

PRELIMINARY WORKING DRAFT

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A RESEARCH PLAN FOR THE SPATSIZI PLATEAU WILDERNESS PARK, B.C.

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Introduction

There is still relatively little information about the way northern ecosystems function. In British Columbia one little known system is the boreal forest-tundra of montane regions such as the Spatsizi Plateau Wilderness Park.

Although this park remains relatively undisturbed by forestry and agricultural practices, there has been exploitation by hunting in the past, and it is certain that human use in various forms will increase in the future. Furthermore there is the possibility that a dam will be built on the upper Stikine River and this may alter the ecology of the area. Consequently before proper management can be carried out on the populations subjected to human interference, we must do research that allows us to make predictions concerning the effects of such interference.

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Since an Order in Council of December 3, 1975 established the Spatsizi Plateau Wilderness Park to provide "protection and management to ensure the values associated with the wildlife are retained and not permitted to degenerate in quality", we therefore have two aims of research which are equally important.

Aims

1. To obtain an understanding of the functioning of northern ecosystems.
2. To determine the best way of managing the Spatsizi area. To allow objective decisions based upon facts concerning the management of human use of the park and surrounding areas.

The Research Plan

For convenience the ecosystem can be broken down into the terrestrial mammal system, freshwater system etc. The terrestrial mammal system has been expanded here because it involves the most immediate management problems related to hunting. This system, therefore, warrants the first studies. Problems and studies related to fisheries probably come next, followed by the others.

The mammal system in figure 1 is not intended to be comprehensive. It has been drawn to show that there are certain groups of interacting species which may be studied as subunits of the system. For example, one can identify a plant-caribou-moose-wolf interaction. Similarly, another subunit could be the plant-hare-rodent-small carnivore interaction.

All studies on the mammal system cannot be started at the same time. Some sort of priority list must be drawn up based upon the combination of scientific interest, practical aspects, and conservation values. Studies should not be species oriented but should be concerned with examining specific problems and hypotheses. For example, we should not be studying the moose but we should study the predation rate of moose calves.

In order to understand how a system functions it must be altered in some known way. In order to understand the impact of hunting on a species, the degree of hunting must be altered. Because there is insufficient knowledge of the past degree of hunting in

the Spatsizi, we are confined to studying a qualitative difference between hunting in the past versus no hunting in the future. Thus the cessation of hunting serves a double purpose. It provides the manipulation necessary to understand the large mammal system, and it allows us to study a species response to hunting pressure.

The most important hypothesis directly related to the impact of hunting, is that of Haber, Walters and Cowan (1976). This hypothesis predicts that hunting, if it exceeds a certain rate, can shift a prey population to a new low equilibrium level where it remains even when hunting is removed. Since this has important management implications, we need to test whether such a shift in equilibrium does take place, and if so at what level of population size. This can be done by observing the rate of population increase after hunting is removed.

The following suggested studies are listed in priority based upon a subjective assessment of the best combination of scientific, practical and conservation values.

First priority. High scientific and conservation values. Relatively good practical aspects.

- I. A. To determine base line data on the caribou population response to human manipulation. Temporary elimination of hunting, in order to allow the population to return to a situation without human disturbance.
 1. Long term study of distribution, movements and population fertility, recruitment and mortality.
 2. Detailed study of individuals' movements using radio-telemetry and aircraft search. Requires permanent residence in the area.

3. Detailed study of fertility and other aspects of reproduction.
Feasible only if material is available. This could be combined with similar studies of moose.
- B. Wolf response to cessation of hunting.
1. General studies of pack size, territory and food. To be carried out year round.
 2. Detailed study of predation on caribou and moose calves, to observe whether wolves respond to changes in prey population as a result of change in hunting. Intensive study for a short time period each year.
- C. Moose population response to cessation of hunting.
- D. Stone sheep population response to elimination of human manipulation.
Same aspects as for caribou.

Second priority. High scientific and conservation values. Poor practicality.

- II. A. Bear studies.
- B. Goat population response to cessation of hunting.
- C. Small carnivore population dynamics.

Third priority. Lower conservation values.

- III. A. Hare, rodent, and grouse population cycles.
- B. Raptor and other bird studies.
- C. Invertebrate and other systems studies.
- D. Freshwater fish population dynamics.

This list is not intended to be comprehensive, but rather to serve as a basis for discussion. Each of the major headings may involve more than one study and more than one person. On the other hand some topics can be combined. For example, surveys of caribou and moose could be combined as one study, as could the studies of reproduction.

Logistics and Timing

The main practical problems with studies in the Spatsizi Area are (1) the only access is by air, and (2) there are no laboratory facilities. Little can be done about access but permanent accomodation must be organized as a pre-requisite to any detailed studies. The best place to site a research centre is Hyland Post. This is at a lower elevation than other areas and therefore less subject to low cloud problems preventing air access. It has a land runway, and float planes can use a stretch of teh Spatsizi River about 7 miles upstream. It is also a central location.

Another major problem is the difficulty in travelling about the country. Snowmobiles may be used in winter (the remoteness of the area with the consequent lack of assistance in case of accident must be borne in mind here) and horses in summer. Horses require year round personnel to care for them. Studies in the higher areas, e.g. on sheep and goat, are practical only with helicopter transport. In view of the extreme expense of this type of operation it may be wise to delay these studies until we know more about (1) the general practical difficulties of supporting research in the Spatsizi and (2) the general location of the main sheep and goat groups.

One further problem that has to be remembered is that too many scientists working in one area will cause interference with each other. Apart from the personal friction that this will generate, it results in inefficient research. Studies should therefore be phased in to prevent this overcrowding.

Since the studies have to be phased in at different times, it is unnecessary from the scientific point of view to stop hunting on all species simultaneously (but conservation aspects have to be considered as well). Thus, hunting should cease for caribou, moose and wolf in 1977 while allowing it to continue on sheep and goat until it becomes feasible to commence detailed studies of these species.

FRESHWATER SYSTEM

TERRESTRIAL MAMMAL SYSTEM

BIRD SYSTEM

TERRESTRIAL INVERTEBRATE SYSTEM

FIGURE 1.

