Overview of the Taku River Tlingit Habitat Suitability Models

The Taku River Tlingit First Nation (TRTFN) have developed habitat suitability models for important wildlife species, to provide strategic level information about where important habitats are distributed across their Territory, and inform management and planning efforts. For the planning work being undertaken through the Framework Agreement, the TRTFN and BC will utilize habitat suitability models being jointly developed, which will incorporate the foundational work of the habitat modeling efforts undertaken by the TRTFN.

As all modeling efforts, the TRTFN's ability to model the seasonal habitat of focal species habitat is limited by knowledge of seasonal habitat use patterns, the likely variability in those patterns across the Territory and between years, and the availability of applicable environmental data for the region. The traditional and indigenous ecological knowledge (TIEK) of the Taku River Tlingit, as well as local ecological knowledge, provided key information on the distribution, ecology, and habitat use patterns of each species. The TIEK information was corroborated and supplemented using other existing information on each species, including research and other modeling efforts in similar regions. By combining TIEK and local knowledge with scientific research information, the TRTFN habitat models represent a powerful combination of these two forms of ecological knowledge. In addition, the TRTFN obtained a limited set of radio-telemetry locations spanning between five and nine months, collected by the BC government in a three-plus year radio-telemetry project, and was used to provide some model validation.

The habitat models uses standardized spatial data that are available through the BC government, including the BC Forest Cover data and Biogeoclimatic Ecosystem Classification for vegetation information; BC Terrain Resource Information Mapping database (TRIM, 1:20,000) for roads and topography, the BC Watershed Atlas (1:50,000) was the source for data related to rivers and streams, and the Fisheries Information Summary System (FISS) was used to complement TIEK in determining salmonid species distributions and spawning areas.

Woodland Caribou in the Taku River Tlingit Territory

Caribou in British Columbia belong to the woodland subspecies (*Rangifer tarandus caribou*), but they can be further divided into two different ecotypes, mountain ecotype and northern ecotype. Mountain caribou are found in southeastern BC and spend much of the year at high elevations in subalpine forest and alpine habitats. Deep snow prevents them from cratering and they rely primarily on arboreal lichens for winter food. Northern caribou are found in the northern and west-central areas of the Province. They generally inhabit mountainous areas in summer, and use low elevation pine forests or windswept alpine areas during winter. The low snow depths in those habitats allow them to crater for terrestrial lichens.

Traditional, indigenous and local knowledge indicates that all of the caribou in the TRTFN Territory are the northern ecotype. These herds rely upon low-elevation mature pine forests in the winter, and use a range of high elevation alpine and subalpine habitats in the summer. Lichens are the critical winter food source for caribou; because lichen are very slow growing, the highest densities of lichen are associated with older pine forests. In years when snow conditions make cratering difficult or unproductive, the caribou may move to high elevation, open habitats that have been wind-cleared of snow.

The ranges of three caribou herds overlap the Territory – the Level-Kawdy, the Atlin, and the Carcross/Squanga herds. The Level-Kawdy herd occurs in the southeastern portion of the Territory. The Atlin and Carcross/Squanga herds, along with the Ibex herd in the Yukon, are known as the Southern Lakes caribou population. Widespread declines in the Southern Lakes population prompted a recovery program for these herds in 1992 by First Nations and the Yukon and BC governments to increase numbers to historic levels, which would be in the order of thousands of animals.

Winter/Spring Woodland Caribou Habitat

During winter, the traditional and indigenous ecological knowledge of the TRTFN indicate that caribou primarily feed upon terrestrial lichen, found in old pine forests in the study area. During some time periods over some winters, the lichens in these forests are unavailable to caribou due to snow conditions, or potentially predator or other disturbances. During these times, caribou may move to high elevation open habitats, and forage on terrestrial lichens in wind-exposed areas.

The difficulty and importance of identifying the types of forests that support the important terrestrial lichen has been recognized by the TRTFN, and so has the limited ability of the current BC Forest Cover to correctly identify these important forests. To address this, the TRTFN is undertaking an effort, in collaboration with other partners, to develop a vegetation cover map using satellite imagery and other information sources. When available, this new vegetation map will significantly improve our ability to identify potential caribou winter habitats.

Atlin-Taku Planning Area: **Caribou Winter Habitat Suitability Model**

Jointly Developed by TRTFN and the Province of British Columbia

Map Key

Habitat suitability

- Low
- Moderate
- High

- Taku River Tlingit territory
- Atlin-Taku planning area
- Taku River drainage divide
- Protected areas

Roads

- Paved or main roads
- Gravel or secondary roads
- Unimproved roads
- Rivers
- Lakes

0 2.5 5 10 Kms

Projection: BC Albers equal area conic
Datum: North American Datum of 1983
Data sources: TRTFN, BC WLAP, GeoGratis

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