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WILDLIFE IN CANADA

(Based on a paper prepared by the Canadian Wildlife Service)

When the first Europeans came to colonize the new lands of North America they found wild resources beyond their experience. Dense forests stretched back from the shoreline pierced by rivers rich in fish. Deer, bear, elk, wild turkeys and buffalo were plentiful, and overhead great flights of ducks, geese, passenger pigeons and other edible birds cleaved the air. We know now - human tendencies toward exaggeration and unscientific observation being what they are - that the first settlers overestimated the quantity of wildlife. But game and fish were certainly available in large numbers to people who had never had an opportunity to hunt and fish legally before.

Necessity forced the colonists to clear and break the land and sow crops. Wildlife, like the forests and the Indians, was in part an impediment, if not a threat, to the establishment of stable, peaceful settlements. But strange and disturbing as this new North American environment was to the new immigrant, he could not fail to realize that here were new liberties that his former life had not offered. Here wildlife was free to anyone. No royal prerogatives or social distinctions restricted a man's right to hunt and fish as he pleased. This conception of wildlife as a resource for all people to use and enjoy remains today as a tradition in the public attitude to fish and game.

The impact of settlement on North America's wildlife was apparent from the early seventeenth century. The advance of agriculture inland from the eastern coasts reduced the wildlife in many regions. Species that endangered human life or crops were slaughtered, while others were dispossessed of their habitats; fur-bearing animals were trapped relentlessly to supply the large market in furs that had been established by European fashion.

Growth of the Fur-Trade

The fur-trade was of far-reaching significance in the uneasy relation between wildlife and man on the North American continent. It placed the continent's fur-bearing animals at the mercy of voracious commercial demands. The beaver, the most eagerly sought animal, was trapped relentlessly so that the gentlemen of Europe might be properly hatted. Even in the early 1600s, the de Caens were

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shipping as many as 22,000 beaver skins a year from Canada to France. By 1743, the combined export by British and French fur-traders was in excess of 150,000 beaver pelts a year, as well as large numbers of other skins like marten, otter, and fisher.

The impact of the fur-trade was felt for more than three centuries. In pursuit of new and unexploited fur resources the traders moved ever deeper into the land, acquiring in the process geographical knowledge that prepared the way for detailed exploration and settlement. The Indians and Eskimos became willing participants in the trade and with the more efficient weapons they obtained in barter for their furs they developed into destroyers of wildlife almost as efficient as the white men with whom they dealt.

In fairness it should be stated that not all fur-traders were unaware of the need to conserve game resources. The Hudson's Bay Company, for example, sold only single-shot rifles to Indians, and imposed restrictions on their fur take when it became apparent that the beaver population was being depleted. Nor were all Indians and Eskimos eager to trap more animals than they required to barter for essential trade goods.

While the trade had a great effect on exploration and on economic and social development, its influence on the country's wildlife was far from salutary. Over-trapping was the vice of the fur-trade, and its effect first became evident in a large decline in the beaver population. But there were other human activities that caused even greater destruction.

Nineteenth Century Destruction

Agriculture, developing after the fur-trade, often upset the soil cover and the natural plant growth on which the wild animals depended, and destroyed the specialized ranges and habitats of many mammals and birds. A mentality that justified the extermination of wildlife on economic grounds alone dominated the continent in the first half of the nineteenth century. At least the fur-traders were practical businessmen, who realized that there were limits to the fur-bearing crop they harvested. No considerations of economics and common sense restricted the individuals who now seemed determined to destroy any wildlife species of value. They shot the buffalo for hides and tongues, wildfowl for the food market, birds with bright feathers for the milliners. The exploitation of wildlife that began with the fur-trade reached its climax in the slaughter of the last herds of plains bison late in the nineteenth century.

As the last loads of buffalo bones rolled eastward to be manufactured into fertilizer, a few thoughtful people took stock of the ravages that had been committed on nature's creatures by civilized man. It was a melancholy inventory. In less than 300 years, men had destroyed more than they could replace. Birds like the passenger pigeon, the auk, and the Labrador duck had been totally destroyed; many hoofed animals, such as the bighorn sheep, the antelope and the musk-ox, seemed destined to become curiosities like the buffalo; fur seals, whales and walrus had been depleted. Not only had men nearly wiped out many creatures: they had also invaded the natural homes of the mammals, frightening away some species by their presence and then burning or cutting the forests, diverting and fouling the streams, changing the face of the land until little refuge was left for the wildlife to recover in relative security.

Earliest Conservationists

The men who scanned the dismal history of wildlife destruction were the continent's first conservationists. They evolved the principle that the renewable natural resources of wildlife, forests, water and land should be protected and that their use should, in some degree, be regulated - if for no other reason, so that man might be saved from the results of his own folly. Land and water, with their plants and wildlife, were recognized by a few as resources that were not unlimited, and as elements that should be dealt with, not simply for the benefit and appetite of the current generation, but in a fashion that would preserve them also for future generations.

Unfortunately, public opinion was slow to recognize the basic importance of these principles. The doctrines of the laissez-faire economists, the desires of the promoters and industrialists of the day, and the tradition of a limitless continent and open frontier were too strong a combination. It was not until late in the last century that the people, and hence their governments, began to give even an element of acceptance to the conservation of renewable resources and, as a part of that idea, to the protection of wildlife.

Establishment of National Parks

This was given a practical demonstration in Canada by passage of the first provincial game acts and the establishment of national parks. The first such Canadian park, now Banff National Park, was established in the Rocky Mountains in 1887. The primary purpose of national parks was not to protect wildlife alone. Birds and animals were considered only as an important part of a natural heritage that should be preserved for people to enjoy and appreciate. However, in effect, national parks are preserves in which species native to those areas live a free and protected life.

Outside the national parks, wildlife, with one exception, had been considered the legislative responsibility of the provincial and territorial governments. They enact, administer and enforce the laws and regulations respecting hunting, trapping, and other activities that affect wild mammals.

The exception is the federal responsibility for migratory birds resulting from the Migratory Birds Treaty of 1916 between Canada and the United States. This Treaty recognized the value of wild birds as food and as eaters of insects harmful to agriculture, and was directed at providing more effective protection than was possible under unco-ordinated provincial and state laws or under the laws of either country alone.

The Migratory Birds Treaty listed those groups of birds that were to be protected by the two countries. Song birds, and others that helped the farmers by destroying harmful insects, were to be protected completely, and those that were game birds were safeguarded by hunting regulations revised each year.



Under the Treaty, the Federal Governments of Canada and the United States, after consultation with the states and provinces, set bag limits. Season lengths can also be set within certain outside limits prescribed by the Treaty. Within that framework, the states and provinces may add other waterfowl restrictions if they so desire. The prohibition of hunting on Sunday is an example of a provincial regulation that is found in some provinces, but not in all. Enforcement of the migratory bird regulations in Canada is the responsibility of the Royal Canadian Mounted Police.

In Canada federal-provincial wildlife conferences are held annually, where delegates of provincial and federal game agencies meet to co-ordinate their activities. The success of the conferences has been shown by their expansion to include discussion of technical problems of game-management, after the more routine details of co-ordinating waterfowl seasons have been completed. Subjects considered vary widely. Recently, for example, they have included co-operative caribou studies, interprovincial shipment of live game, effect of pesticides on wildlife, and the marketing of wild furs.

Canadian Wildlife Service

The Canadian Wildlife Service, which has developed from a migratory birds section in the National Parks Branch, has certain clearly defined and generally accepted responsibilities. Besides its work with migratory birds, it advises other federal agencies on wildlife in federal areas, and the territorial governments on wildlife in the Yukon and Northwest Territories, advises the Federal Government generally on wildlife resources, and carries out related research.

As a result, it acquires and distributes much information useful to managers of the wildlife resource. Research findings are made available in a series of reports. Informative pamphlets are issued as the need arises. A series of translations of Russian papers on game management and research was instituted at the request of the provinces. A new series of monographs has been started. In contrast to the reports which deal with individual studies, the monographs are exhaustive treatises on wildlife subjects.

Over 60 biologists are employed by the Canadian Wildlife Service, about one-quarter assigned exclusively to research in Northern Canada and the remainder distributed among research projects in other parts of the country. The biologists work in three sections, concerned with migratory birds, mammals, and fish. The ornithologists work in close association with the provincial governments, Ducks Unlimited (Canada), and the U.S. Fish and Wildlife Service. The mammalogists concentrate on the mammals of the national parks and the northern territories, co-operating closely with the territorial governments and other agencies. Because sport fishing is such an important activity in national parks, biologists carry out research in support of fish management programmes and investigate special problems caused by blood-sucking insects and algae. These, if unchecked, create unfavourable conditions for swimmers, fishermen, and other parks visitors. Control measures must be handled carefully if wildlife is not to be harmed.

The provinces carry the chief responsibility in the management of wildlife resources. They develop and enforce the regulations which affect the majority of hunters, trappers, and fresh water fishermen. This involves difficult problems in balancing the interest of sportsmen, naturalists, farmers and stockmen, and other groups of people with special concerns. It is not easy to secure the optimum economic and recreational benefits of wildlife for residents and their visitors.

Regulations cannot be effective without public understanding and sympathy. This implies that the rules must be based upon a solid foundation of practical information gained through research. It also implies effective public education programmes.

Each province has established a department responsible for the administration of wildlife resources, often in association with other renewable resources such as forests. The progress made in wildlife management reflects the competence of these agencies and the effectiveness of their personnel engaged in research, enforcement, and education.

Provincial and federal wildlife activities are supplemented by a great number of private and public associations active in wildlife conservation. Fish and game associations composed of hunters and fishermen study and practise wildlife conservation with intense interest. Provincial federations of fish and game clubs now have a national voice in Ottawa, the Canadian Wildlife Federation. Youth organizations like, the Boy Scouts and the Girl Guides, introduce their members to wildlife conservation as part of their experience of the outdoors.

The Canadian Audubon Society fosters a deeper appreciation of bird life and supports measures for its protection. Provincial museums and the National Museum of Canada stimulate public interest in animals, fish and birds and carry out basic biological and taxonomic research.

All these agencies - federal, provincial, or private - are closely concerned with aspects of wildlife management. Effective co-operation between them is essential in dealing with many wildlife problems. This co-operation has been achieved not only through formal meetings like the annual Federal-Provincial Wildlife Conference, but also through the development of effective working arrangements to exchange information and co-ordinate activities. For example, the Canadian Wildlife Service publishes a directory to wildlife research projects being carried out by the Service and provincial game agencies.

A survey of the economic aspects of fishing and hunting in Canada was carried out by the Canadian Wildlife Service in 1961. It revealed that 12.6 per cent of Canadians over 14 hunted or fished or both that year, and spent a total of \$275 million on equipment, licences, travel, accommodation, and supplies. Hunting and fishing provided 31 million days of recreation. Non-resident hunters provide significant additional revenue.

The economic value of Canada's wildlife resources in relation to other recreations such as photography, nature study, and casual sightseeing is difficult to estimate, but it probably exceeds that of fishing and hunting. For thousands of people it is a rare privilege to observe a wild animal or bird in its natural surroundings and preserve that memory on film. Interest in wildlife for its beauty and grace and novelty alone is growing and is a factor that cannot be dismissed in any assessment of wildlife's value to Canada's economy.

While recreation appears to be the major use for wildlife, many Canadians still rely directly on game for their livelihood and even for their existence. Fur-trapping is still an important occupation in Canada. In 1964-65, Canadian wild-fur sales totalled more than \$15.2 million. Many Eskimos and Indians earn their livelihood from fur-trapping and they need wildlife for food and clothing. Much of the economic and social difficulty that has been experienced by some groups of Eskimos stems directly from a decline in the number of caribou, which had provided meat for food, hides for warm clothing, and bone for implements.

Wildlife also controls insects and small mammals which damage crops. The coyote preys on the field-mouse and the extent of his control is only being properly appreciated now that he has been killed off in western agricultural areas by an extensive poisoning programme. Birds feed on a great many insects that harm agricultural production and damage and kill commercial timber stands and shade-trees.

The main objective of Canadians concerned with the future of wildlife is that it should be managed properly as a renewable natural resource of great value. As a natural resource it should not be regarded as a competitor of other resources for attention but as an integral part of the whole complex of natural resources that are of value and benefit to man. The relation between resources is a difficult subject to understand and man's attempts to put comparative artificial valuations on resources have complicated the subject further.

The "Resources for Tomorrow" Conference held in Montreal in 1961 was attended by delegates from industry, the federal and provincial governments, sportsmen's groups, and universities. It was mentioned again and again that, because of more leisure time, the public's use of renewable resources, such as wildlife, was increasing at a greater rate than Canada's population growth. Representatives of agriculture, water resources, regional development, forestry, recreation, fisheries, and wildlife all said that more emphasis must be placed on research if the different users were to enjoy the benefits which could accrue from the only sensible course of action - planned multiple use of renewable resources.

Wildlife management in Canada must place stress on the preservation of natural habitat as much as it stresses the preservation of the mammals and fish which live there. A wild animal and its surroundings cannot be separated; one cannot be preserved without preserving the other.

Management must also solve the problems arising, ironically, from under-use of wildlife. The scientific training and practical experience of the wildlife biologist may enable him to effect increases in wildlife population, but as yet he has only a very limited knowledge of rational and acceptable methods of influencing men to harvest a surplus wildlife crop. As in many other fields, technology has surpassed man's progress in managing his own affairs, and created disturbing new problems. The early conservationists would indeed be disillusioned to discover that the modern wildlife scientist is as often concerned with a surplus of some species of mammal as he is with the preservation of a rare species threatened with extinction.

The dynamism of wildlife is often not appreciated. The creatures of the wild concentrate their energy on reproduction and the care and upbringing of their young. This is a tremendous force, causing many species to multiply so rapidly that the problem may easily become one of over-population and control instead of protection. Changes in habitat intensify this effect. The replacement of evergreen by deciduous forests in British Columbia benefited moose and, with plentiful food, they multiplied until their population exceeded the land's capacity to support them. Similarly beaver flourish when deciduous forests are present and decline when the evergreens become dominant.

With protection and suitable habitat, the beaver, for example, more than recovered from over-trapping and is present in numbers probably greater than at the height of the fur-trade. About 1930 Grey Owl, the great friend of the beaver, started a colony in Prince Albert National Park with two beavers, Jelly Roll and Rawhide; today the Park, which was almost empty of beaver in 1930, contains many thousands of the hard-working creatures - a population too large to be treated with indifference by park officers. Even in densely populated urban areas, beavers flourish. Within a short drive of Ottawa there are so many beaver that several farmers make a respectable part-time income from trapping for their pelts.

This ability of wildlife to recover quickly from losses and exploitation brings other problems to wildlife officers besides those of over-population. Because most wild species are not easily seen, they can multiply rapidly before their increase is detected. This necessitates careful and frequent inventories. Unlike other resources, an estimate of quantity does not last long. Inventories must be repeated frequently lest significant population changes pass unnoted.

Research is, of course, basic to any improvements in wildlife management. One relatively neglected area is the pathology and diseases of wildlife. Another is the effect of chemical control agents such as insecticides. U.S. Fish and Wildlife investigators have found that quail are unable to reproduce adequately when insecticides have been introduced in their environment; insecticides may have a more destructive effect on game birds than they are already known to have on fish. The responsibility for increased research will be that of the wildlife biologists; this handful of scientific investigators and advisers will have to be strengthened and given more public backing if they are to provide the sound factual basis for improved wildlife management programmes.

Canada's wildlife is far from a passing phenomenon, a resource that had only temporary value during earlier stages of economic and social progress. In contemporary life the creatures of air, field, forest and stream are a vital natural resource, as worthy of being managed scientifically and administered wisely as of being preserved humanely. Conservation in the modern wildlife context is a combination of scientific research and practical management based on informed public support and co-operation. It calls for close teamwork between conservation officer, scientist, administrator and particularly the citizen, who has a responsible position on the conservation team.

The Canadian Wildlife Service carries out both wildlife research and management. As a branch of the Department of Indian Affairs and Northern Development, it is entrusted with federal responsibilities for wildlife, a renewable resource of ever-increasing importance to the national welfare and economy.

Each province has control over the natural resources within its boundaries, including wildlife. However, because Canada signed the Migratory Birds Treaty with the United States in 1916, there is a federal responsibility for the management and protection of migratory birds. The Canadian Wildlife Service administers the Act for the Federal Government. In practice, federal and provincial governments co-operate in all matters concerning migratory birds. The Canadian Wildlife Service studies migratory birds throughout Canada and conducts scientific research into other wildlife problems in the Northwest Territories, the Yukon Territory, and Canada's national parks; it also co-operates with the administrative agencies concerned when wildlife-management programmes indicated by research are instituted.

The Wildlife Service staff includes mammalogists, ornithologists, limnologists, pathologists, a pesticide investigator and a biometrician.

The Service administers 94 migratory bird sanctuaries throughout Canada. These are largely for water-fowl that may be hunted elsewhere in season.

In 1966 a "National Wildlife Policy and Programme" was tabled in the House of Commons. Its purpose is to translate national concern about wildlife into guidelines for co-ordinated action by Canada and the provinces.

The policy and programme have been developed to meet needs expressed by conservationists and wildlife officials throughout Canada and in accordance with principles generally endorsed by the Canadian Council of Resource Ministers, the 1965 Federal-Provincial Wildlife Conference, and the Prime Ministers' and Premiers' Conference in July 1965.