Canadian Wildlife Administration

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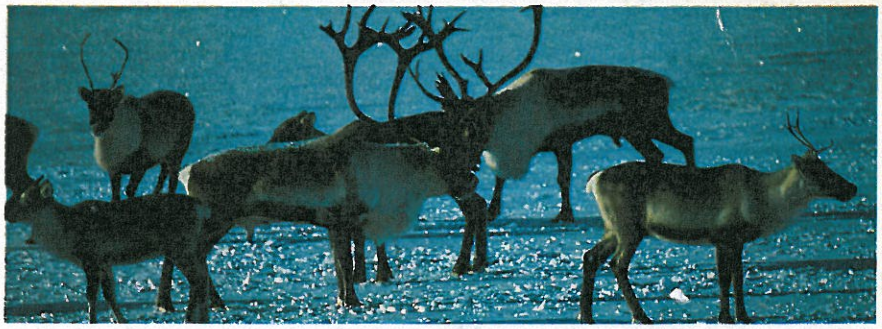
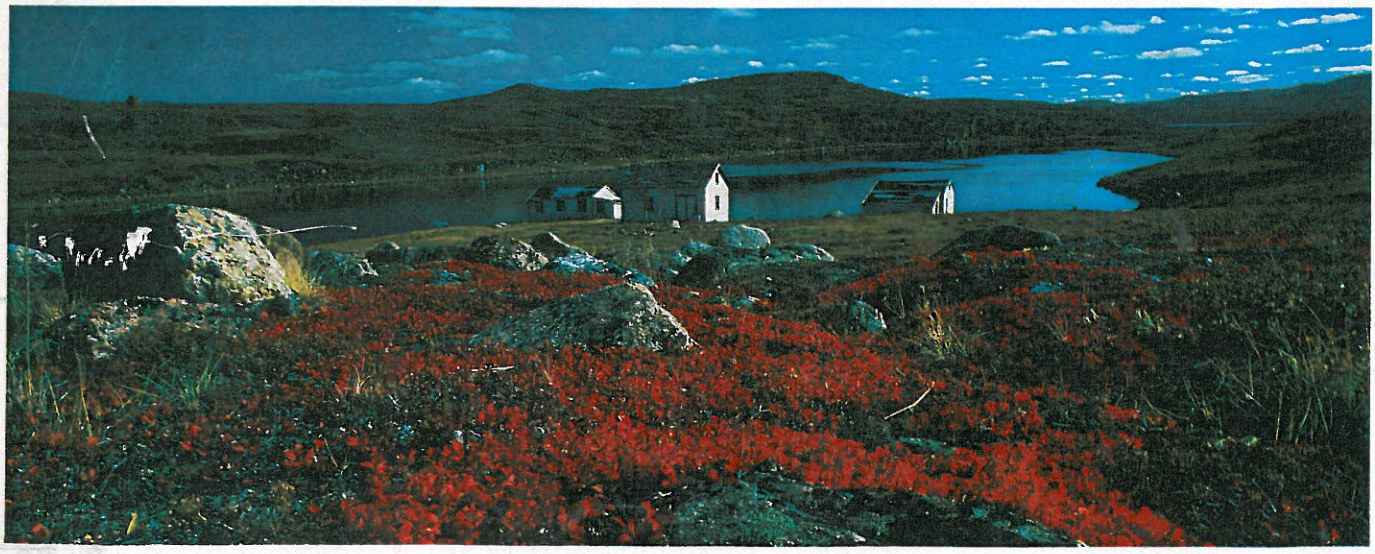




Newfoundland/Labrador

The Trend towards Bio-Politics

A Newfoundland Case Study

Introduction

Wildlife management has always been a practical undertaking, both its design and its implementation dependent upon the demands of a consumptive human population. The term "wildlife management" has always been somewhat misoriented — after all we manage and exercise control only over our own demands. The influence we have on animal populations and/or the habitat they require is merely a by-product of our success or failure in that regard.

It is a tacit conclusion of such logic that, to an appreciable degree, the management of wildlife resources is an undertaking of largely socio-political and socio-economic dimensions. How much and what kind of management we as trained scientists propose may to an extent operate outside of such strictures but certainly the anatomy of its application is directly dependent upon just that milieu. As scientists we may be expected to passively ride the political roller coaster — but if our desire is really to maximize wildlife and the experiencing of it, then in Newfoundland as everywhere we must become better readers of the public mind and better registers of the politics of our profession. In short, we must expect that our role will become an even more reactive one in the future than it has been in the past, particularly in respect to resource development.

This too, is largely a product of the socio-political environment, and the increasingly important position of resource development and the environmental impact legislation developed to police such industry. We must prepare ourselves for more frequent and rapid changes in priorities as the pace of resource development accelerates, and we must develop systematic approaches to wildlife management at regional levels which, at a minimum, involve long-term planning for habitat preservation. With such a strategy in place, we must learn to use the environmental assessment legislation to legally prohibit unacceptable impacts upon wildlife, to investigate with essential outside (i.e. proponent) funding and cooperation the impacts of developments and to do so using studies of both political and scientific farsightedness.

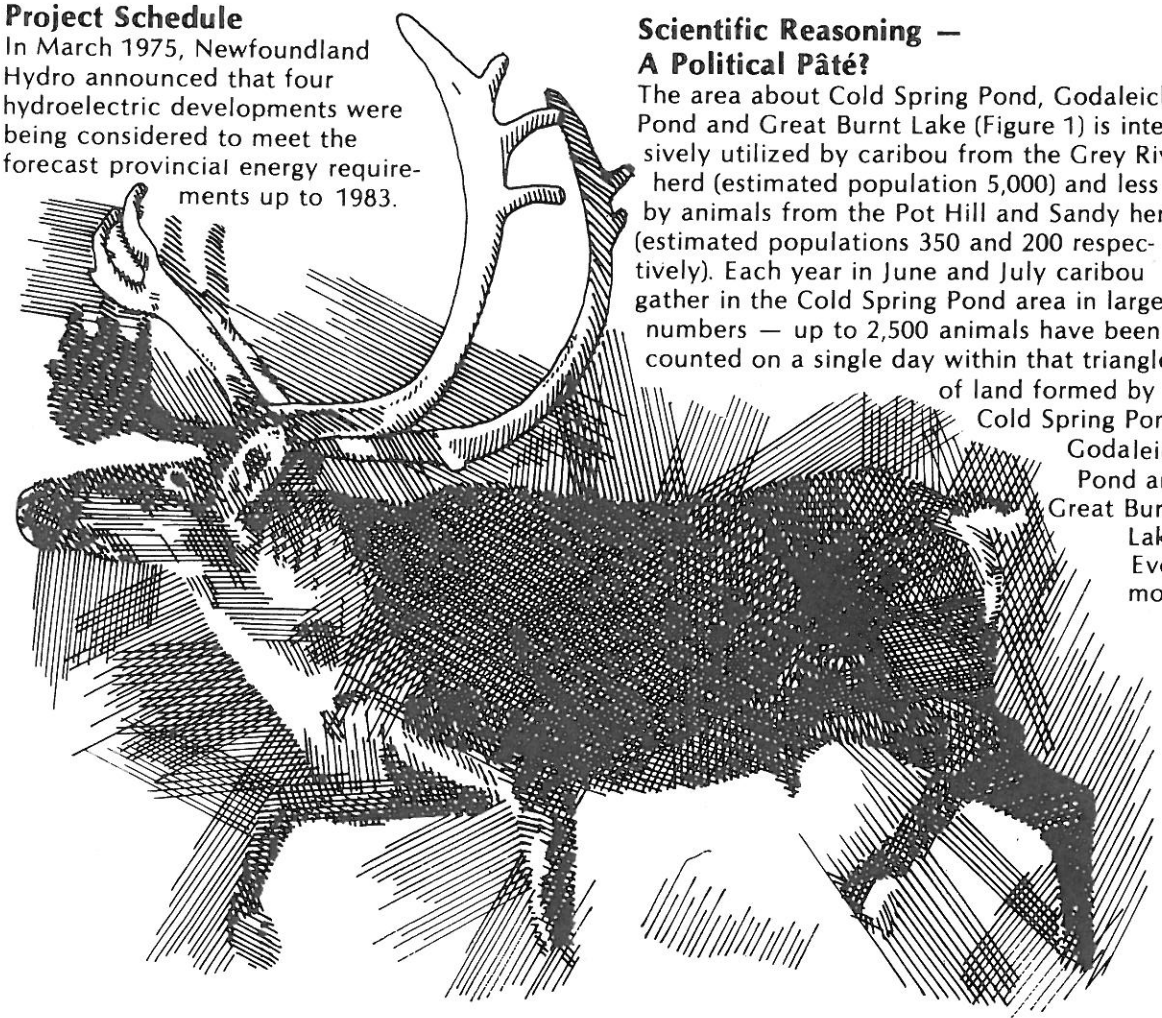
We must remember too that any management program is only as effective as its public support is strong. Increasingly our job is to enlist public interest, criticism and support, in order to impress upon sometimes lethargic proponents the value (i.e. political necessity) of demonstrating concern for the lands they develop. We also must convince elected officials of public concern and proponent responsibility and vulnerability. We "wildlife boys" of the future must be recognized for our scientific astuteness and credibility, and we must become articulate politicians, comfortable within that profession. We must make the public, the proponent and the elected official understand that we are experts in touch with the world, showing both a sociological and biological responsibility — only then will we be listened to and sought out for advice and direction. And we should be sought out, for the problems and prospects facing wildlife are best appreciated by persons trained in that field. Often, however, we fail to show confidence in our own expertise when dealing with non-scientist audiences.

What is to follow is a discussion of a resource development which, through hard discussion and pending EIS legislation, resulted in a major wildlife study of great prominence provincially and considerable attention nationally. Its history was one of difficult decisions at many government levels, with concession only at the point of no recourse. We as wildlife managers had to muster the most support that was politically practicable at every step of the way. Further, there developed out of these hard, indeed sometimes acrimonious discussions, a cooperative effort by the proponent, Newfoundland Hydro, and the Newfoundland Wildlife Division which I believe is exemplary. The Upper Salmon caribou project served to convince Newfoundland Hydro that provincial wildlife managers were serious about environment protection and that half measures weren't good enough. It also served

to educate particularly the non-biologist members of their corporation in the environmental impact problems of this province and assisted in developing their environmental awareness. This is no small victory — Newfoundland Hydro is a frequent player in this new polito-social game. Their roster now includes several biologists whose difficult job is to protect both the environment and their employer's interest. Even more importantly, political leaders who were involved had to consider, if not accept, our advice before approval was granted. The discussion to follow involves woodland caribou and a hydro project, but the principles apply equally well to any other species and any other kind of resource development.

Project Schedule

In March 1975, Newfoundland Hydro announced that four hydroelectric developments were being considered to meet the forecast provincial energy requirements up to 1983.



The Newfoundland Wildlife Division and two outside consultants identified serious potential impacts on wildlife, especially woodland caribou *(Rangifer tarandus caribou)* as a result of the Upper Salmon project (Figure 1). As a result it was decided that an in depth study of caribou populations in that area should be carried out. This was identified in the provincial government's Order In Council and in April 1979, a cooperative study by the Newfoundland Wildlife Division and Newfoundland Hydro was initiated to provide essential baseline data on these caribou populations and to identify development impacts and suggest throughout the course of the project, appropriate mitigation measures.

Scientific Reasoning — A Political Pâté?

The area about Cold Spring Pond, Godaleich Pond and Great Burnt Lake (Figure 1) is intensively utilized by caribou from the Grey River herd (estimated population 5,000) and less so by animals from the Pot Hill and Sandy herds (estimated populations 350 and 200 respectively). Each year in June and July caribou gather in the Cold Spring Pond area in large numbers — up to 2,500 animals have been counted on a single day within that triangle of land formed by Cold Spring Pond, Godaleich Pond and Great Burnt Lake. Even more

important and of greater concern, however were the reasons for such concentration.

Herein, of course, lay the crux of our political maneuverability. Our job was to clearly articulate the following reasoning not only to superior decision makers of government but also to the proponent and the general public.

This early summer grouping of animals is termed the post-calving aggregation. Composed largely of cows and young calves, this slow moving assemblage is characteristic of caribou populations everywhere. It is believed to arise from the intense harassment by flies and/or the presence of localized and highly nutritious food sources. Also possible is that this regrouping serves to reunite small groups of animals which have become separated during the calving activity a few weeks earlier. It is likely that an interaction of all these factors underlies the post-calving assembly, but most significant in this instance, is that of tens of thousands of square kilometers of range, only the Upper Salmon area is currently used by the Grey River and some of the Sandy caribou for this purpose. Also, the Upper Salmon area is the principal route by which most Grey River and some Sandy caribou reach their summer range (Figure 1). Throughout the remainder of the year, and including the fall rutting period, smaller numbers of caribou may be found in the area. During some years a limited amount of calving takes place near Cold Spring Pond.

Thus, the Wildlife Division's concern was that if animals continued their traditional movements, they would encounter roads, transmission lines, heavy equipment operation, human predators, dykes, flooding and canals. Studies in other regions of the world have shown that these activities can, directly or indirectly, result in loss of range (through interruption of migration), increased "costs of living" (i.e. greater energy requirements) and even population declines in caribou.

In Norway, for example, a herd of wild reindeer suffered a loss of range as a result of the construction and use of highway and railroad in their winter range. Caribou in Alaska showed little inclination to cross over or under simulated pipelines strung across their migration routes; the majority of animals did not cross these structures. Other Alaskan caribou populations have deserted calving range and insect relief areas as a result of oil development activitities in Prudhoe Bay. Circumstantial evidence from both Alaska and Newfoundland suggests that roads and related disturbance may have contributed to declines in caribou populations and/or altered their distributions. Thus, in Alaska, four herds whose ranges were traversed by roads all experienced population declines. To date, however, it has not been determined how important the disruption of movements by these transportation corridors has been in each decline. Here in Newfoundland our caribou show a distribution which appears to reflect avoidance of roads and associated disturbance with some few notable exceptions.

We also emphasized that roads and other human disturbance can detrimentally affect caribou in a less direct fashion. Caribou select different habitats during the year in response to a distinct seasonal preference for certain food plants and to avoid predators, flies and heat stress. We assume that the main goal of this strategy is to maximize the amount of energy they are taking in and to minimize the amount they lose. In winter time, caribou, like many other large northern species, expend more energy than they take in with their food. This would lead to starvation except that they have evolved the capacity to deposit large amounts of fat beneath the skin and amongst and on the internal organs. By burning this energy bank they correct their energy deficit and survive through the winter period. This deposit of fat is *not* a luxury but is a basic armament of survival and without it such animals cannot survive, much less reproduce. Its deposition occurs primarily during the months of June-September when, by exercising this strategy (see above) of varied habitat use they continually feed on the most nutritious forage.

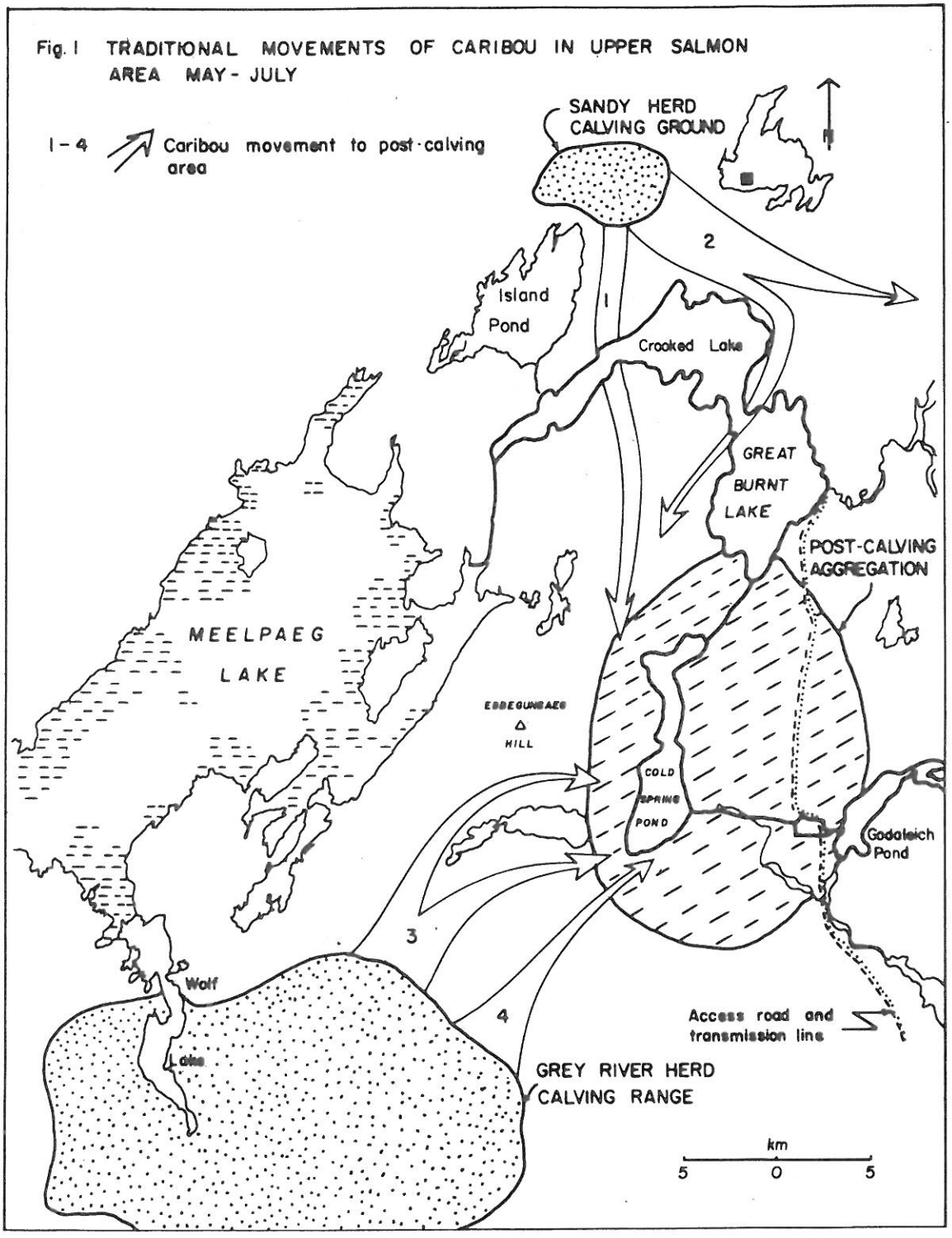
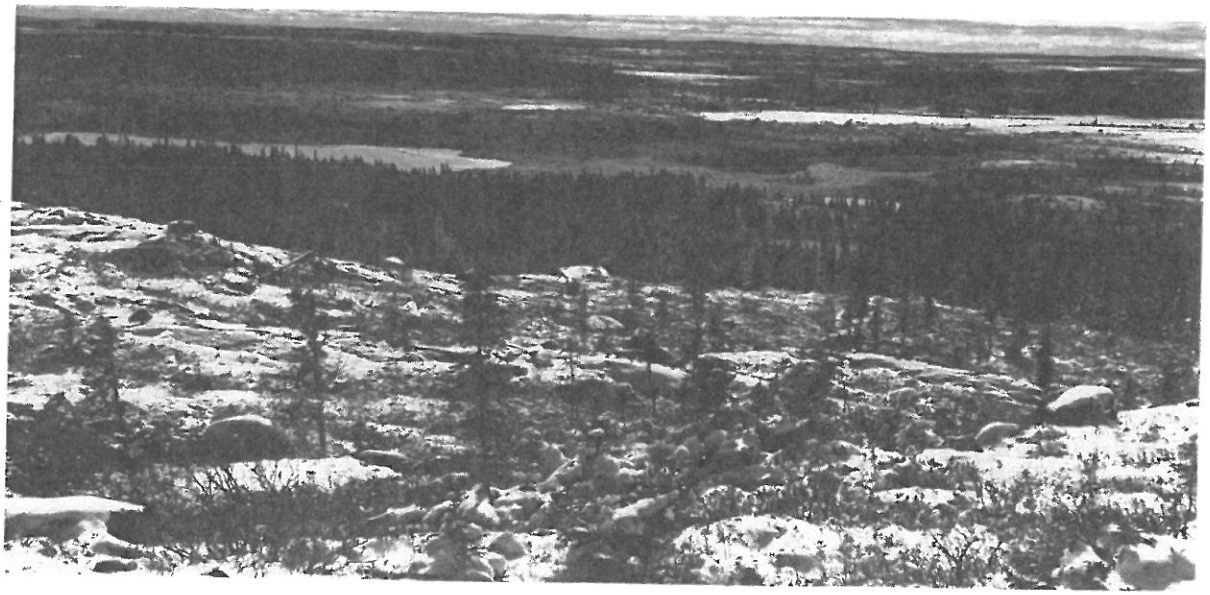


Fig. I TRADITIONAL MOVEMENTS OF CARIBOU IN UPPER SALMON AREA MAY - JULY
1 - 4 Caribou movement to post-calving area
SANDY HERD CALVING GROUND
N
2
1
Island Pond
Crooked Lake
GREAT BURNT LAKE
POST-CALVING AGGREGATION
MEELPAEG LAKE
ESSEGUNDAEG HILL
COLD SPRING POND
Godaleich Pond
3
4
Wolf
Lake
Access road and transmission line
GREY RIVER HERD CALVING RANGE
km
5 0 5

The exhausted state of caribou at the end of a hard winter demonstrates the fine line between survival and death. Sometimes animals do not meet their energy requirements — Grey River caribou have starved to death during hard winters. Thus every hour of feeding is important and every hour lost from feeding is twice detrimental a) because the animals are not gaining energy if they are not taking in any food and b) because in all likelihood they are expending more energy in the harassment induced activity than they would have during undisturbed feeding. Our extension of this argument was that the repeated interruption of normal caribou resting and feeding patterns by motor vehicles, aircraft or other human activities is not so harmless as it might appear to the casual observer. We emphasized to all parties that biologists were not simply concerned that construction personnel and equipment at the Upper Salmon project might frighten caribou — but rather the impairment to a finely tuned energy budget which such reactions can represent. Such impact, if sufficient in intensity and duration, could eventually result in decreased calf survival and productivity. Additionally, we were concerned that if caribou should cease to use the Cold Spring Pond region as a post-calving area they might be forced into less favourable habitat where insect harassment is more intense and food supplies less abundant. Furthermore, if their migration onto traditional summer range was impeded, then loss of this large area could (again) seriously impair their ability to deposit sufficient fat to survive the winter period and/or reproduce.

Of utmost importance in our estimation, and most difficult to mitigate, was the problem of improved access to the caribou's previously inaccessible range. Such access results in increased hunting pressure as well as an increase in the general utilization and/or disturbance of wildlife populations in the area. Examples of such impacts come from a variety of sources including Norway and British Columbia. The caribou population in the Ootsa Lake area of that province is a case in point. In the early 1960's a herd of approximately 500 caribou thrived there. Access for hunters was provided to the herd when a dam was built and Ootsa Lake created. The hunting season was first opened in 1954. The harvest reached a peak of at least 100 animals in 1961 and the herd started to decline in 1966. Today the herd is gone.



"Biologists today must convince elected officials, development proponents and the general public of the essentialness of wildlands preservation — and they must do so with political skill"

"How much is wildlife worth and how do you define the sacredness of it?"

Caribou, we explained, because of their low reproductive rate, cannot withstand heavy hunting. What has saved them in the past was inaccessibility. But surely, it was mentioned, it is the role of wildlife biologists to regulate the harvest so that overhunting does not take place. We acknowledged this to be true but noted that poachers pay little heed to the concerns of wildlife biologists. With access comes illegal harvest — this is a fact of life. Furthermore, the road network that now stretches into Great Burnt Lake means that even after the Upper Salmon project is completed and the road is closed (a difficult *political* decision at any rate), there will be increased human contact with wildlife populations in the area. This is because in winter time, even inexperienced skidooists can now travel deep into the heart of caribou province. The potential and realized damage to wildlife, especially the large ungulates, by snow machines, is well known. Whether we like to admit it or not, caribou, like many other wildlife species, require large tracts of undisturbed land to thrive. In this case, we argued, as we must in all future instances, that habitat of pure wilderness dimension is a critical bulwark of any large scale game management policy. Infringement upon this by any resource development can often, on the whole, be far greater than the sum of its particular impacts would initially suggest.

The Grey River Caribou Study

Previous to our current research, the Wildlife Division had performed regular inventories of the caribou populations in the south-central Newfoundland region. This new hydro development, however, necessitated a more detailed investigation of these animals. Long and sometimes difficult discussions at several levels in government were to take place before the details of this could be worked out. But eventually an acceptable study design emerged and both Hydro's and the Wildlife Division's commitment to this work were legally enshrined, at least in a broad perspective, within an Order In Council.

All parties agreed that the distribution of the three herds was a foremost concern, as this would indicate when, in what numbers, and where, the animals would interact with the Upper Salmon project. Furthermore, any change in the normal distribution pattern as a result of the construction project would be discovered only if the normal patterns of range occupancy were well defined. To identify the year round distribution of these populations, over 200 caribou were outfitted with radio collars. These animals were then

followed from fixed-wing and helicopter aircraft and by ground tracking, using antennae, electronic scanners and receivers. Literally thousands of man hours have gone into this effort. The result has been an extremely fine understanding of where caribou reside at all times of the year.

Incorporated into the study design was an ongoing program of mitigation. The Newfoundland Wildlife Division, Newfoundland Hydro and the Newfoundland Department of Environment drew up guidelines for work stoppages and operating procedures designed to reduce direct caribou/project interaction. These included the moving of men and machinery in convoys, the sloping of canals and other embankments to facilitate caribou crossing of waterways and roads, the construction of organic ramps where roads crossed caribou trail systems, the issuing of guidelines to workmen that if caribou were encountered on the road that all vehicles were to cease operation and not start again until caribou had left the right-of-way, the scarifying of roads and/or their complete resurfacing with topsoil, and the prohibiting of hunting by construction personnel or other persons within the confines of the project area. The effectiveness of these measures has not been fully appraised but indications are that at least some of the measures did assist caribou in their movements.

Evidence For Impact

While studies are continuing, some preliminary evidence does suggest that changes have occurred in caribou distribution about and through the disturbance area. In 1979 for example, before the project got underway, approximately 300 animals of the Grey River herd calved within a five kilometre radius of Cold Spring Pond. Since then calving has not occurred there. Further, hundreds of caribou moved though the project area during the fall migration of 1980, with some animals walking right through the main construction camp! Many animals approaching that year detoured, as have almost all animals in the fall since. As well, in June and July 1981, only 18 of 33 (54.5%) observed caribou road-crossing attempts were successful, one (3%) was partially successful when two-thirds of the company crossed the road and one-third turned back and 14 (42.4%) were unsuccessful. Furthermore, whenever animals encountered the road, they were alert and often hesitant: they reacted most strongly to road and vehicle disturbance (10/14 = 71.4% of the recorded failures), but in other cases (2/14 = 14.3%) the road itself appeared sufficient to halt animal movement. Also, in both 1981 and 1982, up to 2,000 caribou assembled within a kilometre of the development access road but did not cross it during either year until a complete three day work stoppage was instated.

The evidence to date does not, however, indicate the project as a direct cause of caribou mortality. As well, caribou have continued through 1982 to use the Cold Spring Pond area as post-calving staging habitat, although very localized alterations in distribution may yet be deciphered. And furthermore it must be acknowledged that the above evidence is largely circumstantial and cause and effect relationships must be delineated with due caution.

Conclusions

Whether or not the Upper Salmon hydro project will have lasting impact on resident caribou populations, time and the Wildlife Division's research will tell. Our intention all along has been to use such results to better design resource developments of the future and to eliminate or reduce the impacts of such developments on the wildlife resource. However, this project has already been of tremendous importance to the environmental movement in this province. It has set provincial precedents for active proponent participation in Wildlife studies (an arrangement of great success in my estimation) and it has been of great educational value both for us as wildlife managers cradling infant EIS legislation and for the proponent wondering aloud at this new and considerable additional cost of development. But most importantly it has convinced me that our future successes as wildlife managers will depend more and more on our astuteness as active political scientists.

Today's wilderness experiences are still, to a large degree, currency of passive investment. We cherish relatively few such phenomena which exist by our active lobbying and relatively many which are due to inaccessibility and geographic positioning. However, this has begun, and will continue, to change. True wild areas and, by inescapable definition, true wildlife experiences, are becoming ever rarer in a world of shrinking dimensions. Our expanding population with its exponential hunger for the world's resources pushes inexorably towards a time of heightened confrontation — those unpalatable moments when decisions of principle are rendered in the face of ever mounting economic pressures. Unquestionably, wildlife management of the future will be political.

As a biologist today, one requires working knowledge of emotional persuasion (how do you define the sacredness of wilderness?) and the begetting and exercising of power. For wildlife management is now more than ever both a science and an art — our tiled lecture halls and all other jaded cloaks of academia may indeed invest in us the conscience of a scientist, but the art has been and will remain largely a matter of experience and inherent ability.

Wildlife management in Newfoundland is challenging us to become better biopoliticians — failure to do so will render us and the wildlife resource extravagant. Here as elsewhere, the environmental movement will play an even larger role in the future than in the past and our profession will develop a much more reactive personality. This will occur not because it is necessarily correct but because it is, simply, necessary.

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