

Appendix 8. Evaluation of Woodland Caribou Winter Range in Mount Robson Provincial Park (Keystone Wildlife Research 1998)

Introduction

Background and Objectives

The Mount Robson Provincial Park Ecosystem Management Plan (Oikos et al. 1996) identified woodland caribou as a key wildlife management priority. The Ecosystem Management Plan also identified four distinct ecosystem management zones with different management approaches to reflect varying natural values and objectives as well as vegetation and natural disturbance types. They included: (i) a Suppression Zone (EMZ1) where natural disturbances (fires, insects) would include a policy of full suppression; (ii) a Prescription Zone (EMZ2) where wildfires would be permitted under certain weather conditions and prescribed fires would be allowed to reduce forest health hazards; (iii) a Natural Zone (EMZ3) that allows ecosystem processes to proceed unconstrained; and (iv) a Travel Corridor (EMZ4) zone which requires active management and full suppression of all fires. The prescription fire zone (EMZ2) was further subdivided into five subzones with different management priorities for wildlife habitat management. Subzone 1 was identified as caribou summer range, subzone 2 suspected winter range and subzone 5 known caribou winter range.

To effectively implement the Ecosystem Management Plan, BC Parks (Prince George District) requested clarification and possible refinement of the caribou winter range currently identified within the Prescription Ecosystem Zone (EMZ2) and whether this fire management approach is consistent with adjacent areas in Jasper National Park. Further clarification was also required because Ecosystem Management Zone 3 (EMZ3), which occurs to the west of EMZ2, apparently contains similar caribou values according to a biophysical caribou habitat map (MELP 1993), but recommends a natural approach to ecosystem management.

Consistent with the Management Objectives and Actions outlined in the Ecosystem Management Plan to maintain woodland caribou habitat, the purpose of this evaluation was to:

- Further refine woodland caribou winter range values within the Prescription Ecosystem Management Zone (EMZ2) identified in Mount Robson Provincial Park.
- Determine the extent of winter use by caribou particularly in subzones 5 (known caribou winter range) and 2 (suspected winter range).
- Attempt to identify whether the winter range is being used by terrestrial lichen feeding caribou originating from Jasper National Park, arboreal lichen feeding caribou (i.e., mountain caribou) considered resident in B.C., or both.
- Clarify provincial fire and forest health management approaches in Alberta and British Columbia to ensure consistent management direction with respect to woodland caribou habitat.

Study Area

The EMZ6 wildlife subzone south of the Yellowhead Highway (16) extends east from the Fraser River to Jasper National Park. North of Highway 16, the subzone extends east from the Moose River to the Alberta border. The prescription zone contains four biogeoclimatic subzones including the SBSdh along the valley bottoms and travel corridor, ESSFmm2 above the SBS, ESSFmmp or parkland habitat at upper elevations and Alpine tundra (AT) above treeline.

Methods

Review of Existing Information

Existing information was reviewed including: (1) data compiled on caribou distribution and movement patterns in Jasper National Park (JNP) (Sentar 1994); (2) biophysical habitat suitability/capability mapping (MELP 1993); and (3) potentially high caribou ecosystem units identified in the Ecosystem Management Plan (Oikos et al. 1996).

BC Parks staff (Wayne Van Velzen) as well as BC Environment staff (Glen Watts, Dave King) were consulted regarding historical and recent caribou distribution and movements in British Columbia. Wes Bradford (JNP) was contacted regarding caribou surveys in Jasper National Park, Alberta.

Aerial Winter Survey

To determine the extent of caribou use (tracks, visual sightings) in subzones 5 and 2, a reconnaissance level survey was conducted using a Bell Jet Ranger (206) helicopter. The primary purpose of the winter survey was to determine if caribou were using the area and identify which, if any, habitats were being utilized (e.g., low elevation pine-lichen forests, subalpine, etc.).

The area was surveyed twice, once on January 9, 1998 and again on March 2, 1998. Although the first trip focused on subzone 5 and the second trip on subzone 2, the area was revisited immediately south of Yellowhead Lake (subzone 5) during the second trip as this area appeared to provide the most suitable habitat (presence of terrestrial lichens) for caribou during winter.

Flying conditions were good to excellent, consisting of clear sunny days with good visibility. Temperatures were -20 to -25°C during the January 9 survey and about -6°C during the March 2 survey. Three observers were present including E. Terry (Keystone), Gail Ross and Wayne Van Velzen (BC Parks).

Snow depths were similar between survey periods (40-60 cm in open areas; 20-30 cm in forested areas) indicating the relatively dry and below normal snow pack conditions for the 1997/1998 winter. Although the snow depths were similar between periods, the snowpack in March consisted of more sugar-snow. Actual survey time consisted of approximately three hours per survey.

The aerial and ground search was concentrated on habitat areas identified as 4W (low capability) winter range from the habitat capability caribou map (MELP 1993) as well as ecosystem units tentatively identified as caribou winter range in the Ecosystem Management Plan (Oikos et al. 1996). Ecosystem units which may include suitable winter caribou habitat included: (i) Black Spruce-Terrestrial Lichen (BL) or Pine-Azalea (PA) which both occur on dry sites and support terrestrial lichens; and (ii) Subalpine fir-Labrador Tea (FT), a moist open forest which was expected to support high arboreal lichen loads.

Ungulate tracks observed from the air were identified as moose or caribou. If doubtful, tracks were investigated from the ground. Tracks were followed until pellets or some other evidence of species specific feeding sign (e.g., browsing, cratering) was encountered.

Results and Discussion

Aerial Survey

No evidence of caribou use (sign or sightings) was observed in either subzone 5 (caribou winter range) or subzone 2 (suspected winter range). However, moose tracks were frequently seen, including one observation of a cow moose in a lodgepole pine forest south of Yellowhead Lake (identified as potential caribou winter range). The lodgepole pine bench south of Yellowhead Lake is represented by the dry Lodgepole Pine-Azalea (PA) interspersed with moist Subalpine fir-Labrador Tea ecosystem units (FT). A ground check revealed this area currently supports terrestrial lichens (*Cladina* spp. *Cladonia* spp. *Stereocaulon* spp.) on dry hummocks and eskers. The ground investigation also indicated moose were foraging primarily on willows that occur in the moist draws. Although moose tracks were occasionally observed along the Fraser River in subzone 5, there was very little activity in the valley bottom and adjacent tributaries. Wolverine tracks were observed along Tonquin Creek (6700 feet elevation) and more moose sign (tracks, feeding) was observed in subalpine parkland habitat near Geike Creek (7000 feet elevation). A ground check revealed the moose were using this high elevation habitat to feed on subalpine fir (browsed heavily, 90 cm of snow) and willow. Extensive moose sign was also recorded along the lower Moose River up to Resplendent Creek. The remains of a moose kill (wolves) was also observed at the meadows along Resplendent Creek. The upper Moose River near Colonel and Upright Creeks contained only a few moose tracks.

Clarification of Caribou Mapping and Interpretations

The Mount Robson Biophysical Project (MELP 1993) provided habitat capability ratings for caribou using 1:50 000 biophysical habitat mapping. They identified about 3% (8870 ha) of the Mount Robson project area to represent potential caribou winter range. These winter range areas, however, were rated as having low capability to support caribou (4W)¹. The majority of these low capability areas occur along the north slopes of Waddington Peak, the bench plateau area

¹ Wildlife habitat capability/suitability ratings are rated for winter and summer. In general, capability ratings range from 1 (very best or very high) to 6 (nil). Class 2 areas have high capability; Class 3 areas have moderate capability and Class 4 areas have low capability. Capability does not address existing conditions, rather, it refers to the potential or how good the habitat could be.

immediately south of Yellowhead Lake as well as along the valley floor of the upper Fraser River and Resplendent Creek between Razor Peak and Mount George Graham.

Based upon the aerial survey and ground checks of the ecosystem units we suggest the area identified as caribou winter range within EMZ2 could be redefined to encompass a smaller area and more accurately reflect caribou winter habitat. Based on our field checks, the Pine-Azalea (PA) unit was found to have more terrestrial lichen than the Black-Spruce-Lichen (BL) ecosystem. The criteria we used to generate new winter habitat boundaries included those polygons that contained at least 40% of Pine-Azalea (PA) with a component of Subalpine-fir - Labrador tea (FT) on moderate slopes. These ecosystem characteristics are concentrated on the pine bench situated to the south of Yellowhead Lake in the ESSFmm2 subzone. Although another area with similar characteristics was also identified along the Fraser River, it is relatively isolated from any other potential winter habitat and therefore of less value.

Caribou Use of Mount Robson Provincial Park

The most recent surveys of caribou in or near Mount Robson Park include The Greater Jasper Ecosystem Caribou Research Project (GJECRP) (Sentar Consultants 1994), Edmonds (1987) caribou study in west-central Alberta and Terry's (1995) review of caribou populations in the Robson Valley, British Columbia. The GJECRP indicated 4 of 19 radio-collared caribou occasionally used the lodgepole pine bench south of Yellowhead Lake during winter. These caribou were animals that wintered primarily along the Miette River and the Mount Robson/Jasper park boundary and comprised animals of the West Jasper herd. Although this indicates there has been some previous caribou use of Mount Robson Provincial Park during winter, many of the caribou observations in Mount Robson Provincial Park occur during the summer/rut season near Tonquin Creek (Sentar 1994; D. King, W. Van Velzen personal communication). Potential movement corridors include passes at Tonquin Creek and the Athabasca Pass situated at the headwaters of the Whirlpool River.

No further winter monitoring has occurred in Jasper National Park since the GJECRP study. Fall/rut surveys have been conducted, however they have been confined to Jasper National Park (W. Bradford personal communication). Similarly, no recent information has been collected in British Columbia since the Robson Valley caribou population review (Terry 1995; L. Ingham, G. Watts personal communication).

Overall, the rugged terrain and extensive alpine/glaciers of Mount Robson Provincial Park limits the winter habitat capability for caribou. Furthermore, it is unlikely that the prescription zone (EMZ2) is utilized by mountain caribou (arboreal lichen feeders) that winter in and near the Robson Valley. Previous monitoring surveys have indicated the drainages east of Kinbasket Lake receive very little use during winter by caribou and the closest concentration of caribou in British Columbia occurs south and west of the Reservoir near Foster Creek and to the north near Forgetmenot Creek.

Although there are a small number of mountain caribou that winter in the Robson Valley west of McBride, many caribou observations in the Robson Valley are summer observations of woodland caribou (terrestrial lichen feeders) that migrate from Alberta and winter in the Willmore Wilderness Area (Edmonds 1987; Edmonds and Smith 1991; Terry 1995). In addition to the small herds west of McBride, there have also been scattered reports of caribou sightings near Horsey, Small, Holmes and Chalco Mountain. In subzone 2, both winter and summer sightings of caribou have been recorded near Moose River and Resplendent Creeks (Terry 1995; Wayne Van Velzen personal communication). Although it is difficult to know with certainty where these caribou originated from, more suitable habitat exists closer to Alberta, which suggests they likely were terrestrial lichen feeding caribou from Alberta.

Fire Management Implications

Jasper National Park (JNP) is currently revising their fire management policies and Vegetation Management Guidelines (VMG) (Alan Westhaver, Parks Canada personal communication 1997). The VMG states, the overall goal of vegetation management in the Mountain District is to maintain or restore natural composition, structure and processes of vegetation representative of the Rocky Mountain and Columbia Mountain Natural Regions.

The emerging direction from the VMG is to reintroduce natural fire regimes into Jasper National Park. These will be managed in context with other values such as caribou habitat and will likely include a variety of fire management zones. Although their management strategies have not been finalized, possible prescriptions may include small prescription burns to break up the potential catastrophic fires that could occur. Historically, these ecosystem have burned, but fire suppression policies over the last 50-60 years have allowed fuel loading to build up to dangerous levels. Over the next three months, JNP will be revising and mapping fire management zones (Alan Westhaver personal communication).

Due to cool temperatures, short growing season, lack of fuel and deep snowpacks, summer habitats of caribou in Mount Robson Provincial Park are naturally less susceptible to wildfires and may not require any special management.

Management Recommendations

The review of existing information combined with the winter survey conducted here, suggests the prescription zone (EMZ2) contains relatively low winter habitat capability for caribou. Although this is generally consistent with the 4W rating (MELP 1993), changes are suggested to the extent of caribou winter range. Therefore, implementing fire management strategies over the entire prescription zone to meet caribou winter habitat requirements appears unwarranted. Instead, the majority of the EMZ2 could be managed similar to EMZ3 with little risk to caribou values. However, because the area south of Yellowhead Lake does contain a small amount of potential winter habitat for caribou in Alberta (West Jasper), we recommend this area be managed consistent with management strategies to maintain caribou winter habitat and currently under review by Jasper National Park.

Consider redefining the boundaries of Subzone 5 (Caribou Winter Range) to include only the lodgepole pine bench south of Yellowhead Lake. This will ensure the small area of potential caribou habitat receives adequate consideration should fire threaten these pine-lichen forests prematurely. The current age class distribution of this area, however, suggests fire risks are low to moderate. Depending on the management and status of winter habitat in Jasper National Park these two areas may have increasing or decreasing importance to caribou in future years.

The winter habitat identified in the upper Fraser River is currently unlikely to be used by caribou, however, if the Jasper population expands, it may have increased value in the future. It would also be more valuable to caribou if the main winter ranges in Jasper Park are damaged by fire or other catastrophies.

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