

Protection of Deer Habitat at Anderson Lake

Complaint Investigation

060711



FPB/IRC/125

June 2007

Table of Contents

The Investigation..... 1
 Background..... 1
 Relevant Legislation..... 2
 Discussion..... 2
Conclusions..... 11
Commentary 11

The Investigation

The Board received a complaint in March 2006 from a resident of Anderson Lake, between Pemberton and Lillooet. The complainant was concerned that logging south of McGillivray Creek at Anderson Lake would harm mule deer winter habitat and a local water supply.

The Board reported previously about the complainant's concerns dealing with water.¹ This report deals with the complainant's concern about mule deer winter habitat. The Board investigated whether management of mule deer winter habitat south of McGillivray Creek represented sound stewardship of forest resources.

Background

The complainant represents the 17 owners of a strata development on Anderson Lake south of McGillivray Creek. The Crown land above the complainant's property is winter habitat for mule deer. Mule deer winter habitat, or winter range, is used by deer to avoid deep snow. These areas are usually associated with older Douglas-fir forest on southern exposures. The winter range south of McGillivray Creek includes slopes up to 100 percent and elevations up to 1500 metres.

This area has a substantial history of logging, fires and clearing for mines and hydro-electric lines. Much of the deer winter range was logged during the 1970s and 1980s.

The licensee, N'Quatqua Logging Company Ltd., operates on behalf of the N'Quatqua First Nation. Anderson Lake is part of the traditional territory of the N'Quatqua people. In the 1990s, the licensee's allocated volume of timber was to come from cutblocks designed by BC Timber Sales (BCTS).² These included five cutblocks south of McGillivray Creek as well as other cutblocks further away.

Ultimately, the licensee considered the cutblocks further away to be uneconomic and it decided not to log that timber. In 2001, to cost-effectively obtain its allocated volume of timber, the licensee proposed an additional eight cutblocks south of McGillivray Creek. The licensee wanted to design these new cutblocks itself. However, as it does not prepare its own forest development plan (FDP), it arranged to include the new cutblocks in a BCTS FDP. This arrangement meant the licensee and BCTS would collaborate to assure that cutblock planning and forest development plan commitments would be met.

¹ See Board report IRC 124, *Watershed Protection at Anderson Lake*, April 2007.

<http://www.fpb.gov.bc.ca/complaints/IRC124/AndersonLake.pdf>

² Previously the Small Business Forest Enterprise Program of the Ministry of Forests.

Later in 2001, the complainant objected to six of the cutblocks. After consulting with the Ministry of Environment (MOE)³ about the deer winter range, the licensee decided to drop one cutblock.

In October 2002, the Ministry of Forests and Range (MOFR) approved BCTS' 2002-2007 FDP. The approved plan contains the five previously approved BCTS cutblocks and the seven newly-approved licensee cutblocks south of McGillivray Creek. The 12 cutblocks cover almost 160 hectares.

The licensee did not log the approved cutblocks for several years because of a poor timber market. However, as the market improved, the licensee hired a consulting forest professional in 2005 to begin detailed planning for the cutblocks. Two cutblocks were discarded. The ten finalized cutblocks cover 140 hectares, of which 86 hectares are to be logged.

Given the apparent inactivity, the complainant assumed that plans to log the area had been abandoned, and so was surprised in 2005 to see new flagging tape marking the cutblocks. The complainant believed the area was to be clearcut and considered this inappropriate for deer winter habitat.

Although the licensee says it has the legal right to harvest the timber, it has not yet done so. The licensee says it is unable to obtain access to the cutblocks across some private property. The cutblocks remain unharvested.

Relevant Legislation

The complainant's concern relates to forest planning and practices under the *Forest Practices Code of British Columbia Act* and regulations (the Code).⁴

Discussion

The complainant is concerned that logging will harm mule deer winter habitat by removing the older Douglas-fir trees that deer need during periods of deep snow. When snow depths reach about 25 centimetres, deer will typically seek areas of less snow. Movement through deeper snow is possible, but causes an ever-increasing energy cost for feeding and predator avoidance that deer may not be able to sustain. Therefore, the physical condition of deer in deep snow

³ The Ministry of Environment was previously called the Ministry of Water, Land and Air Protection and, before that, the Ministry of Environment, Lands and Parks. For simplicity, this report refers to the current name, the Ministry of Environment (MOE).

⁴ In January 2004, the *Forest and Range Practices Act* (FRPA) replaced the Code as British Columbia's forest practices legislation. The transitional provisions of FRPA state that the Code continues to apply to forest practices carried out under a forest development plan. This continues until there is an approved forest stewardship plan under FRPA, at which point the requirements of FRPA apply.

deteriorates much faster than deer that can find food and cover in lower snow depths. In winter, mule deer depend on older Douglas-fir trees with inter-locking tops to intercept snow and reduce snow depth on the ground. These old brittle fir trees also provide forage from twig breakage and lichen litter-fall. Such food is especially important during severe winter storms.

Mule deer are included in a group of species called ungulates. Under the Code, government had the authority to establish “ungulate winter ranges” and describe measures for the protection of habitat on those ranges.⁵ BCTS and MOE both expected ungulate winter ranges to be established as an outcome of the Lillooet Land and Resource Management Plan (LRMP). However, government did not finalize that plan pending further consultation with First Nations. No ungulate winter ranges are yet established for deer in the Lillooet timber supply area.

Nevertheless, the Code required licensees to include measures in their FDP to protect wildlife. BCTS’ approved FDP (which includes the licensee’s cutblocks) states that BCTS will use a February 1999 deer winter range map developed for the LRMP, and information provided by MOE, to develop site-specific winter range management strategies. BCTS’ objective within the critical portions of a winter range is to maintain or enhance potential for winter survival of ungulates.

Finding: BCTS’ FDP objective within the critical portions of a winter range is to maintain or enhance potential for winter survival of ungulates.

The 1999 map that described the winter range is missing. Nevertheless, an April 2001 letter from BCTS to the licensee, and other information from MOE, confirm that all the cutblocks south of McGillivray Creek are within an identified mule deer winter range. In the letter, BCTS told the licensee that it would manage for mule deer south of McGillivray Creek based on information from MOE.

In response to the licensee’s 2001 proposal, MOE assessed the condition of the winter range. It followed a handbook procedure designed to coordinate timber harvesting and mule deer management on winter ranges in the Cariboo Forest Region.⁶ The handbook is considered to be good guidance for managing forest cover on mule deer winter ranges in BC. It uses an integrated approach that limits risk to deer while allowing some timber extraction if habitat conditions are appropriate. The mule deer handbook notes that high crown closure (snow-intercepting) habitat is a key element for winter survival of deer.⁷ It therefore recommends low-volume selective logging, either individually or in small groups, to maintain an appropriate

⁵ Similar provisions exist under FRPA.

⁶ Armleder, H.M., et al. 1986. Handbook for timber and mule deer management co-ordination on winter ranges in the Cariboo Forest Region, Land Mgt Handbook 13, BC Ministry of Forests, Victoria
<http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh13.htm>

⁷ Crown closure is the proportion of sky blocked from view when looking straight up from the forest floor. The 1986 mule deer handbook describes high crown closure as greater than 65% of the sky blocked by trees at least 10.4 metres tall. In 1996, based on further research, wildlife scientists revised the percentage to greater than 56% of the sky blocked by trees at least 10.4 metres tall.

balance of high, moderate, and low crown closure as well as other valuable habitat features. The premise is that if too many older trees are removed, snow-intercepting cover is lost and mule deer winter habitat is harmed. The mule deer handbook's states that "clearcut logging destroys winter range habitat".⁸

MOE concluded that the winter range south of McGillivray Creek is within a "shallow snow" zone. For such a zone, the mule deer handbook suggests that about 20 percent of the entire winter range should be maintained as high crown closure habitat. At the time, MOE considered that amount of high crown closure habitat to be ideal. For its analysis, MOE divided the winter range into two smaller "planning cells", each of which should have been managed to retain 20 percent as high crown closure habitat, as suggested by the mule deer handbook. Division of the winter range into smaller planning cells helped to ensure that suitable habitat types were appropriately dispersed over the whole winter range. However, the assessment showed, before logging, high crown closure habitat was already deficient. Previous land use activities had reduced the amount of high crown closure habitat to less than nine percent in one planning cell, and to about four percent in the other.

Finding: MOE determined that high crown closure habitat on the winter range was already depleted to a fraction of what mule deer required.

In such a deficiency situation, the mule deer handbook recommended that no additional high crown closure habitat be harvested until sufficient surrounding forest had recovered to a high crown closure, snow-intercepting condition. However, MOE was not obligated to apply the handbook's advice and it did not do so here. Although the ministry had determined that the amount of snow-intercepting habitat on the winter range was less than ideal, it concluded some further harvesting of such habitat would be acceptable in three cutblocks if measures were undertaken to maintain or improve the overall mixture of habitat on the winter range.⁹ A professional biologist with MOE provided advice to the licensee in March 2001 and again following a field trip in June 2001. In March, the MOE biologist suggested the licensee:

- utilize a system of small patch cutting rather than single tree selection to reduce the impacts on crown closure;
- locate wildlife trees in patches and concentrate them in areas of high crown closure; and
- limit volume removal to 25 percent in high crown closure stands and 60 percent in moderate crown closure to allow for future recruitment of high crown closure stands.

In June 2001, after the field visit, MOE revised its earlier comments:

⁸ See page 34 of the 1986 mule deer handbook.

⁹ The rationale is unknown for MOE's decision that some harvesting of high crown closure habitat was acceptable. At the time, the five original cutblocks planned by BCTS were already approved for harvesting in an earlier FDP. Three of the five previously approved cutblocks contained some high crown closure habitat. The Code gave FDP-approved cutblocks some protection against change, so their earlier approval could not simply be rescinded.

- The habitat above 940 metres elevation had been assessed as lower value to deer and would not require any special management.
- For 3 cutblocks below 940 metres, MOE recommended maintaining a fairly high post-harvest crown closure by leaving more trees than usual, as well as retaining 15 percent of each cutblock as wildlife trees.
- One cutblock was to be removed from the plan because it provided “critical” security and thermal cover.
- For the remainder of the cutblocks, the original recommendations remained largely unchanged, as follows:
 - Locate wildlife tree patches in areas of high crown closure where possible.
 - Limit harvest to no more than 50 percent of the gross area in moderate crown closure areas, with preference given to small patch harvesting.
 - In high crown closure areas, limit harvesting to 25 percent of the gross area. In particular, one cutblock was to be harvested lightly, with a “heavy wildlife tree component” left for cover.

It is not clear, and MOE cannot explain, how its March 2001 recommendations would have maintained or improved the overall mixture of habitat on the winter range. The plan to recruit additional future high crown closure habitat by restricting the amount of harvesting in areas that are currently moderate crown closure might improve the *future* mixture of habitat. However, such a strategy would not address the immediate problem of a serious deficit of snow-intercepting habitat on the winter range. That problem could only be made worse by removal of any of the remaining high crown closure habitat.

Finding: MOE did not explain how its March 2001 recommendations would maintain or improve the overall mixture of habitat on the winter range. To the contrary, both its March and June 2001 recommendations would worsen the existing deficit of snow-intercepting habitat.

The licensee set out to implement most of MOE’s recommendations. The licensee dropped one cutblock as requested by MOE from its plan. It also assigned a greater amount of wildlife tree patches and no harvest zones than was recommended by MOE, and retained the majority of another cutblock. However, the licensee decided not to carry out the small patch cutting that was preferred by MOE. Instead, the licensee decided to clearcut with reserves. The two methods are similar in that they both create a patchwork of harvested and unharvested areas. However, they differ in that patch cutting would have restricted openings to less than a hectare (although MOE did not specify a size, the Code had defined “patch cutting” as openings less than one hectare), while clearcut with reserves allowed for any size openings. In this case, the openings ranged from 1.4 to 21.7 hectares.

On mule deer winter range, the choice of harvesting method in older Douglas-fir stands is of particular importance; the smaller the harvested opening, the less the deer have to contend with deep snow. Given the already-existing paucity of snow-intercepting habitat available on the

winter range south of McGillivray Creek, it seems especially important to have planned for smaller openings there.

Beyond MOE's recommendation, the mule deer handbook suggests neither patch cutting nor clearcut with reserves. The handbook's preferred practice is single-tree selection, removing only 10 to 20 percent of the timber volume to create very small gaps in the forest canopy. A later supporting document suggests the gaps should on average be about 15 metres (roughly half a tree's height) wide.¹⁰

MOE suggested small patch cutting because some earlier single-tree selection harvesting on a nearby deer winter range had failed to maintain deer winter use. Presumably, that logging had not maintained sufficient snow-intercepting habitat. MOE reasoned that small patch harvesting, although creating openings of deeper snow, would also leave behind well-distributed patches of undisturbed snow-intercepting canopy.

In this case, the licensee rejected patch cutting and single tree selection, claiming neither was operationally or economically feasible. The licensee stated that, south of McGillivray Creek, small openings from single tree selection would be inappropriate because shading from the surrounding trees would make it difficult to regenerate Douglas-fir in the harvested areas. Patch cutting was rejected because it would be operationally too difficult to log and not enough timber volume could be harvested to be profitable. The result was that the clearcut with reserves method would produce cutblock openings many times larger than the mule deer handbook suggested, with most much larger than either the handbook or MOE recommended.

Finding: The cutblock openings are much larger than either the recommended practices of the mule deer handbook or that MOE suggested.

In January 2006, the licensee decided to check whether its planned cutblocks met MOE's recommendations about crown closure. However, essential documents had been misplaced by government; neither MOE's map of its original crown closure analysis nor the 1999 winter range map could be located.¹¹ The licensee had no map depicting the winter range boundaries at Anderson Lake. The effect was that the licensee could not repeat the earlier MOE analysis and make a direct comparison.

As an alternative, guided by the mule deer handbook and a later revision¹² that updated the criteria describing high crown closure habitat, the licensee did its own classification of areas of low, moderate and high crown closure habitat. It assessed crown closure within the cutblocks,

¹⁰ *The Management Strategy for Mule Deer Winter Ranges in the Cariboo-Chilcotin; Part 1A: Management Plan for Shallow and Moderate Snow Pack Zones*, Cariboo Mid-Coast Interagency Management Committee, December 2002 (page 6).

¹¹ The map (or electronic map files) may have gone missing in the early 2000s when the Lillooet forest district office was closed and/or when the former environment ministry was reorganized and its mapping section placed in a separate ministry.

¹² The 1996 CCLUP mule deer winter range strategy included revisions to the 1986 mule deer handbook. The revision reduced the criteria for high crown closure habitat from >65% closure to >56%. This would have the effect of "increasing" the amount of high crown closure habitat present on the winter range and "decreasing" the amount of moderate crown closure.

but also in stands adjacent and near the cutblocks. This adoption of revised scientific criteria to update MOE's recommendations about crown closure was appropriate. Extending outward from the cutblocks, the licensee calculated that logging would remove 25 percent of the high crown closure and 23 percent of the moderate crown closure habitat. The licensee therefore concluded that its plans met MOE's crown closure recommendations.

However, MOE's advice was ambiguous. In March 2001, MOE recommended harvesting no more than 25 percent of high crown closure habitat, but that was 25 percent within, and not near, three specific cutblocks. Then, in June 2001, MOE suggested harvesting be limited to 25 percent of the "gross area" in high crown closure stands and 50 percent in moderate. It is unclear what was meant by gross area. It could have meant the gross area of the three cutblocks or the gross area of all the cutblocks. A third interpretation could be that it was the gross area of the entire high and moderate crown closure habitat on the winter range.

The licensee took the broader meaning and interpreted gross area as including all the high crown closure forest stands in *and surrounding* the cutblocks. In retrospect, that was not what MOE intended. MOE staff explained to the Board that, by gross area, the ministry meant the total area of high or moderate crown closure habitat *within* each cutblock. It assumed that the other habitat surrounding the cutblocks would not be affected. MOE intended that no more than 25 percent of handbook-described high crown closure habitat within a cutblock be harvested. The licensee's approach, which relied on surrounding habitat values as well, would result in 49 to 95 percent harvest of the revised high crown closure habitat within the cutblocks.

Finding: MOE's advice was ambiguous because it supported several interpretations, some of which would support removal of a much greater amount of high crown closure habitat than MOE intended.

This difference in interpretation was never clarified, or even identified, despite two meetings between MOE and the licensee, and despite direct correspondence from BCTS to MOE about the appropriateness of the licensee's proposal. On February 13, 2006, the licensee and MOE met to review the licensee's crown closure analysis. MOE did not comment on the specifics of the proposal. MOE did advise the licensee that a 2004 draft of the Lillooet LRMP provided even better guidance to assess snow-intercepting habitat. When asked why MOE hadn't simply said the proposal did not meet its recommendations, MOE responded that doing so would have been contrary to its current business practice and, in any event, the decision whether MOE recommendations are or are not adequately implemented is to be made by MOFR, not MOE. MOE no longer provides detailed advice about specific forestry proposals. Instead, it restricts itself to providing high-level management guidance to forest professionals and then monitors the eventual outcome.¹³

¹³ The ministry's service plan for 2005/06 identifies a key function of its environmental stewardship division is to work with others to establish standards for the use and protection of species and habitats. In its 2004/05 service plan, the ministry said it sets results-based objectives and standards informed by science for activities that affect ecosystems, species and habitats and monitors and reports on selected species and habitats. See:

MOE wanted its original cutblock-level recommendations met, as well as adopting draft LRMP guidance to maintain at least 15 percent of the overall winter range in snow-intercepting habitat. The draft LRMP defines snow-intercepting habitat as areas with trees at least 141 years old with crown closure of 46 percent or more.¹⁴ There is no legal requirement for a licensee to be consistent with the draft LRMP. However, an LRMP reflects multi-sector negotiations and is therefore a significant indicator of the public's interest in both timber and mule deer. In this case, the draft LRMP also indicated government's policy perspective on land and resource use in the Lillooet timber supply area.¹⁵ It is, therefore, an important guiding document even if it has no legal applicability to either the BCTS FDP or the licensee's cutting permits.¹⁶

At the February 2006 meeting, MOE suggested that the licensee obtain maps that depict the actual distribution of high crown closure (snow-intercepting) habitat referred to in the draft LRMP. The licensee tried to do that. However, documentary confusion continued. The licensee requested maps from MOE and was referred to the Integrated Land Management Bureau—the holder of LRMP map products. The bureau referred the licensee to maps included with an on-line version of the draft LRMP. The draft LRMP map defines the outer boundary of the winter range south of McGillivray Creek, but the licensee found the on-line version unsuitable for winter range analysis because of its scale.¹⁷

Instead, the licensee obtained a different map showing “suitable mule deer winter range”, from another forestry consultant. Unfortunately, that map pre-dates the draft LRMP map, and the two maps are significantly different. The 497 hectares of “suitable winter range” analyzed by the licensee contained only about three percent (15 hectares) of snow intercepting habitat, much less than the 15 percent (75 hectares) recommended by the draft LRMP. The planned logging would remove another five hectares, ultimately leaving only two percent of snow-intercepting habitat on the winter range.

Finding: The licensee's analysis identified a substantial shortage of snow-intercepting habitat within the suitable mule deer winter range.

http://www.bcbudget.gov.bc.ca/annual_reports/2005_2006/env/Service_Delivery_and_Core_Business_Areas_ENV.htm and http://www.bcbudget.gov.bc.ca/Annual_Reports/2004_2005/wlap/Ministry_Role_and_Services.htm

¹⁴ Note the reduced high crown closure standard in the draft LRMP (>46%) from the mule deer handbook (>65%) and its 1996 revision (>56%). Also note the reduced area suggested by the draft LRMP for high crown closure habitat (15% of the winter range down from the handbook's 20%). These reductions may reflect the local environmental conditions of the Lillooet timber supply area and may also have been negotiated to balance mule deer habitat needs with other resource needs including timber.

¹⁵ See the June 7, 2004 letter of agreement between the St'at'imc and the Province of BC, attached to the draft LRMP.

¹⁶ In December 2004, under FRPA, the provisions of the draft LRMP for mule deer winter habitat were largely recognized by government in a notice indicating the amount, distribution and attributes of wildlife habitat required for the winter survival of ungulates in the Lillooet timber supply area. Unless a licensee is exempted, forest stewardship plans under FRPA must contain a result or strategy in respect of government's objective to conserve sufficient habitat for the winter survival of ungulates. The FRPA notice does not apply to licensees still operating under the Forest Practices Code. See: <http://wwwt.env.gov.bc.ca/wld/frpa/notices/index.html>

¹⁷ The draft LRMP mule deer winter range map can be seen on the Ministry of Agriculture and Lands Integrated Land Management Bureau (ILMB) website: http://ilmbwww.gov.bc.ca/lup/lrmp/southern/lillooet/downloads/maps_figures_July2004/figures/Mule_deer.jpg (accessed January 17, 2007).

In response, the licensee decided to expand the area of analysis beyond that indicated on the available maps of suitable winter range. The licensee divided this larger area into two planning cells, one 575 hectares and the other 485 hectares. These sizes were still consistent with guidance from the draft LRMP. Within the south planning cell, the draft LRMP target of 15 percent snow intercepting cover is met and would not be reduced by the proposed harvesting. Within the north planning cell, the existing amount of snow intercepting cover of 12 percent would be reduced to about six percent by logging. Expanding the area of analysis indicated that more potential snow intercepting cover would remain in the general area.¹⁸ However, the licensee's analysis clearly showed that logging would considerably worsen the deficit of snow intercepting cover in one of the planning cells, which represented over half of the area analyzed.

Finding: The licensee's second analysis confirmed that an existing deficit of snow intercepting cover in its north planning cell would be made much worse by the proposed logging.

On February 20, 2006, while the various assessments were underway, BCTS asked MOE whether it was satisfied that the licensee's approach would meet MOE's intent. MOE responded that it was waiting for the licensee to complete its analysis. A week later, after meeting twice with the licensee, MOE advised BCTS that harvesting would reduce the snow-intercepting habitat to well below the 15 percent target recommended by the draft LRMP. MOE also advised BCTS that the most updated version of the winter range boundaries (the draft LRMP map) did not match with what the licensee had analyzed. BCTS sensed some discomfort in MOE's response and therefore asked for clarification. MOE took that request as BCTS wanting to know whether MOE would support or object to the logging proposal. It was not MOE's business practice to provide opinions for or against a particular forest development. Instead, the ministry's practice was to provide the best information and do a risk assessment if requested. In this case, a professional biologist with MOE told a BCTS forest professional that snow-intercepting habitat was in substantial deficit. MOE expected that BCTS would conclude that such a deficit was not good for deer, so MOE decided not to respond further.

Finding: BCTS expected a yes or no answer from MOE as to whether the licensee's proposal was satisfactory. It was no longer MOE's business practice to say whether it was for or against a forest development. As a result, communication about the appropriateness of management failed.

While all this was going on, the complainant retained a consultant to re-analyze the suitable winter range using the draft LRMP-described winter range boundary. The consultant requested digital map data for the cutblocks from both the licensee and BCTS, but the licensee refused and

¹⁸ Of course, to be of help to mule deer, snow interception cover must be where mule deer are likely to congregate in winter. Notwithstanding the licensee's interpretation of what area may be winter habitat, and despite the licensee's problem with the scale of the draft LRMP map, the Board considers government's draft LRMP map to be the best available information about the extent of mule deer winter habitat south of McGillivray Creek—it is the most recent map and was reviewed by qualified professionals.

BCTS did not have the data to give. Consequently, the consultant's report had some limitations and could not consider the cutblocks in detail. However, the report identified a deficit of snow-intercepting habitat and predicted a further decline should logging proceed.

On March 1, 2006, the complainant gave that report to the MOFR district manager, who shared it with BCTS. BCTS did not respond to this new information because the complainant's report was based on the draft LRMP which had no legal bearing on its approved FDP. BCTS decided that the licensee's analysis had adequately assessed the deer winter range.

The draft LRMP had no legal weight, and the licensee's calculations are correct for the areas it assessed. However, BCTS recognized MOE's discomfort about an apparent deficit of LRMP-defined snow intercepting habitat. Even though BCTS planned to rely on advice from MOE, and MOE considered the draft LRMP the most appropriate standard for management of the winter range, BCTS saw the draft LRMP as having no relevance to the logging plans. That apparent contradiction was never resolved. Instead, BCTS advised MOFR that the licensee's request for a cutting permit could be decided. On March 15, 2006, the MOFR district manager issued a cutting permit for the cutblocks.

Finding: In the absence of a definitive answer from MOE, BCTS advised MOFR that a decision about the cutting permit could proceed. MOFR approved the cutting permit soon after.

On April 3, 2006, the licensee repeated the complainant's analysis. It now used the winter range map from the draft LRMP, as had been done in the complainant's report. The licensee's analysis uncovered an error in the complainant's report about the amount of area that would be harvested. Nevertheless, the licensee's analysis confirmed that 12 percent (65 hectares) of LRMP-defined snow-intercepting habitat was present on the winter range before logging. That was already less than the draft LRMP recommendation requiring 15 percent (81 hectares). Logging as proposed would reduce the amount of snow-intercepting habitat even further—to about eight percent.

Finding: Further analysis by the licensee confirmed that logging would substantially reduce the amount of LRMP-defined snow-intercepting habitat on the winter range.

At this point, the licensee chose not to deal further with the shortfall in snow intercepting habitat or to mitigate the anticipated loss of further habitat. Instead, the licensee maintained that it had met MOE's original recommendations. The licensee considered that it had adequately mitigated habitat loss by meeting most of the standards and recommendations from MOE and the draft LRMP. The licensee complied with the law and notes that it went above and beyond the legal requirements in this case.

The complainant maintains the harvesting cannot be good for deer.

In April 2006, Board staff tried to help resolve the complaint. If the licensee would agree not to harvest the LRMP-defined snow-intercepting habitat in three cutblocks, the complainant would consider letting the licensee use its private roads, thereby saving the cost of road construction to

bypass the complainant's property. In support, BCTS attempted to find alternative economic timber for the licensee but reported that it was unsuccessful. Ultimately, the Board's proposed resolution failed. Today, the licensee says it has been unable to gain access to the cutblocks across another person's private property. The cutblocks remain unharvested.

Conclusions

1. The BCTS FDP only required the licensee to *use* information from MOE in relation to identified critical habitat, which the licensee did by dropping a cutblock.
2. Whether taken from the 1986 mule deer handbook, its 1996 revision, or the less-stringent draft LRMP, recommended guidance for a key element of deer winter range—the retention of snow-intercepting habitat—was not applied by any party.
3. Recommendations by MOE were ambiguous and were mis-interpreted by forest professionals.
4. The licensee proposed larger openings and removal of more high-crown closure snow-intercepting habitat than MOE intended. However, the licensee did consider a number of recommended practices for mule deer winter range and met and exceeded some of them.
5. The amount of snow intercepting habitat on the winter range south of McGillivray Creek is already well below recommended levels and will decline further with logging.
6. Although the licensee and BCTS complied with the Code, and communicated and worked together with MOE, their efforts were ultimately ineffective and failed to assure good stewardship of winter habitat for deer south of McGillivray Creek.

Commentary

BCTS and the licensee disagree with the above conclusions. They point out that, under the FDP, they had no obligation to do more than protect "critical" habitat as identified by MOE within the overall winter range. The licensee says MOE identified only one cutblock as critical and that cutblock was dropped from its plan. Further, the licensee met the majority of standards designed to represent sound stewardship of mule deer winter habitat. However, the standards it met did not include a key element of winter range: the retention of snow-intercepting habitat.

Legal requirements are becoming less prescriptive as government increases its reliance on forest professionals, and licensees, to carry out forest practices that reflect sound stewardship of all forest resources, including deer. Thus, a focus simply on legal compliance (in this case, "critical"

habitat) would typically be inappropriate in the context of winter range management. Furthermore, a mule deer winter range is a biological unit and elements of that range cannot be effectively managed in isolation from the whole. Within the area defined as winter range, deer require snow-intercepting habitat in adequate amounts, distributed appropriately over the entire winter range area. It is the habitat condition of the entire unit that is critical.

There is no evidence to suggest that it was government's intention that mule deer winter habitat values *not* be maintained south of McGillivray Creek. To the contrary, all parties seemed to have the intention to maintain or even enhance those values. However, in the circumstances, ambiguity, mis-interpretation and a revised ministry business model combined to thwart that result. This situation does not warrant public confidence in the management of mule deer winter habitat south of McGillivray Creek.

In the Board's opinion, the draft LRMP (and under FRPA, government's Section 7 Notice) provide the most appropriate guidance for management of deer winter habitat in the Lillooet timber supply area. Assuming that shallow-snow mule deer winter ranges in the Lillooet area *should* contain at least 15 percent snow-intercepting habitat (as recommended in the draft LRMP) and that, before timber harvesting was proposed, the LRMP-described winter range south of McGillivray Creek was already below that level, sound stewardship at the least should have included protection of what remained. Instead, the approved harvesting is likely to make the existing deficit of snow-intercepting habitat worse. This appears to be contrary to sound resource management given the parties apparent intention to maintain the winter habitat.

Whether this situation can be rectified is up to the licensee, BCTS and government. Three of the ten cutblocks south of McGillivray Creek contain LRMP-defined snow-intercepting habitat. Since none of the cutblocks have been harvested, all the parties could consider voluntarily adopting the draft LRMP criteria as the best guidance for management of the winter range. That would mean that the existing snow-intercepting habitat would be maintained. The parties might also consider again if there remains an economic opportunity to create additional cutblocks in the immediate area, not in snow-intercepting habitat (and consistent with the draft LRMP), to provide replacement timber for the licensee.