# CRY LAKE WILDLIFE (UNGULATE) BIOPHYSICAL INVENTORY (104 I)

## LEGEND
1981 Edition

### 1. Explanatory Notes

[illegible]

### 2. Example of Map Symbol

[illegible]

### 3. Ungulate Species Symbols

[illegible]

### 4. Capability Classes

[illegible]

### 5. Biophysical Ungulate Capability Class Carrying Capacity Estimates

[illegible]

### 6. Environmental Conditions

[illegible]

### 7. On-Site Symbols

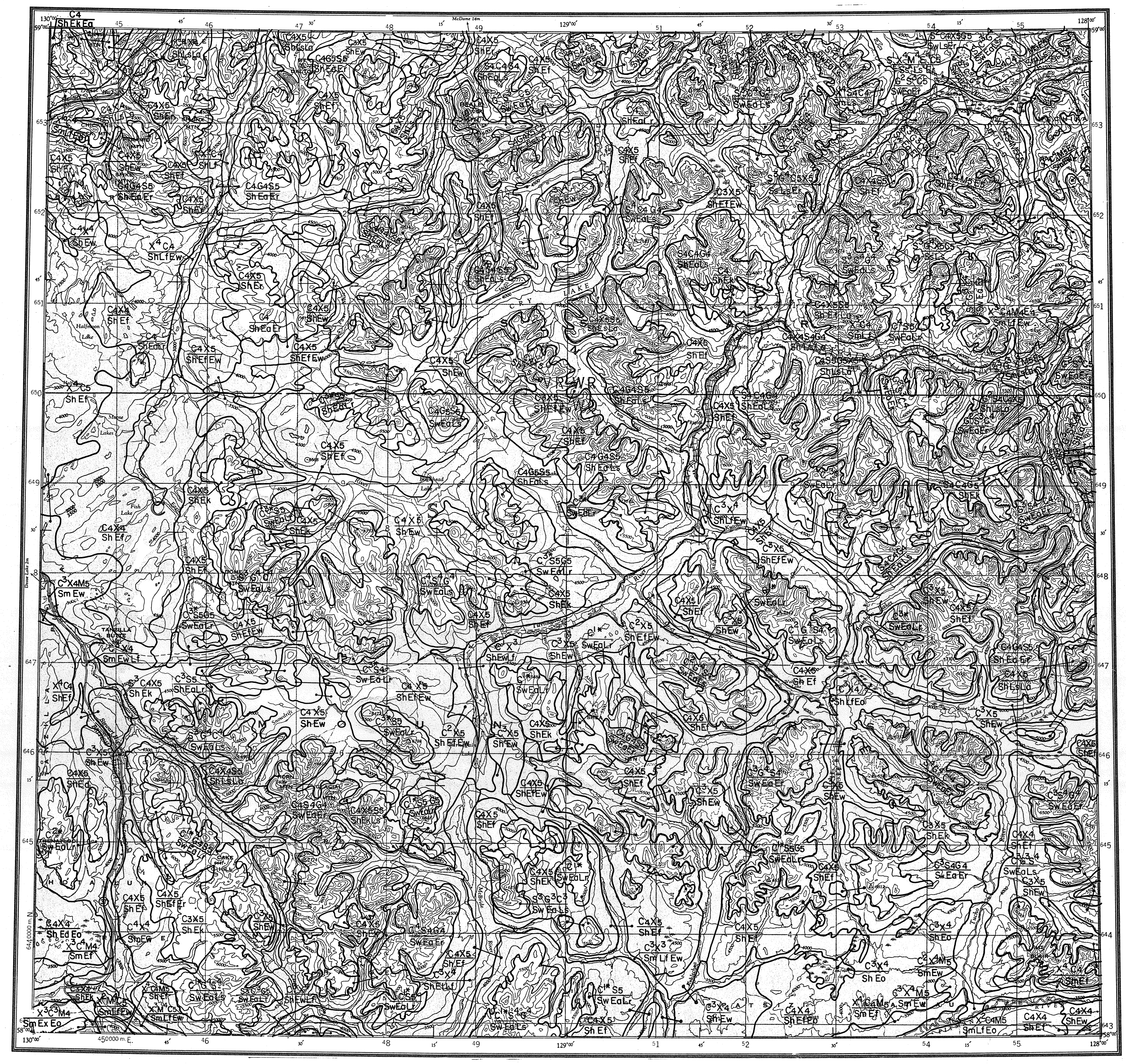
[illegible]

### 8. References

[illegible]

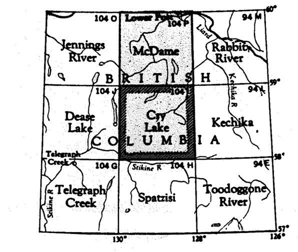
### 9. Credits

Mapped by: B. Fuhr and D.A. Demarchi
Date Mapped: 1981-02
Date and scale of photography: 1979 1:70000
Base Mapping: Cry Lake Biophysical by M. Fenger, 1982
Date drafted: 1982-03
Revision dates: 1983-08



## CRY LAKE
### BRITISH COLUMBIA

Scale 1:250,000
1 Inch to 4 Miles Approximately



### 10. Narrative Legend

#### INTRODUCTION

[illegible] The objective of this general scale biophysical mapping project is to provide a regional overview of ungulate capability as a basis for land use planning.

The inventory provides information on the distribution and variability of ungulate capabilities in the map area; the relative value of adjacent units to ungulates; and some of the salient physical and biological properties of the units as they pertain to ungulates. Physical and biological inventory sampling for the area is generally low so that some inaccuracies undoubtedly exist in unit boundaries and descriptions. Ungulate carrying capacity estimates must be applied with caution since non-typical areas (inclusions) of better or poorer habitat may occur within a unit. This is an unavoidable consequence of mapping scale, a low level of inventory information and the low level of survey intensity.

#### PROJECT OUTPUTS

Project outputs consist of this ungulate capability map and the Cry Lake Biophysical (Fenger, 1982) map from which it was derived. The latter map portrays important features of the land as they relate to soils, terrain and vegetation. It also provides descriptive notes on drainage, physiography, bedrock geology, late Quaternary history, climate, and recreation. For further information on these subjects refer to the Cry Lake Biophysical map, as they have been repeated here only as they pertain to ungulates.

#### METHODS

Background data pertaining to ungulates in the area was compiled from the files of the Terrestrial Studies Branch, Fish and Wildlife Branch, various consultants and other people with local knowledge. Field studies consisted of three weeks of summer field survey and one week of winter ungulate survey. The survey team consisted of three persons: a soil-terrain specialist, a plant ecologist and a wildlife biologist. During the summer, forty-one plots were located in representative biophysical types. The methods used in collecting information relating to site description, terrain, soils, vegetation and wildlife are described in: "Describing Ecosystems in the Field", Walmsley et al, 1980. Access was primarily by helicopter (twenty-eight hours of flight time) except for limited vehicle access along the Stewart-Cassiar Highway and along the abandoned British Columbia Railway grade.

Biophysical units were delineated for the Cry Lake Biophysical Map (Fenger, 1982) by air photo interpretation and field checking. This map shows relatively homogenous units of terrain and vegetation. The units on the Cry Lake Biophysical Map were then rated for their value to wildlife based on field observations of ungulates, background ungulate data, the biophysical information and airphoto interpretation. Winter ungulate surveys were conducted by helicopter (twenty-five hours of flight time) to supplement background ungulate data and to observe winter habitat conditions on various biophysical types. More detailed information on preparation of ungulate capability maps is contained in "Methodology for Ungulate Biophysical Mapping" (Terrestrial Studies Branch, in prep.) and in "Biophysical Ungulate Capability Mapping in British Columbia (Demarchi et. al., 1980). This survey information is held on file with the Terrestrial Studies Branch, Victoria.

#### WILDLIFE RESOURCES

This section describes the four physiographic regions of the area and how the ungulates in these regions are influenced by the dominant factors of climate, landform, soils and vegetation. The four broad physiographic regions (Holland, 1976) are; the Kechika Ranges, the Stikine Ranges, the Spatsizi Plateau and the Tanzilla Plateau. Habitat potential for six species was identified in the Cry Lake map area: woodland caribou (Rangifer tarandus), Stone's sheep (Ovis dalli stonei), mountain goat (Oreamnos americanus), moose (Alces alces andersoni), mule deer (Odocoileus hemionus hemionus), and elk (Cervus elaphus canadensis).

##### 1. KECHIKA RANGES

The Kechika Ranges lie in the northeastern corner of the map area along the lower reaches of the Major Hart and Turnagain Rivers. Snow depth is much less than other areas on the map area, probably because of the rain-shadow effect of the Stikine Ranges. Along with the northeastern edge of the Stikine Ranges, this area supports high capability for Stone's sheep, locally high capability for mountain goats, moderate capability for moose, low to moderate capability for caribou, and was considered to have low to moderate capability to support mule deer and elk, although these latter two species were not recorded.

Important Stone's sheep habitat includes the steeply sloping alpine areas of the Kechika Ranges, the adjacent northeastern edge of the Stikine Ranges and the lower elevation steep south aspect slopes along the Major Hart and Turnagain River valleys. The latter areas are especially important as winter range since they are relatively snowfree due to low snow fall, wind action and solar radiation. If maintained in an early seral state by fire as at present, the sites below tree-line can produce forage which is better suited for Stone's sheep than can higher elevation areas. Limestone outcrops both above and below treeline provide escape terrain important to Stone's sheep.

Mountain goats require rugged escape terrain, which in this area is usually in the form of limestone outcroppings. An important area for mountain goats is along either side of the Turnagain River valley near its confluence with the Cassiar River. Here escape terrain combined with accessible forage provides suitable habitat at both high and low elevations. This area is in the Kechika Range and Stikine Range transition.

Moderate densities of moose occur year-round along the floodplain of the Major Hart River, on the nearby morainal areas and on the more moderately sloping colluvial areas. Excellent forage for moose is available along the floodplain, in the adjacent organic areas and on the numerous fluvial fans adjacent to the floodplain. The early seral stages of shrub growth created by fire on morainal uplands has resulted in greatly improved moose winter range compared to more heavily forested areas. Some low capability habitat for mule deer and elk was identified along the lower slopes in the area of the Lower Major Hart and Turnagain River valleys, although there is no reported present use by these species. Low to moderate numbers of caribou occur in the area year-round. However, this area lacks the broad rolling alpine areas which caribou in northern B.C. favour as an important component of their winter range (Bergerud, 1979).

##### 2. STIKINE RANGES

Most of the mapsheet is within the Stikine Range physiographic unit. It is aligned northwest to southeast, bounded on the northeast corner of the mapsheet by the Kechika Ranges and in the southwest by the Tanzilla Plateau and the Stikine River. The Spatsizi Plateau is restricted to lower elevations along the southern edge of the map area. Snow depth is generally high (approximately one metre or greater) throughout the Stikine Ranges and thereby confines most ungulate winter range to specific areas of habitat where snow depth is moderated by local climatic and topographic factors.

The variation in bedrock type within the Stikine Ranges has particular significance to ungulates. The granitic Cassiar Batholith within the Stikine mountains stretches from the Cassiar River and Hottah Lake in the east to Meek Lake and Sphinx Mountain in the northwest. The mountains of the Cassiar Batholith are generally low quality ungulate range. This primarily appears to be the combined result of the low nutrient status of the acidic soils, the high snow depth and rubbly colluvium common to this area. The Three Sisters Range, although further south, is similar to these rugged, granitic areas.

The northeastern edge of the Stikine Ranges is composed of a band of sedimentary rock which intergrades into the Kechika Ranges. Compared to other portions of the Stikine Ranges, this area appears to have less precipitation, more alpine vegetation and more favourable terrain to ungulates. Snow depth is progressively reduced and the habitat value for ungulates correspondingly increases in a northeasterly direction from the Stikine Ranges towards the Kechika Ranges.

Sedimentary bedrock combined with some volcanic rock lies southwest of the granitic portions of the Stikine Ranges. This area is southwest of Hottah Lake, Kutcho Creek, Hard Lake and the south end of Cry Lake. Ungulate values are higher here than in the granitic portion of the Stikine Ranges although not as high as in the Kechika Ranges. Caribou, however, occur in relatively larger numbers throughout most of the southern portions of the map area. The subdued alpine landforms and wider valleys appear to make this area more suitable to caribou. Snow depth did not appear to differ greatly from other western areas of the Stikine ranges.

Caribou are the most widespread and abundant ungulate species on the Stikine Range physiographic unit and on the Cry Lake map area as a whole. They are highly mobile, use a wide range of habitat types over a large area, and may use different geographical areas as seasonal ranges from year to year (Kelsall, 1968). Specific factors which influence their distribution and abundance are less well understood than for other ungulate species, so that an assessment of caribou range based on a low level of inventory data with present herds reportedly at a fraction of their previous sizes (Bergerud, 1978) is somewhat speculative. Areas of important habitat may not have been identified, especially potential winter range in forested areas.

The alpine areas of the Stikine Ranges provide some of the most important habitat units for caribou. While most alpine units provide summer range for caribou, summer use appears to be concentrated in the southwestern sedimentary area of the Stikine Ranges with less use in the more rugged granitic portions of the ranges. Rugged alpine areas have been reported to provide escape terrain for caribou calving (Bergerud, 1978). Wintering caribou have been most frequently observed on the rounded alpine areas of the southern third of the map area. These areas are frequently swept clear of snow, permitting caribou to travel and forage. In addition, many of these areas serve as rutting grounds in the autumn. Rounded alpine areas known to be of high importance to caribou include Cake Hill, the southern edge of the Three Sisters Range, the mountains south of the area bounded by the Turnagain River and Kutcho Creek, and the areas adjacent to the lower Tucho River (Bergerud, 1978; Page, pers. comm.; Hatler, pers. comm.; Webb, 1980).

Caribou also winter below tree line, especially in lodgepole pine forest communities that have terrestrial and arboreal lichens. The most extensive of these areas occurs along the bottomlands and lower slopes of the Turnagain River valley upstream from Kutcho Creek. Other areas include the upper McBride River, the Kehlechoa River, the valley floor from Rainbow Lakes to Hottah Lake and the kame deposits in the Tucho River valley. Evidence of caribou winter use ("cratering", trails and caribou sightings) has been recorded during winter surveys of these areas. The close proximity of these lodgepole pine forests to previously mentioned rounded alpine areas permit caribou to utilize either of these habitat types as weather and snow conditions vary throughout the year.

There is evidence to indicate that many of the caribou wintering in the southern portion of the Cry Lake map area spend the summer south of the Stikine River in Spatsizi Wilderness Park (Hatler, pers. comm.). Caribou also are reported to use broad treeless valley bottoms for seasonal migration and post-calving aggregations (Bergerud, 1978, Page, pers. comm.). Such areas include the valleys of upper Kutcho Creek, the upper Eagle River, [illegible]ard Creek and Caribou Creek.

Stone's sheep are found throughout the mountains of the Stikine Range physiographic unit. High capibility for sheep exists in the northeastern sedimentary portion of the Stikine Ranges adjacent to the Kechika Ranges as described earlier. Capabilities for sheep in generally low throughout the Cassiar Batholith. Beale Mountain is an "outlier" of sedimentary rock in the Cassiar Batholith, providing an area of good year-round sheep habitat. In the sedimentary area to the southwest of the Cassiar Batholith, Stone's sheep exist in low to moderate numbers in those habitats which provide rugged south-facing slopes and cliffs which can be used for winter range. Sheep are able to winter in these areas because they provide escape terrain and relatively snowfree foraging areas in a region of deep snow. Sheep were seldom observed on mountain groups that did not have some of this type of terrain. Important areas for sheep winter range include the southerly facing aspects of the Tanzilla River valley, the Dome Mountain group, the two unnamed mountains east of the McBride River, and the rugged mountain group to the southwest of Hottah Lake. During the summer months Stone's sheep are more widely dispersed but are usually located on the same mountain groups on which they winter.

Mountain goats occur throughout the Stikine Ranges where rugged cliffs provide escape terrain. The highest densities of mountain goats occur in the northeastern sedimentary region of the Stikine Ranges along the steep valley sides and mountains of the lower Turnagain and the Cassiar River valleys. These ranges are highly suited to mountain goats because of their great relief, steep rocky slopes and reduced snow depth. Mountain goats are scattered sporadically throughout the remainder of the Stikine Ranges. Beale Mountain provides good mountain goat habitat because of its large area of southwest facing cliffs. In general mountain goats winter on steep cliffs of southerly or westerly exposure since these areas receive wind-sweeping of snow from the prevailing southwesterly winds. Mount Blair in the extreme southeast corner of the mapsheet also provides good mountain goat habitat.

Moose occur in low numbers throughout the Stikine Ranges because of the relatively high elevation of the valleys and long winters with deep persistent snow. There is better moose winter habitat within the Boreal White Spruce Zone than in the Subalpine Alpine Fir Zone. The upper Turnagain River valley provides good year-round moose range as it is at a lower elevation than most other valleys in the Stikine Ranges. Numerous moose were noted during the summer months along the many lakes in the Turnagain River valley between Turnagain Lake and Flat Creek. The Turnagain River valley provides the only moose winter range in the central portion of the map area.

##### 3. SPATSIZI PLATEAU

A small portion of this physiographic region extends onto the lower elevations of the southern edge of the Cry Lake map area. Here the valley bottoms are at much lower elevations than those in the Stikine Ranges with a correspondingly less severe climate. The Stikine River has descended to 750 metres (2500 feet) at the southwest corner of the map area. Glacial drift-filled valleys with numerous organic areas and active fluvial bottomlands dominate the materials of this portion of the Spatsizi Plateau.

Moose are abundant in this area, especially along active fluvial valley bottoms and deciduous south aspect slopes. The Pitman River is a very important area for moose with its meandering floodplain and organic areas. The Stikine River has a broad active floodplain and is also an important area for moose. Both of these areas are enhanced by the close proximity of south aspect of deciduous forest to their floodplains. These slopes provide the majority of the wintering area for moose when snow depth is not excessive while the valley bottoms provide a "critical" wintering area as well as calving areas and corridors for movement. Other valleys with smaller yet heavily used floodplains include Moose Creek, the lower McBride River, the lower Kehlechoa River drainage, and the lower Tucho River.

Caribou can potentially be found wintering throughout most of the coniferous forest within this portion of the Spatsizi Plateau. As in the Stikine Range physiographic region, mature lodgepole pine forests also provide winter range. Important areas which have have been identified include the lower slopes along the Pitman and Tucho Rivers, especially the gravelly fan at their confluence, the gravelly and organic areas associated with the Kehlechoa River and the lower McBride River. Caribou migrate through this area seasonally to and from their winter range in the Stikine Ranges to the Spatsizi Wilderness Park area, crossing the Stikine River. Traditional movement corridors and river crossings in this area likely exist but have not as yet been identified.

Some mule deer occur along the floodplain of the Stikine River, and on its deciduous forested south-facing aspects. Snow depth is greatly reduced on the lower elevation south-facing terraces which provide winter range capability for mule deer.

##### 4. TANZILLA PLATEAU

The Tanzilla Plateau extends onto the extreme western portion of the map area. This plateau is primarily rolling moraine, rock outcrops, rounded alpine areas and gravelly valley bottoms. Most of the plateau is above 900 metres (3000 feet) elevation except for the valley of the Tanzilla River which dissects the plateau surface to 750 metres (2500 feet) in the vicinity of Dease Lake. The snow depth on the Tanzilla Plateau is moderate to high, Dease Lake has an average March 1 snowdepth of 59 centimetres (16 year average - Snow Survey, 1980).

Moose winter throughout the forested area of the Tanzilla Plateau, but primarily below 1000 metres (3500 feet) because of deeper snow at higher elevations. While some moose winter along the Eagle River and across the plateau to the east of the Eagle River, most wintering areas are located on the southwest aspect slopes above Dease Lake or along the lower Tanzilla River within the Boreal white spruce forest zone. Numerous water bodies and organic areas provide good summer range for moose on the Tanzilla Plateau.

Caribou have been reported to winter on the Tanzilla Plateau on the lodgepole pine/lichen flats along the Tanzilla River, in the upper Gnat Creek valley and on Thenatlodi Mountain. While they have not been recorded in these locations in recent years, this may be due to human disturbance from access into these areas. During the March, 1981 winter ungulate survey, caribou cratering activity was observed in the open lodgepole pine habitat north of Thenatlodi Mountain.

#### ACKNOWLEDGEMENTS

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