What's Happening to Caribou Habitat in North-central BC?

Recovery of four woodland caribou herds in north-central BC is being pursued because the herds are considered at risk of becoming locally extirpated. These herds (Chase, Scott, Takla, and Wolverine) have historically provided opportunities for wildlife viewing and for hunting but today, while viewing opportunities exist for all herds, only the Chase herd has enough caribou to support hunting.

Disturbance events from both natural and human causes are judged by biologists to have reduced the quality of available habitat and in some places to have removed it entirely. The most notable natural event affecting caribou habitat is the mountain pine beetle epidemic. Although the mountain pine beetle is only beginning to impact habitat in these herd areas, it is expected to kill the overwhelming majority of pine stands over the next dozen years. Human response to the epidemic is also affecting habitat as timber salvage operations remove dead and dying pine stands. This management could potentially have extensive effects on caribou range.

Recreational activities such as snowmobiling and heli-skiing, and other resource development activities such as mining and wind-farm exploration, can also effect some caribou range. These activities are becoming more prevalent in the herd areas as government seeks to manage and maintain the regional economy.

Measuring Change

An analysis of the amount and quality of caribou range, which was conducted for recovery planning, revealed the strong likelihood that habitat for caribou had decreased from historic levels up to the year 2000 and that this trend would continue. But the rate of the decrease was unknown and the prediction lacked certainty. We sought to monitor the change in supply of caribou habitat since the recovery planning in 2000 to gain the required certainty about the magnitude and direction of current trends.

Using established caribou habitat modeling techniques, we compared the available caribou range in the year 2000 to what was available in 2007. We updated year 2000 datasets with changes (new roads, power lines, snowmobile trails, and forest harvest) to the landscape in each herd area.

Comparative measurements were made for six defined seasonal ranges:

- Calving and summer range
- Post-rut range
- Pine-lichen winter range
- High-elevation winter range
- Black spruce/swamp complexes
- Movement corridors

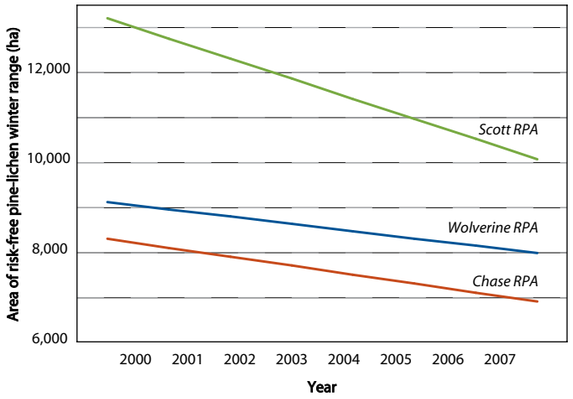
Study Area

Recovery Planning Areas (RPA) for the four caribou herds (Chase, Wolverine, Scott, and Talka) in north-central British Columbia.

Results

Change in the abundance of range since 2000 varied across the herd areas but was predominantly marked by significant decrease. The most consistent declines were observed in the caribou movement corridors (>6% decline) and pine-lichen winter ranges (>12% decline except in the Takla). We did find slight increases (~1%) in the availability of calving and summer range, and high-elevation winter range but still saw decreases in the quality of the available range. The decrease in quality was due to increased predation risk in these ranges resulting from apparent increased predator access to caribou (i.e., new roads and more young forest types). The results also revealed that new disturbances were concentrated on low-elevation range. This range exists in far less abundance than the less-disturbed high-elevation range. This observation underlines the fact that the most critical range types are those being disproportionately affected by disturbance.

Pine-lichen winter range loss can be seen in this view of an area along the Omineca River in the Wolverine Recovery Planning Area. Tan areas represent pine-lichen winter range in 2007. Red areas indicate the range lost since 2000.



Decreases in risk-free pine lichen winter range available in the three Recovery Planning Areas (Scott, Wolverine, and Chase).

In addition to the disturbances considered in the preceding results, large portions of the herd areas will be subject to influences from other disturbances sources such as the mountain pine beetle epidemic, and various commercial and recreational tenures. These influences could not be included in the results because their effects on caribou habitat are not adequately understood. Nevertheless, they will inevitably impact caribou habitat. The herd most affected is the Chase where 26% of pine-lichen winter range will be influenced and the Scott where 77% of the calving and summer range, and 61% of the high-elevation winter range will be influenced by these types of disturbances.

Conclusions

Through this analysis we found that the quality and abundance of seasonal ranges for caribou can change quickly. Pine-lichen winter range and movement corridors appear to be the most impacted range types based on the levels of disturbance that occurred between 2000 and 2007. In all of the RPAs each of these ranges were directly influenced by forestry activities. These influences are expected to increase with the progression of mountain pine beetle infestation. The impacts resulting from predation are even more significant and evident on all range types. Forestry activities strongly influence predator relationships and the delineation of risk-free ranges. It may be possible to manage predation by following methods applied in the Fort St. James Forest District where ungulate winter ranges with sizable buffers were designated to help manage predator access. Establishing similar zones throughout the RPAs could help preserve caribou ranges in the future.

View the full technical report at:
www.wildlifeinfometrics.com/WII_Downloads/downloads.html
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Caribou Habitat Recovery

Monitoring Changes in Caribou Habitat after Seven Years of Recovery Planning

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