

The FRPA Evaluator

Extension Note #7
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Preliminary Assessment of the Effectiveness of Wildlife Tree Retention on Cutblocks Harvested Between 1999 and 2001 under the Forest Practices Code

Introduction

In January 2002, Pandion Ecological Research Ltd. was contracted to assess the biological effectiveness of British Columbia's wildlife tree policies and practices in protecting habitat for wildlife-tree-dependent species. The project was a follow-up to an earlier study that focussed on assessing the implementation of wildlife tree retention policy in British Columbia (see *Evaluation of Wildlife Tree Retention for Cutblocks Harvested Between 1996–2001 Under the Forest Practices Code* at: (http://www.for.gov.bc.ca/hfp/frep/6_evaluation_reports.html)).

Pandion's assessment had four broad objectives:

1. Determine the extent to which wildlife tree retention under the Forest Practices Code provides habitat for wildlife tree users, including species listed under the provincial *Identified Wildlife Management Strategy* (IWMS).
2. Describe the wildlife tree requirements of species whose needs are not being met by existing policies.
3. Identify options for modifying wildlife tree policy to expand the number of species provided with suitable habitat.
4. Recommend further evaluation work to determine the effectiveness of provincial wildlife policy under the *Forest and Range Practices Act*.

The FRPA Evaluator is a regular publication of the FRPA Resource Evaluation Program designed to inform stakeholders on program development and implementation, and report on the results of evaluation projects.

The objective of the FRPA Resource Evaluation Program is to determine if forest and range policies and practices in British Columbia are achieving government's objectives for the resource values identified in FRPA, with a priority on environmental outcomes and consideration for social and economic parameters, where appropriate.

Results

The Pandion study identified 70 vertebrate species in British Columbia with a relatively high dependence on wildlife tree habitat. The habitat use patterns and requirements of these species were summarized based on information obtained from the Columbia Basin Database for Wildlife-Habitat Relationships and a detailed literature review. Levels of wildlife tree retention in British Columbia were summarized using the data collected in *Evaluation of Wildlife Tree Retention for Cutblocks Harvested Between 1996–2001 Under the Forest Practices Code* (1996–2001 WTR study).

To assess the biological effectiveness of provincial wildlife tree retention policies and practices, the level of wildlife tree retention was compared with the habitat requirements of the 70 wildlife-tree-dependent species. The analysis suggested that the habitat requirements of the wildlife-tree-dependent species will likely not be met in managed forests under current wildlife tree retention policies and practices, although this conclusion may be influenced by the geographical limitations of the sampling in the 1996–2001 WTR study.

A major reason for this result is the notable lack of functional (i.e., ≥ 20 cm dbh and ≥ 10 m height) snag retention on 46% of all sampled cutblocks in the 1996–2001 WTR study, along with low levels of snag retention on the remaining sampled blocks. An estimated 66 out of the 70 wildlife-tree-dependent species are directly dependent on snags for reproduction, foraging or other life requisites. Although some species are able to use live trees as well as snags to meet some of their habitat requirements, only negligible densities of large live trees with evidence of decay, insects, disease or cavities were retained.

Approximately 50% of all patch reserves in the 1996–2001 WTR study measured less than 1.0 hectare, with 25% being less than 0.5 hectares in size. Most wildlife tree users require breeding territories of several hectares, and as a result, their habitat needs are unlikely to be met within wildlife tree patches under current practices. The extent to which wildlife tree users utilize small patches of habitat in fragmented landscapes is not well understood in British Columbia and requires further investigation.

Risk ratings for wildlife tree users were estimated based on the median retention densities of wildlife tree habitat elements reported in the 1996–2001 WTR study. All species fell into the “high” or “very high” risk categories based on their requirements for one or more habitat elements that averaged ≤ 2.5 stems per hectare. It is important to note that while the original 1996–2001 WTR study reported wildlife tree density on a reserve basis, Pandion’s analysis is based on the density of wildlife trees for the entire cutblock. Therefore, the density of wildlife trees reported in the 1996–2001 WTR study is proportionally higher than the densities calculated by Pandion. Species listed by the provincial Conservation Data Centre, identified under the IWMS, and that depend on wildlife trees for all their life requisites may be at particularly high risk under current policies and practices.

Provincial wildlife tree policy provides a coarse-filter approach to protect wildlife tree habitat in managed landscapes. The IWMS is a fine-filter mechanism designed to conserve habitat for species that are particularly sensitive to forest and range practices, and that are not adequately addressed through coarse-filter management. Pandion’s assessment suggests that many IWMS species may experience critical habitat deficits if wildlife tree retention strategies in their territories and ranges reflect the results of the 1996–2001 WTR study.

Furthermore, findings indicating the lack of biological effectiveness of current wildlife tree retention suggest the need for: (1) review and modification of provincial wildlife tree retention policies and practices; (2) a greater emphasis on the IWMS to protect habitat for specific wildlife tree users; (3) consideration of IWMS designation for a greater number of wildlife-tree-dependent species; and (4) an evaluation of the implementation and biological effectiveness of the IWMS to ensure its intended objectives are being met.

Recommendations

The results of the Pandion study suggest that current practices for implementing the provincial wildlife tree retention policy do not adequately meet the habitat requirements of BC's wildlife tree users. The following recommendations may assist in improving the biological effectiveness of wildlife tree retention strategies:

1. Focus wildlife tree retention on functional wildlife trees (particularly snags) using a density-based approach. Required densities should reflect the natural range of variability of wildlife trees by biogeoclimatic (BEC) subzone and stand type. Targets for both live and dead tree components should be specified to ensure that retained trees provide present as well as future wildlife tree habitat.
2. Initiate further dialogue with the BC Workers' Compensation Board (WCB) regarding hazard tree regulations
3. Consider existing wildlife tree retention targets and the timber supply impact assumption of the current wildlife tree retention policy to better facilitate the conservation of wildlife tree habitat.
4. Recognize that worker safety, timber supply and habitat retention cannot all be maximized simultaneously in any given area.
5. Modify the wildlife tree retention guidelines to increase the retention of biologically effective patches (e.g., > 2.0 hectares).
6. Incorporate the risk rating tables for wildlife tree user guilds from this report into future wildlife tree policy updates so that field staff can use the information to refine local stand-level biodiversity retention.
7. Develop temporal and special distribution requirements for wildlife tree retention to minimize habitat fragmentation.
8. Emphasize that small-scale salvage of wildlife tree retention is undesirable and should be avoided. Consider developing policy direction for large-scale salvage to include provisions for wildlife tree retention, as natural disturbances are known to provide source habitats for wildlife tree users.
9. Wildlife tree retention policy implementation and effectiveness should continue to be monitored as part of an adaptive management approach and used to modify practices and policies accordingly.
10. To improve future assessments for evaluating biological effectiveness:
 - Strategically select forest districts and BEC zones that support the majority of wildlife species that are of conservation risk.
 - Focus on measurements of habitat elements with relatively high biological value for wildlife tree users (e.g., minimum tree size of ≥ 20 cm dbh and ≥ 10 m height).
 - If possible, use quantitative variables (e.g., stems per hectare of live and dead trees with hollows, natural and excavated cavities, open nests, dens, roosts and perches) to evaluate the biological value of individual trees and reserves, and incorporate coarse woody debris (CWD) measurements into future monitoring.
 - Incorporate a system for evaluating the biological effectiveness of wildlife tree retention within a landscape context.
 - Focus future evaluations on randomly selected pre-harvest blocks to provide a clearer picture of what was selected for wildlife tree retention.
 - Future evaluations would benefit from assessing the performance of wildlife tree users in managed stands (e.g., are the majority of wildlife tree users able to utilize the retained habitat; are they successfully breeding and producing viable offspring?).
 - More in-depth research is required to answer questions regarding the behaviour and population dynamics of wildlife tree users in managed forests.
11. Additional data from British Columbia and the Pacific Northwest should be collected and summarized to address species-specific information gaps on wildlife tree habitat requirements.
12. CWD-dependent species should be incorporated into future evaluations, along with research to address information gaps in their habitat requirements.

More Information

For additional information on FREP, or to view a copy of the full report, please refer to our website at: <http://www.for.gov.bc.ca/hfp/frep>, or contact any member of the FRPA Resource Evaluation Working Group:

Barber, Frank	MOF – Forest Practices Branch	Frank.Barber@gems6.gov.bc.ca	(250) 387 8910
Bradford, Peter	MOF – Forest Practices Branch	Peter.Bradford@gems1.gov.bc.ca	(250) 356 2134
Collins, Denis	MOF – Coast Forest Region	Denis.Collins@gems4.gov.bc.ca	(250) 751 7121
Davis, Sam	MOF – Mackenzie Forest District	Sam.Davis@gems6.gov.bc.ca	(250) 997 2215
Dunkley, Jim	MOF – Coast Forest Region	Jim.Dunkley@gems6.gov.bc.ca	(250) 751 7352
Haley, Dave	MOF – Timber Tenures Branch	Dave.Haley@gems2.gov.bc.ca	(250) 387 8317
Hoyles, Susan	MOF – Northern Interior Forest Region	Susan.Hoyles@gems7.gov.bc.ca	(250) 565 6214
Jones, Greg	MWLAP – Biodiversity Branch	Greg.Jones@gems3.gov.bc.ca	(250) 356 8186
Mackinnon, Andy	MSRM – Res. Management Division	Andy.Mackinnon@gems1.gov.bc.ca	(250) 953 4792
Mah, Shirley	MOF – Research Branch	Shirley.Mah@gems8.gov.bc.ca	(250) 356 2180
Martin, Wayne	MOF – Northern Interior Forest Region	Wayne.Martin@gems9.gov.bc.ca	(250) 565 6102
Nyberg, Brian	MOF – Forest Practices Branch	Brian.Nyberg@gems6.gov.bc.ca	(250) 387 3144
Peterson, Dan	MOF – Southern Interior Forest Region	Dan.Peterson@gems7.gov.bc.ca	(250) 828 4187
Porcheron, Ross	MSRM – Interagency Management Committee	Ross.Porcheron@gems9.gov.bc.ca	(250) 371 6232
Reveley, Hal	MOF – Coast Forest Region	Hal.Reveley@gems4.gov.bc.ca	(250) 751 7097
Soneff, Ken	MOF – Southern Interior Forest Region	Ken.Soneff@gems7.gov.bc.ca	(250) 828 4164
Still, Gerry	MOF – Research Branch	Gerry.Still@gems1.gov.bc.ca	(250) 387 6579
Thompson, Richard	MWLAP – Biodiversity Branch	Richard.Thompson@gems2.gov.bc.ca	(250) 356 5467
Weese, Kristine	MOF – Forest Practices Branch	Kristine.Weese@gems3.gov.bc.ca	(250) 558 1760
Wilford, Dave	MOF – Northern Interior Forest Region	Dave.Wilford@gems3.gov.bc.ca	(250) 847 6392



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