Forest Practices Board

Biodiversity Management in the Revelstoke Timber Supply Area

Complaint Investigation 121010

FPB/IRC/187

February 2013

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Board Commentary

In 2005, when government established the original Revelstoke Higher Level Plan Order (RHLPO), it included a provision that it might review the order, should subsequent recovery efforts for caribou adversely affect timber supply. Hence, a 2011 amendment was intended to recover a volume of harvestable timber to compensate for that set aside in 2009 to protect caribou habitat. This investigation determined that the amendment, without altering the area reserved for caribou, reduced and re-arranged the amounts, location and security of old and mature forest required to be protected for biodiversity conservation. Ultimately, though less old and mature forest is now protected, the reduced amount is not substantive relative to the original RHLPO, provided forests that are currently considered inoperable remain unharvested.

An important question beyond the scope of this investigation remains: *Are government's measures for biodiversity conservation effective?* The Board has commented previously, and remains concerned, that the province does not yet have an adequate program of monitoring and research to assess whether its actions for biodiversity are actually maintaining biodiversity.

In the absence of suitable monitoring and research, effective public involvement is one way to gauge the adequacy of conservation measures. In the circumstances of this investigation, there is no way to know whether better public engagement would have resulted in a different approach, decision or outcome, but it assuredly would have provided an opportunity for greater understanding, more clearly defined public expectations and potentially greater confidence in how government has balanced the community's economic and environmental values.

The Investigation

In February 2012, the environmental groups Wildsight (WS) and the North Columbia Environmental Society (NCES) complained to the Forest Practices Board about changes made by the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) to the biodiversity objectives of the Revelstoke Higher Level Plan Order (RHLPO).

The complainants expressed concern that MFLNRO amended the RHLPO without knowing whether biodiversity will actually be conserved. They also asked the Board to look at whether public consultation preceding the changes was effective and whether government adequately evaluated the social, economic and environmental impacts of the amendment.

MFLNRO approved the amendment in December 2011, under section 93.4 of the *Land Act*. The *Land Act* is not within the Board's jurisdiction; however, because the amended order will influence results and strategies specified in area forest stewardship plans under the *Forest and Range Practices Act* (FRPA), the Board decided to investigate.

The Board's interest in this complaint is regarding the possibility that public confidence in forest practices may erode without active public engagement in the planning of significant changes to previously approved land use objectives.

The Board thanks the agencies and parties involved for their cooperation.

Background

In 1993, the BC government began land use planning for the Kootenay-Boundary region, which includes the Revelstoke Timber Supply Area (TSA). Dissatisfied with the outcome of that planning process, the citizens of Revelstoke asked government for another forum from which to develop community-based recommendations. Government agreed and, in 1999, a citizen's committee, the Revelstoke Minister's Advisory Committee, was struck for the purpose of developing recommendations for achieving balance between the economic, environmental and social needs of the community and the province.[i] Government endorsed this community plan in 2001, and in 2005 it established the RHLPO.[ii] The RHLPO set legal objectives for management of biodiversity, caribou and grizzly bear and thus provided legal direction to forest licensees under FRPA.

The RHLPO objectives for biodiversity were expressed as amounts of old and mature forest, and type and amounts of caribou and grizzly bear habitats, required to be maintained. At the time the RHLPO was drafted, government was also developing a recovery strategy for mountain caribou, so it included in the order a provision for future amendment should caribou recovery efforts have an adverse impact on timber supply in the Revelstoke TSA.

The original RHLPO differed from most other BC land use plans in several ways:

- Biodiversity emphasis options (BEO) were assigned within mapped "connectivity corridors" with the result that most landscape units contained multiple designations of old forest retention (low, intermediate and high).

- Except in two tree farm licence areas, the full requirement for old forest retention[1] within low BEO areas was to be met immediately, rather than phased in over 240 years.[2]
- Except in the two tree farm licence areas, the requirements for "mature-plus-old" forest retention[3] were to be achieved in all BEOs.
- The biodiversity requirements for each biogeoclimatic (BEC)[4] subzone variant were required to be met both above and below the timber harvesting operability line.

In 2009, government passed an additional order under the *Government Actions Regulation* (called a GAR order) to protect a mapped area of caribou habitat in the Revelstoke TSA. The caribou GAR order protected more caribou habitat than the RHLPO. In 2010, government revised the GAR order to reduce fragmentation of caribou habitat and improve access to harvestable timber. It also cancelled the original RHLPO objective for caribou habitat.

Also in 2010, a timber supply review of the Revelstoke TSA calculated that protection of caribou habitat through the GAR order would adversely impact timber supply from the TSA.[iii] MFLNRO then considered whether the RHLPO could be further revised to reduce the impact on timber supply, while still meeting biodiversity targets. That process led to MFLNRO proposing changes and deciding to amend the RHLPO in 2011.[iv]

The 2011 amendment did several things. It:

- reduced the amount of old forest required to be retained to one-third of full retention in low BEO areas provided full "old" requirements would be met within 240 years.[5]
- eliminated the requirement that forest retention for biodiversity had to be met both above and below the timber harvesting operability line.
- removed retention requirements for "mature-plus-old" forest.
- adjusted landscape unit boundaries, natural disturbance type and BEC subzone variant classifications to reflect current inventory.
- aligned an ungulate winter range boundary with a BEO boundary in one landscape unit.

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[1] Old forest stands in the Revelstoke TSA are older than 250 years but may be younger if a professional determines they have sufficient biological value. MFLNRO considers age class 8 (141-250 years) and older forests to be old.

[2] Government's 1999 *Landscape Unit Planning Guide* gave a procedure for delineating old growth management areas. It allowed the full target for old forest retention in landscapes units with low BEO to be drawn down by two-thirds. If the full target for old forest was not established within the low BEO areas, a recruitment strategy to reach the full old target within 240 years was required. http://archive.ilmb.gov.bc.ca/slrp/srmp/Background/docs/LUGuide.pdf

[3] "Mature-plus-old" forest stands in the Revelstoke TSA are older than 100 or 120 years depending on location.

[4] "BEC" refers to the biogeoclimatic ecosystem classification system used in BC. It groups together ecosystems of similar vegetation, soils and climate. http://www.for.gov.bc.ca/hre/becweb/system/how/index.html

[5] Except for one landscape unit without caribou habitat (LU R3), where the full old requirement still applies.

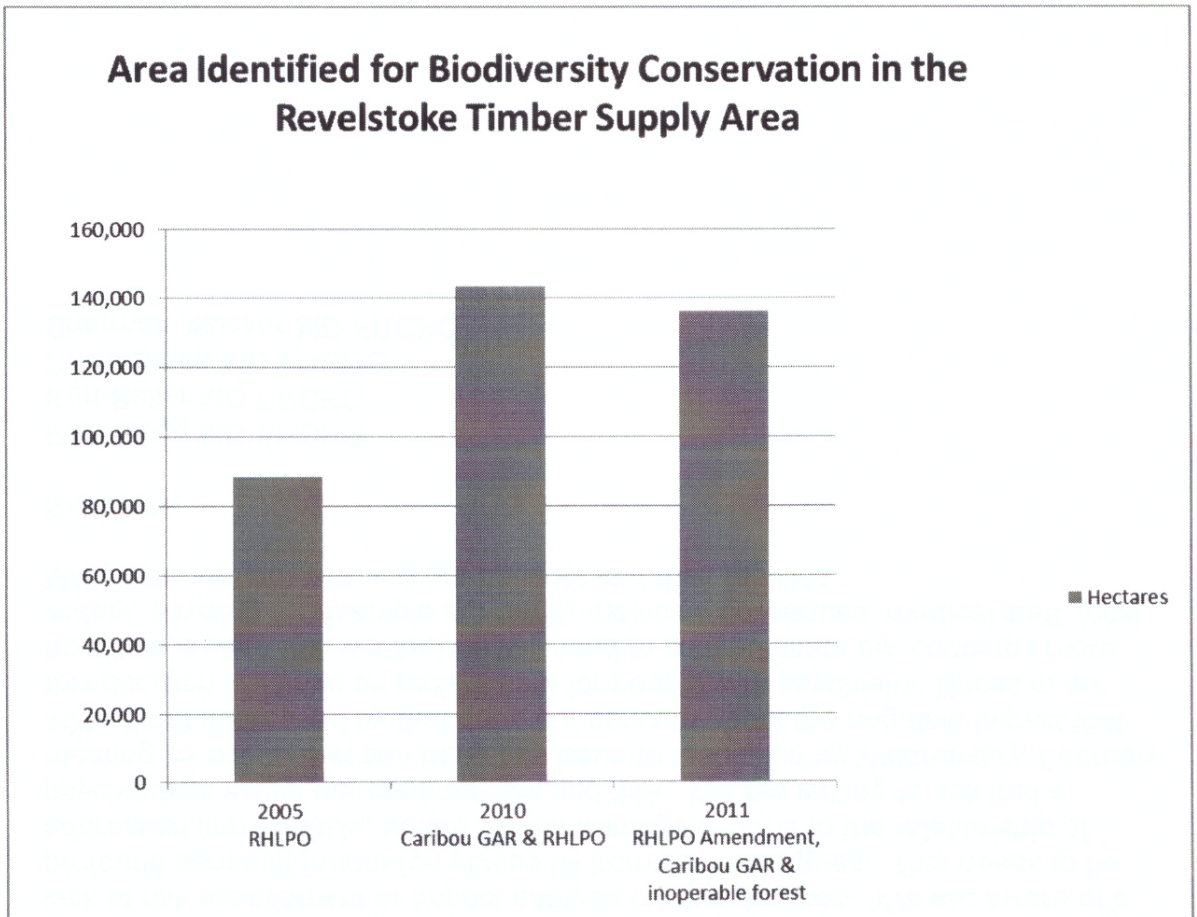
Discussion

To address the complainants' concerns, the Board considered these questions:

1. How will the amendment affect biodiversity conservation?
2. Was public consultation effective?
3. Were social, economic and environmental impacts properly evaluated?

How will the amendment affect biodiversity conservation?

The complainants consider the inland temperate rainforest that surrounds Revelstoke to be very rare—perhaps the only one of its kind in the world. Indeed, some features of BC's inland temperate rainforest are globally unique.[v]

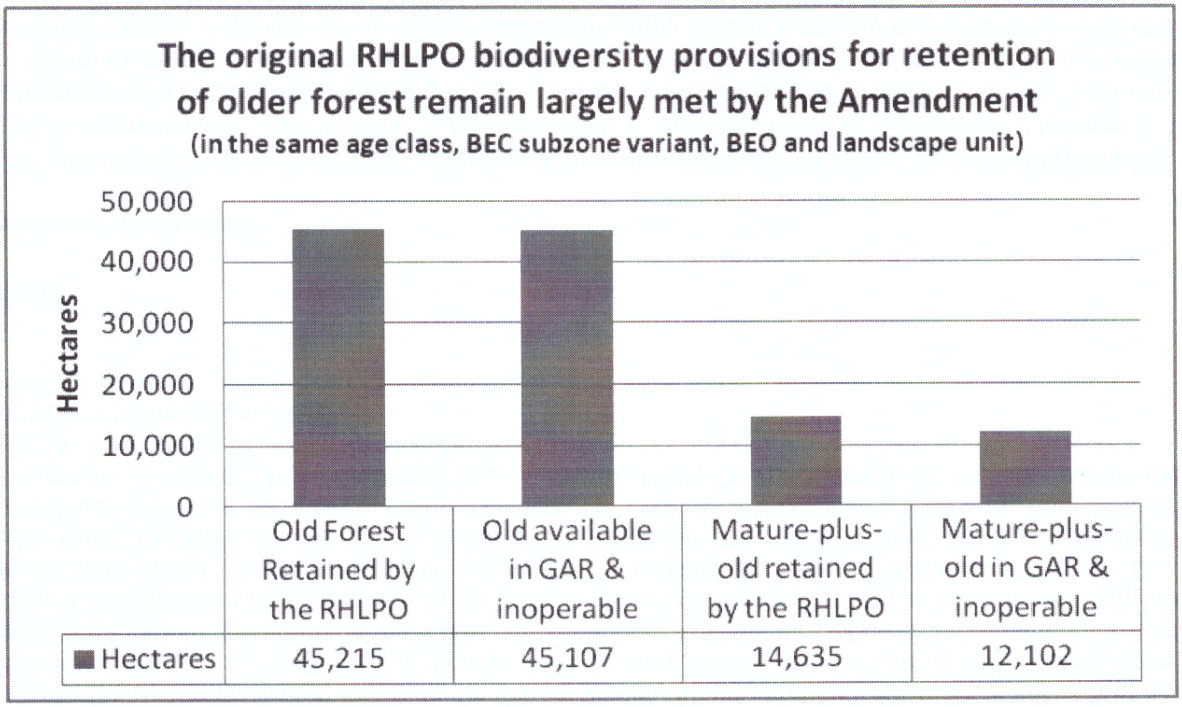


In 2005, the RHLPO required an area of old and mature forests to be set aside for both biodiversity conservation and caribou. The 2010 Caribou GAR order increased the area set aside for caribou; it did not change the amount required for biodiversity. The 2011 RHLPO amendment reduced the amount *required* for biodiversity but also identified that most of the originally-required RHLPO amount could still be found within the Caribou GAR area and inoperable forest. Although MFLNRO has identified the inoperable forest as contributing to biodiversity conservation, lands there are not formally protected for that purpose. Forest licensees are only obligated to ensure that the required percentage of older forest remains on the landscape. To effectively address biodiversity conservation, not only must the amount of available old and mature forest be identified, but the location, quality and security of those forests must also be considered.

The complainants are concerned that MFLNRO altered the original RHLPO provisions for biodiversity conservation in the Revelstoke area without knowing whether biodiversity would actually be conserved. Calculating the impact of the amendment on biodiversity conservation requires a number of complex factors to be balanced, each carrying some assumptions and uncertainty. On balance, the Board considers that the amendment will not substantially affect biodiversity conservation *as originally provided by the RHLPO*. However, it is unknown whether the current, or even the original, RHLPO provisions for biodiversity conservation will actually be effective at maintaining biodiversity.

Neither MFLNRO (nor the Board) has tracked or monitored the effectiveness of the original RHLPO biodiversity objectives. The ministry assumes that government provisions for biodiversity protection will be effective. The ministry explained that the amendment is consistent with the former Forest Practices Code *Biodiversity Guidebook*,[vi] and current government policy and legal direction for biodiversity in other nearby forest districts, and that the caribou GAR order retains considerably more older forest than was provided for in the original RHLPO.

One premise of MFLNRO's amendment process was that the RHLPO requirements for "old" and "mature-plus-old" forest retention could largely be met by ecologically similar areas (i.e., areas that are in the same age class, BEC subzone variant and BEO classification) within the same landscape unit, first within the caribou GAR area or, failing that, within the remaining inoperable forest.[6] Trading areas of the same BEC subzone variant and age class would provide

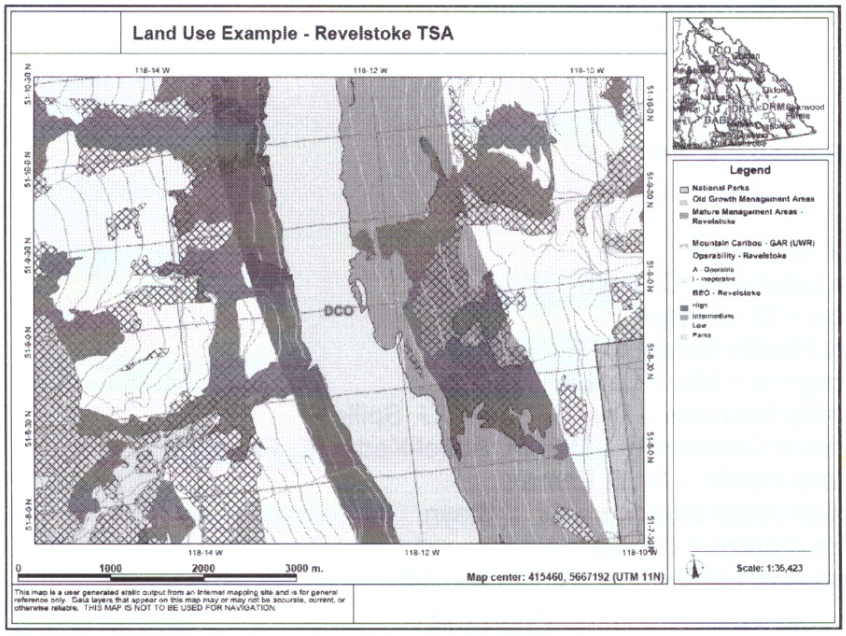


[6] Inoperable areas are typically defined as unavailable for timber harvesting for terrain related or economic reasons.

a close approximation of ecological equivalency in the absence of field review by experts.[7] To help ensure equivalency, MFLNRO excluded forest stands classified as "non-productive" and with less than ten percent crown closure, but the ministry did not consider relative patch sizes or slopes, so the areas cannot be fully compared.

In any event, exact comparison was not necessary. Although mapped for convenience, the original areas of older forest identified for retention by the forest licensees were never fixed in place—the licensees have always had the option to substitute them with similarly-described areas at any time—provided the legally required amount of "old" and "mature-plus-old" forest remained elsewhere within the operable land base.

MFLNRO's assessment indicated that 95 percent[8] of the amount of "old" and "mature-plus-old" forest originally required for biodiversity retention could be found within ecologically similar areas outside the current operable land base. However, while the caribou GAR area is reserved from timber harvesting, the inoperable land base is not. As markets or technologies change, currently inoperable forest may become available to harvest.[9] Forest licensees are only obligated to ensure that the required percentage of older forest remains on the landscape.



The amendment reduced "old" forest retention requirements to one-third of the original RHLPO requirement in low BEO areas, and removed all requirements to retain "mature-plus-old" forest (both provisions are consistent with provincial policy elsewhere). This means that, under the amendment, forest licensees are obligated to retain less "old" forest overall. However, this outcome was anticipated in 1999 by the *Revelstoke* Minister's

[7] MFLNRO's team that proposed the amendment included a forester and a biologist with decades of local field experience and resource knowledge.

[8] 45 107 hectares of 45 215 hectares originally required for old forest retention (99.8 percent) and 12 102 hectares of 14 635 hectares originally required for retention of mature-plus-old forest (82.7 percent). Combined, the amount of ecologically similar older forest in the caribou GAR area and the inoperable forest is 95 percent of the amount required by the original RHLPO. The deficit of 108 hectares of old and 2 533 hectares of mature-plus-old is mostly within the ICH BEC zone.

[9] Conversely, areas currently considered operable could become inoperable.

Advisory Committee as an option to manage declining timber supply.[10] So in effect, the amendment brought the originally distinctive RHLPO area into line with provincial policy applied elsewhere for biodiversity retention in low BEO areas.

However, the RHLPO area was also distinctive from provincial policy in that high and intermediate BEO areas were assigned along connectivity corridors to match the location of important biodiversity values.[11] The effect of this has been increased retention of older forest where it is likely to be most beneficial to conserving biodiversity. The RHLPO amendment neither changed the original BEO assignments[12] nor the amount of old forest required to be retained within high and intermediate BEO areas. However, removal of the "mature-plus-old" requirements means that 2533 hectares of older forest—almost all within intermediate and high BEO connectivity corridors in the lower elevation Interior Cedar Hemlock (ICH) BEC zone—are now more likely to be harvested. These areas are not replaceable within either the GAR area or the inoperable land base. If harvested, the result will be a reduced and further fragmented amount of lower elevation older forest available to contribute to ecosystem connectivity.

In all, the amendment made 7049 hectares of constrained old and mature-plus-old forest in the operable land base available for potential harvest. However, when originally mapped, those areas were preferentially located in places already constrained by factors such as unstable terrain, riparian reserves, and scenic or watershed interests. Although now available for harvest (and thus contributing more fully to timber supply), some portion of them may never be harvested for reasons other than biodiversity protection. Those areas will continue to contribute to biodiversity conservation, but are not formally protected for that purpose.

The complainants were concerned that the amendment would concentrate biodiversity retention in upper elevation caribou habitats to the detriment of biodiversity conservation in lower elevation ecosystems. The caribou GAR order reserved both upper and lower elevation caribou habitats with connectivity between. Ultimately, if forest licensees harvest all available older forest stands from the operable land base, then biodiversity retention will be concentrated within the caribou GAR order area and the inoperable land base. However, both these areas contain some older forest in low elevation ecosystems that are ecologically-equivalent to low elevation ecosystems in the operable land base. Therefore, biodiversity retention will not be concentrated only in upper elevation caribou habitats.

The amendment did not affect the area protected by the caribou GAR order, but some caribou habitat in the operable forest, previously protected by virtue of the original RHLPO requirements for biodiversity, will now potentially be logged. If this happens, caribou recovery may be more difficult.

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[10] The 1999 *Revelstoke Minister's Advisory Committee* report to government anticipated a possible removal of mature-plus-old requirements and reduction of old forest retention to one-third (with full old achieved in about 240 years) in low BEO areas: *"As future timber supply reductions are forecast for the Revelstoke Timber Supply Area, and Tree Farm License 23, the above practices developed for Tree Farm Licence 55 and 56 could be considered for these areas in the future."*

[11] Elsewhere, BEOs were assigned to whole landscape units.

[12] Except for a minor change in one landscape unit that aligned a BEO and ungulate winter range boundary.

To recap, there has been no mechanism applied to monitor or assess the effectiveness of either the original RHLPO or its subsequent amendments to actually achieve biodiversity conservation. The assumption of MFLNRO is that *Biodiversity Guidebook* targets, government policy and legal requirements for biodiversity are effective. Under the amendment, 95 percent of the original RHLPO biodiversity requirements for "old" and "mature-plus-old" forest are met in ecologically equivalent areas. The caribou GAR order area and intermediate and high BEO assignments that provide for ecosystem connectivity between lower and upper elevation habitats remain unchanged. However, the reduction of "old" forest retention to one-third of the original requirement in low BEO areas, and removal of requirements to retain "mature-plus-old" forest from all BEOs will result in less older forest retained overall, particularly within the lower elevation ICH BEC zone. Logging these areas will likely act to fragment ecosystem connectivity and may make caribou recovery more difficult. Some areas of older forest made available for potential harvest by the amendment are likely to remain unharvested for reasons other than biodiversity protection. Those areas will continue to contribute to biodiversity conservation.

Finding: On balance, the amendment will not substantially affect biodiversity conservation as originally provided by the RHLPO, so long as forests that are currently considered inoperable remain unharvested. However, it is unknown whether the current, or even the original, RHLPO provisions for biodiversity conservation will actually be effective at maintaining biodiversity.

Was public consultation effective?

The complainants are concerned that MFLNRO did not provide adequate notice or sufficient information to allow for meaningful public consultation or review and comment on the amendment. As examples, the complainants noted that public advertisements did not convey the potential significance of the amendment, there was no easy access to maps, and it was difficult to determine how supporting information was analyzed. The Board found that public consultation for the RHLPO amendment met legal requirements, but was not effective.

For the amendment process, MFLNRO followed policy and procedures established by government in 2008 to support its *New Direction for Strategic Land Use Planning*.[vii] The guidance document *Land Use Objectives Regulation: Policy and Procedures*[viii] suggests that conferring with key groups while drafting land use orders might minimize conflict, improve efficiency and result in the preparation of more effective objectives. It also advised that involving interest groups does not eliminate the need for public review and comment or other necessary consultation.

In May 2011, when MFLNRO had substantially completed its proposed amendment, it considered whether any public groups or other agencies should be contacted in advance of public review. One of the complainants, the NCES, is a local environmental group well known for its interest in land use planning processes that affect the citizens of Revelstoke. In June 2011, MFLNRO telephoned the NCES to invite it to a meeting to discuss the proposed amendment. The NCES in turn contacted the other complainant, WS. Both groups are volunteer organizations and, though some emails were exchanged between them, neither group responded to the

ministry's invitation or realized the potential significance of the proposal until after it was advertised for public review.

The Board's view is that effective public consultation involves using techniques tailored to the needs of the specific circumstances, as determined by the level of public or stakeholder interest and the nature of their concerns. In its bulletin, *Opportunity for Public Consultation under the Forest and Range Practices Act*, the Board found that public involvement is most effective when it occurs early in the planning process, with sufficient time allocated (relative to the complexity and scope of the project) for the involved public to participate alongside the planning professionals; is inclusive, where all parties have an opportunity to participate relative to their interest and have access to sufficient understandable information; includes records of response to public input and verification of commitments made; and, establishes trust through ongoing communication and involvement.[ix]

MFLNRO contacted one of the complainants late in the planning process, after the proposal was largely complete and nearly ready for public review. In contrast, MFLNRO included and involved potentially affected forest licensees from the start, some 18 months previous. Had MFLNRO attempted to invite and involve the complainants earlier, while proposed changes to the land use order were being developed, it may have led to greater understanding, more clearly defined public expectations for conservation, improved public input and confidence, and potentially an even better product. However, once they were invited, it was equally important for the complainants to have become involved or to have declined the opportunity.

MFLNRO proceeded in its process to public review and comment through September and October, 2011. As required by the *Land Use Objectives Regulation* (LUOR), the ministry published a notice in a local newspaper and the *BC Gazette* that the proposed amendment was available for public review and comment (Section 3(2) LUOR). The notices met all legal requirements. Also as required, the approving MFLNRO official reviewed and considered all written comments prior to deciding to approve the amendment (Section 2(3) LUOR).

The complainants contend that the ministry was not forthcoming about the location of old forest that the amendment would make available for harvesting. The maps and information provided by MFLNRO with its public review and comment advertisements did not identify the areas of old forest potentially affected by the amendment or the anticipated effect of the amendment on biodiversity or forest management. Detailed maps and assessment tables (those used by MFLNRO as it developed the amendment) were not publicly advertised, but were available at the ministry office. The maps and tables are complex and interpreting them requires help. They indicated where older forest might eventually be harvested,[13] but did not show the specific locations of available old forest within the caribou GAR area and inoperable land base.[14]

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[13] Though mapped for convenience, the originally identified old and mature-plus-old forest areas within the operable land base were always *potentially* available for harvest – the original RHLPO required a target percentage of old forest on the landscape to be retained, not the protection of specific sites.

[14] The ministry used its electronic files to create a data table comparing the amount of ecologically-equivalent old forest (same age class, BEC subzone variant and BEO) available within the caribou GAR and inoperable areas to that potentially 'deleted' from the operable forest.

If they had, a reviewer would have been able to see where old forest made available for harvesting by the amendment might be 'replaced' elsewhere on the landscape. These circumstances likely limited the opportunity for public understanding, informed comment and, ultimately, satisfaction with the process.

In its report, *A Review of the Forest Development Planning Process in British Columbia*,[x] the Board found that where forest planners and residents developed approaches to consultation that exceeded minimum legal requirements, the result was much higher satisfaction with the process. People's satisfaction seemed to depend on their relationship with the planning officials and the responsiveness to public input shown by those officials. The citizens of Revelstoke had a history of interest, concern and involvement in the land use planning and advisory committee processes that led to the original RHLPO. MFLNRO involved the affected forest licensees from the start of its amendment planning process, so it seems reasonable that (at minimum) the NCES, as a public group known for its interest in local land use planning processes, should also have had the opportunity to be involved early, to be periodically informed and to actively participate in the process.

In the circumstances of this complaint, it would probably also have helped had MFLNRO provided (with its public review and comment materials) a web-based visual presentation showing the potential effect of the proposed amendment. At the Board's request, MFLNRO prepared an example presentation with details for one landscape unit. A link to the presentation can be found with this report on the Board's website.

Finding: Public consultation for the RHLPO amendment met legal requirements but was not effective.

Were social, economic and environmental impacts properly evaluated?

The complainants consider the RHLPO amendment a significant change to biodiversity protection in the Revelstoke TSA and are skeptical of how government considered its potential social, economic and environmental impacts. In the Board's view, the social, economic and environmental impacts of the amendment were properly evaluated according to the applicable policy and legislation, and the available supporting information.

The original RHLPO required its implementation to be monitored on an ongoing basis to assess its social, economic and environmental impacts; presumably by a government official. In addition, the LUOR requires, before a land use objective is established or significantly amended, that the minister responsible for the *Land Act* be satisfied that the order provides for an appropriate balance of social, economic and environmental benefits.[15] The authority to establish and amend land use objectives is delegated to MFLNRO regional executive directors where, in the opinion of that official, the objective or amendment is unlikely to have substantial social, economic or environmental implications. The LUOR does not provide details about what is required to assess social, economic and environmental benefits or implications. Thus, it is at the discretion of the approving official to determine whether such benefits are balanced fairly.

[15] LUOR section 2(2)(a)(ii).

The standard the Board uses in evaluating discretionary decisions is not whether, in the Board's opinion, the decision was the best decision. Rather, the standard is: *Was the decision consistent with sound forest practices, did it achieve the intent of FRPA and was it based on an adequate assessment of available information?*

A MFLNRO regional executive director approved the RHLPO amendment, but did not specifically comment on whether it might have substantial social, economic or environmental implications. The regional executive director considered the following, among other relevant information:

- The original RHLPO, with its provision for review should a circumstance such as caribou recovery have an adverse impact on timber supply.
- The 2010 timber supply review, which estimated an 8.4 percent impact on timber supply and a socio-economic loss of 25 person-years of employment resulting from retention of additional operable forest by the caribou GAR order.
- The ministry's analyses which showed that the original RHLPO old forest retention requirements could (as described by the approving official) "be met" and mature forest targets "substantially met" within the caribou GAR area and inoperable land base.

MFLNRO had also calculated that the amendment would benefit short- to mid-term timber supply by 7.6 percent, largely offsetting the timber supply impact of the caribou GAR order. In deciding to approve the amendment, the regional executive director concluded that the caribou GAR order had caused a material adverse impact on timber supply, and that the amendment would help mitigate it with little or no impact on biodiversity values.[16] The regional executive director was therefore satisfied that "a positive" balance of social, economic and environmental benefits would be maintained.[17]

The ministry guidance document, *Land Use Objectives Regulation: Policy and Procedures,* suggests suitable information sources for considering whether social, economic or environmental benefits are appropriately balanced when establishing, amending or repealing land use objectives. These include:

- Cabinet endorsed land or resource use decisions.
- socio-economic and environmental assessments done to support land use decisions.[18]
- timber supply review analyses, or other relevant impact studies.
- supporting documents to major land use or resource allocation decisions.

The guidance also notes that neither environmental conditions nor the social choice decisions made in land use planning remain static, so land use objectives should be periodically reviewed and monitored to ensure that the legal direction established is achieving desired outcomes.

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[16] The regional executive director concluded that the biodiversity strategy for the area would be kept largely intact and "similar to other land use plans."

[17] *Reasons for Decision, Revelstoke Higher Level Plan Order Amendment 02,* MFLNRO, December 16, 2011.

[18] The *Land Use Objectives Regulation: Policy and Procedures* suggests that undertaking supplemental socio-economic and environmental assessments may be appropriate only if the change in balance is potentially substantial.

The MFLNRO regional executive director had the statutory discretion to approve or reject the proposed amendment. MFLNRO's review and analyses suggested that its amendment would not appreciably change biodiversity protection on-the-ground. The regional executive director approved the amendment consistent with applicable policy and legislation, and considered relevant, available supporting information in evaluating whether social, economic and environmental benefits were appropriately balanced.

Finding: Social, economic and environmental impacts were properly evaluated according to the applicable policy and legislation, and the available supporting information.

Conclusions

On balance, the amendment will not substantially affect biodiversity conservation as originally provided by the RHLPO, so long as forests that are currently considered inoperable remain unharvested. Both the *Revelstoke* Minister's Advisory Committee and government anticipated that biodiversity protection in the Revelstoke TSA could be adjusted in response to declining timber supply, notably that caused by the additional protection of caribou habitat. The Board commends MFLNRO for doing a good job of assuring that the original RHLPO biodiversity provisions would be largely met by the amendment, while substantially mitigating the impact of the caribou GAR order on timber supply.

Public consultation for the RHLPO amendment met legal requirements but was not effective. In the Board's view, government should, and is likely to, review and amend other land use plans and orders elsewhere in the province where conditions on-the-ground have changed or public expectations for forest management have evolved. It will be important for public confidence that government find the means and apply techniques that support public engagement and stakeholder participation appropriate to the level of their interest and nature of their concerns.

In the context of the RHLPO amendment, public environmental representatives should have had the opportunity to be involved earlier, to be periodically informed, and to actively participate in the process.

The social, economic and environmental impacts of the amendment were properly evaluated. An authorized official approved the amendment consistent with applicable policy and legislation, and considered relevant, available supporting information in evaluating whether social, economic and environmental benefits were appropriately balanced.

Nonetheless, it concerns the Board that it is unknown whether the conservation provisions applied in the Revelstoke TSA (or, for that matter, elsewhere in BC) will actually maintain biodiversity. A program of monitoring and scientific study is necessary to know whether land use provisions for biodiversity in the province are working, and to guide adaptive change where required. The Board has previously suggested that effectiveness monitoring of biodiversity protection efforts is needed.[xi] This investigation reinforces that need.

Endnotes

[i] http://www.for.gov.bc.ca/dco/MAC/Rlupr99.pdf

[ii] http://archive.ilmb.gov.bc.ca/slrp/lrmp/cranbrook/revelstoke/files/plan_order.pdf

[iii] Timber Supply Review No. 4, www.for.gov.bc.ca/hts/tsa/tsa27

[iv] http://archive.ilmb.gov.bc.ca/slrp/lrmp/cranbrook/revelstoke/legaldocs/revelstoke_legalorder_20111216.pdf

[v] Stevenson, S.K., Armleder, H.M., Arsenault, A., Coxson, D., Delong, S.C., Jull, M. 2011. *British Columbia's inland rainforest: ecology, conservation and management*. UBC Press.

[vi] http://www.for.gov.bc.ca/tasb/legsregs/fpc/fpcguide/biodiv/biotoc.htm

[vii] http://archive.ilmb.gov.bc.ca/slrp/lrmp/policiesguidelinesandassessements/new_direction/new%20direction%20synopsis.pdf

[viii] http://archive.ilmb.gov.bc.ca/slrp/lrmp/policiesguidelinesandassessements/docs/Approved_LUOR_Policies_and_Procedures_Feb_14_08.pdf

[ix] http://www.fpb.gov.bc.ca/WorkArea/DownloadAsset.aspx?id=1342

[x] http://www.fpb.gov.bc.ca/SR04_A_Review_of_the_FDP_Process_in_BC.pdf, December 2000

[xi] http://www.fpb.gov.bc.ca/SIR36_Conserving_old_Growth_Forests_in_BC.pdf



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