsewhere in BC. It is important to note that fishers may be locally abundant in some locations of the ICH zone and some degree of management for fisher habitat features is still beneficial. ICH subzones that are adjacent to fisher habitat in the SBS and IDF zones are more likely to have snow conditions and fisher densities similar to these zones when compared to ICH subzones further away. To reflect this range of conditions, fisher habitat targets could be reduced for ICH subzones based on adjacency to the SBS and IDF zones.

2.0 Current Management of Forest Stands for Fishers in BC

In 2008, the British Columbia Fisher Habitat Working Group initiated an extension program to support forest management decision makers with relevant information and tools (Almuedo et al., 2012). The long-term goal of the program is to ensure that sufficient habitat is conserved, recruited, and enhanced at different spatial scales to sustain populations of fishers throughout their historical range in BC. The information is provided through the British Columbia Fisher Habitat and Forestry Web Module⁴ via Habitat Tools such as the *Fisher Habitat Retention Tool* which allows users to identify fisher habitat conditions and targets for retention relevant to their forest development units. Development units in the ICH are part of the Sub-boreal Fisher Habitat Zone which has been split into two subzones based on moisture (Dry and Moist-Wet). ICH BEC units are located in the moist-wet subzone and fisher habitat targets for development are currently calculated the same way across all BEC units in this fisher subzone.

3.0 Recommendations for Forest Development in the Interior Cedar Hemlock Zone

Fisher harvests from the ICH zone have generally been at a much lower density than other BEC units in the Sub-boreal Fisher Habitat Zone and this lower harvest rate may be related to the deeper, softer snow characteristic of this BEC unit. Snow depths in the ICH generally follow a gradient with subzones adjacent to the SBS or IDF having lower snow depths and ones further away having a deeper snowpack associated with the wetter climates found there. We propose applying modified fisher habitat targets that reflect these differences in moisture and snow depth. Under such modifications, ICH subzones adjacent to the SBS or IDF would have higher target values when compared to those further away.

Two categories for assigning target values are proposed due to the high number of subzones in the ICH. As stated above, ICH subzones directly adjacent to SBS or IDF BEC units are likely to have snow conditions that are similar to those BEC units and a 25% reduction would be

³ Data supplied by Rich Weir, Carnivore Conservation Specialist, Ecosystems Branch, BC Ministry of Environment.

⁴ BC Fisher Habitat. British Columbia Fisher Habitat and Forestry Web Module. Accessed at: <https://www.bcfisherhabitat.ca/>

appropriate management. For ICH subzones not directly adjacent to SBS or IDF BEC units, a 50% reduction in the targets is recommended. It is important to note that these reductions only apply to habitat targets (e.g., number of trees or coarse woody debris piles) and do not apply to the areas of habitat identified with a “Harvest Impact Warning” by the Fisher Habitat Retention Tool. Areas identified with a warning indicate that the supply of either denning or resting habitat in the landscape around the block is below what is needed to support fishers and forest development activities should avoid harvesting this rare stand type. WTRA selection should give preference to these stands to the extent practicable.

References

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