

Gladys Lake

Ref. No.:

**225C.1**

ECOLOGICAL RESERVES COLLECTION  
GOVERNMENT OF BRITISH COLUMBIA  
VICTORIA, B. C.  
V8V 1X4

CC/MAB

BIOSPHERE RESERVE NOMINATION

Spatsizi Plateau Biosphere Reserve

(Draft: For information and discussion only)

October 1981

NAME Spatsizi Plateau Biosphere Reserve

GEOGRAPHICAL LOCATION

- (a) Coordinates. Latitude 57° 30.0'-43.0'N; Longitude 128° 37.5' - 129° 4.0'W.
- (b) A remote region of northern British Columbia, Canada, about 1,000 km NNW of Vancouver, and 330 km NNW of the town of Smithers. The biosphere reserve is the Spatsizi Plateau Wilderness Park surrounding an inner core constituted by the Gladys Lake Ecological Reserve. This 670,000 ha. area is bounded roughly by the upper Stikine, Spatsizi, Klappan, and Little Klappan Rivers (See Annex 1, Maps).
- (c) Biogeographic Province: Yukon Taiga. */Rocky Mountains*
- (d) Location with reference to classifications of natural regions used in British Columbia.
- i) Physiographic Region: Yukon-Stikine Plateaus and Highlands.
- ii) Biogeoclimatic zones (after V.J. Krajina): The biosphere reserve has climatic and vegetative characteristics representative of the Alpine tundra (continental); Englemann spruce-Subalpine fir; Spruce-willow-birch; and the Boreal white and black spruce biogeoclimatic zones (See Annex 2 for the Krajina classification system).

ALTITUDE

Lowest: 975 metres  
Highest: 2500 metres

AREA

Total area: 621,440 ha. (Wilderness Park)  
Core zone: 48,560 ha. (Ecological Reserve)

LEGAL PROTECTION

- (a) 1. Wilderness Area Park: Established under the British Columbia Provincial Park Act (RSBC, c.309, 1979) by Order-in-Council (Decree) No. 3756 on December 3, 1975. The decree established this area as a "Class 'A' Park" under Section 12 of the Park Act. The guiding policy states that: "The area will be maintained as a wilderness landscape in which natural communities are preserved intact and the progressions of the natural systems may proceed without alteration. Hunting and fishing within sustained

yield limits is permissible. Recreational use of the area shall be limited to activities which do not detract from or disturb the wilderness experience sought by visitors. These include: fishing, hunting, hiking, climbing, camping, horse travel and nature study."

2. Ecological Reserve: Established concurrently under the British Columbia Ecological Reserves Act (RSBC, c.101, 1979) by Order-in-Council No. 3678 on 28 November 1975.

3. Annex 3 provides copies of these two Statutes and the Orders-in-Council.

(b) Legal Status

The core area is equivalent to a "Strict Nature Reserve" in the UNESCO/MAB classification. The remainder could be classified as a "Resource Reserve" for wildlife.

LAND TENURE

(a) The entire area is under the ownership of the Province of British Columbia.

PHYSICAL FEATURES

(a) Two of the major natural landscapes characteristic of the Cordillera (mountain) regions of western Canada are represented:

1. Skeena Mountain Landscape: Constitutes the southwestern portion of the biosphere reserve and consists of folded sedimentary rocks of the Upper Jurassic and Lower Cretaceous ages. The elevation averages between 900 and 2130 metres (highest peak, 2500 m.). Almost all of the Skeena Mountains were covered by the Pleistocene ice sheet which rounded the ridges and summits below 1830 metres. The remaining peaks and ridges present a serrated and jagged profile caused by intense alpine glaciation. The mountain valleys have been modified by valley glaciers that left tarns and hanging valleys between the peaks and lowlands.

2. Stikine Plateau Landscape: Constitutes the northeastern portion of the biosphere reserve and is characterized by wide "U"-shaped and drift-filled valleys with open, gently rolling upland surfaces. The Plateau itself is at an elevation ranging between 1670 and 1820 metres with the major river valleys at about 1060 metres. During the Pleistocene period the plateau was covered by a veneer of glacial drift which remains

to this day.

(b) Mean annual temperatures (from recent climatological stations)

- i) Cassiar, 1077 metres altitude
  - Mean: 26.7°F (-2.9°C)
  - Extreme: 85°F (29°C)
  - 53°F (-47.2°C)
- ii) Dease Lake, 816 metres altitude
  - Mean: 29.9°F (-1.2°C)
  - Extreme: 93°F (34°C)
  - 60°F (-51°C)
- iii) Telegraph Creek, 183 metres altitude
  - Mean: 36°F ( 2.2°C)
  - Extreme: 95°F ( 35.0°C)
  - 43°F (-41.6°C)

(c) Mean annual precipitation

- i) Cassiar
  - Rain 11.48 inches ( 28.7 cm)
  - Snow 160.9 inches (402.3 cm)
  - Total precipitation 27.57 inches ( 68.9 cm)
- ii) Dease Lake
  - Rain 8.91 inches ( 22.3 cm)
  - Snow 73.50 inches (183.7 cm)
  - Total precipitation 15.53 inches ( 38.7 cm)
- iii) Telegraph Creek (data not available)

Generally, the biosphere reserve has a moist, cold, continental climate. The winters are long and have an average temperature of about -20°C. Geist (1971) reported very sudden warm, violent chinook storms during the winter which sent temperatures rising from -40°C to 5°C in a few hours. Summers are cool and wet. Maximum daily temperatures in summer commonly range between 5°C and 15°C, and only rarely reach 24°C. Snow and freezing temperatures can occur at any time of the year, especially at higher elevations.

#### VEGETATION

Two general reconnaissance surveys of flora and vegetation were published in 1959 and 1971. More intensive botanical research, including quantitative sampling, was carried out in 1975 in the Gladys Lake Ecological Reserve, the "core area" of the biosphere reserve. This latter study (Pojar, 1975) describes 35 distinctive plant communities from the alpine and

sub-alpine zones. <sup>Some</sup> 370 species of vascular plants have been found. This is a comparatively rich flora for a glaciated, northern, subalpine-alpine area. A number of the more common bryophytes and lichens have also been identified. Annex 4 presents Pojar's list of plant communities and their characteristic species from the Gladys Lake Ecological Reserve.

#### FAUNA

The area constituting the whole biosphere reserve has been recognized and protected primarily because of the populations of "game animals" which occur there. The core area is an important winter range for the ungulates. The populations of the seven main species of large mammals were estimated in 1979 to be in the following order of magnitude: Osborn Caribou (Rangifer tarandus osborni) 3,000; Mountain Goat (Oreamnos americanus) 600; Stone Sheep (Ovis dalli stonei) 500; Moose (Alces alces) 1,000; Grizzly Bear (Ursus arctos) 100; Black Bear (Ursus americanus) 100; and Timber Wolf (Canis lupus) 100.

Basically, the fauna is characteristic of the boreal-northern alplands. The bird fauna consists of 149 recorded species representing coastal, continental, northern and southern avifauna. Among the species of fish reported are some representing both Arctic and Pacific drainages even though all watercourses drain to the Pacific.

#### ZONING

- (a) The core area of the biosphere reserve is the Gladys Lake Ecological Reserve which was designated especially to protect the habitat of Stone Sheep and Mountain Goats. Hiking would be permitted in the core area but hunting and fishing are prohibited. The remainder of the biosphere reserve constitutes a buffer zone in which recreational activities such as hiking, camping, fishing, and trophy hunting are permitted but controlled. Access to the area is primarily by light aircraft, however horses and riverboats are occasionally used. It is estimated that between 200 and 300 people visit the Wilderness Park each year.
- (b) The "Spatsizi Plateau Wilderness Park Master Plan", June 1980, is attached as Annex 5. It outlines the policies adopted for managing natural resources and visitors to the area. The general goal is "to conserve wilderness landscapes and natural processes while providing for quality, dispersed, low impact, recreation opportunities within those landscapes."

## MODIFICATION BY MAN

- (a) Prior to the arrival of white men (Europeans) the area was apparently used by native people for seasonal hunting, fishing and trapping. The first trading post was established in the area for a few years in the 1920's, and the greatest period of human activity within Spatsizi resulted from a one man guide and outfitting business for big game hunters which operated between 1948 and 1968. There are no residents in the area at the present time. The main modifications in the landscape are some small airstrips for use by light aircraft, horse trails throughout the Park, a few campsites along these trails, and log cabins at Coldfish Lake, Hyland Post, and Gladys Lake.

Although there are no <sup>Commercial</sup> mineral <sup>deposits</sup> known from the biosphere reserve area itself, the Order-in-Council creating the Wilderness Park makes provision to allow one mining access road across it. There are gold and silver deposits around most of the area, and one active mine about 60 km to the east of the Park. There is a large coalfield to the southwest, copper deposits to the west, and large copper sulphide deposits some 60 km to the north. This means that the biosphere reserve will provide excellent opportunities for studying landscapes and wildlife that are disturbed or remain undisturbed by future mining developments in the region. With regard to forest resources, there is currently very little logging going on in areas immediately outside of the Park.

- (b) The major land use of the buffer zone would be "Tourism/Recreation" under the UNESCO/MAB classification.

## SCIENTIFIC RESEARCH

- (a) Professor Valerius Geist (now at the Faculty of Environmental Design, University of Calgary, Alberta) conducted field research on Stone Sheep in the Gladys Lake area in the early 1960's (Geist, 1971). The most detailed studies of flora and fauna were carried out in 1975, also in the Gladys Lake area (Pojar, 1975). Under the auspices of the Spatsizi Association for Biological Research, a field reconnaissance study has been made of the wolf-ungulate system in the Upper Stikine-Spatsizi region (Haber, 1978). Current research by the Association is directed towards obtaining baseline information on the numbers, movements and annual range of caribou which rut on the Spatsizi Plateau uplands. ~~A number of~~ individual animals have been captured and fitted with radio transmitter collars, so that their movements can be monitored by telemetry tracking from aircraft during

monthly aerial surveys (Hatter, 1980).

Priorities for research are to be given to studies of predator-prey relations among large mammals because of the excellent opportunities in Spatsizi to do this. The work on wolf-ungulate relations will provide management information of benefit to other areas of North America where wolf populations still occur. This may be of international interest as well.

- (b) The log cabins can be used for field research. Permission to use cabins at Coldfish Lake and Hyland Post must be obtained from the Parks Division, and use of the cabin at Gladys Lake must be approved by the Ecological Reserves Unit.

#### ENVIRONMENTAL MONITORING ACTIVITIES

- (a) Temperature and precipitation data are gathered routinely at the three locations nearest the biosphere reserve as noted previously. Periodic surveys are to be made of fish and wildlife populations to guide the management of fishing and hunting in the buffer zone of the biosphere reserve.
- (b) In the UNESCO/MAB classification of monitoring activities, the following features are being monitored: climate, animal populations and harvesting (of animals).

#### ENVIRONMENTAL EDUCATION/TRAINING ACTIVITIES

The Master Plan proposes making available "off-site" information through interpretive staff, brochures, and audio-visual programs. There are no local permanent residents in the reserve to participate in activities relating to it.

#### PRINCIPAL REFERENCE MATERIALS

- Haber, Gordon C. 1979. The Upper Stikine-Spatsizi Wolf-Ungulate System, Northwestern British Columbia. Spatsizi Association for Biological Research, Vancouver. Report No. 1. March.
- Hatter, D.F. 1980. 1980-81 Progress Report No. 1. Spatsizi Association for Biological Research.
- Geist, Valerius. 1971. Mountain Sheep. A Study in Behavior and Evolution. University of Chicago Press. 383 pp.
- Osmond-Jones, E.J., and M. Sather, W.G. Hazelwood, B. Ford. 1977. Wildlife and Fisheries Inventory of Spatsizi Wilderness and Tatlatui Provincial Parks, British Columbia. Provincial Parks Branch.

Pojar, Jim. 1975. Vegetation and Some Plant-Animal Relationships of Ecological Reserve No. 68, Gladys Lake. Ecological Reserves Unit, Department of Environment. Victoria.

STAFF

- (a) The reserve has one temporary staff person in the Wilderness Park (buffer zone) during the summer.
- (b) The research is being carried out mainly under the aegis of The Spatsizi Association for Biological Research (See Annex 6 for background information). This Association conducts wildlife research under contract and its funding for 1980-81 was in the order of \$50,000.

ADDRESS OF LOCAL ADMINISTRATION

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and

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LIST OF ANNEXES

- Annex 1. Maps showing location and features of Spatsizi Plateau Biosphere Reserve.
- Annex 2. Biogeoclimatic units in British Columbia (after V.J. Krajina).
- Annex 3. Statutes and Orders-in-Council.
- Annex 4. Gladys Lake plant communities and their characteristic species (from Pojar, 1975).
- Annex 5. Spatsizi Plateau Wilderness Park Master Plan. June 1980.
- Annex 6. Brochure on The Spatsizi Association for Biological Research.