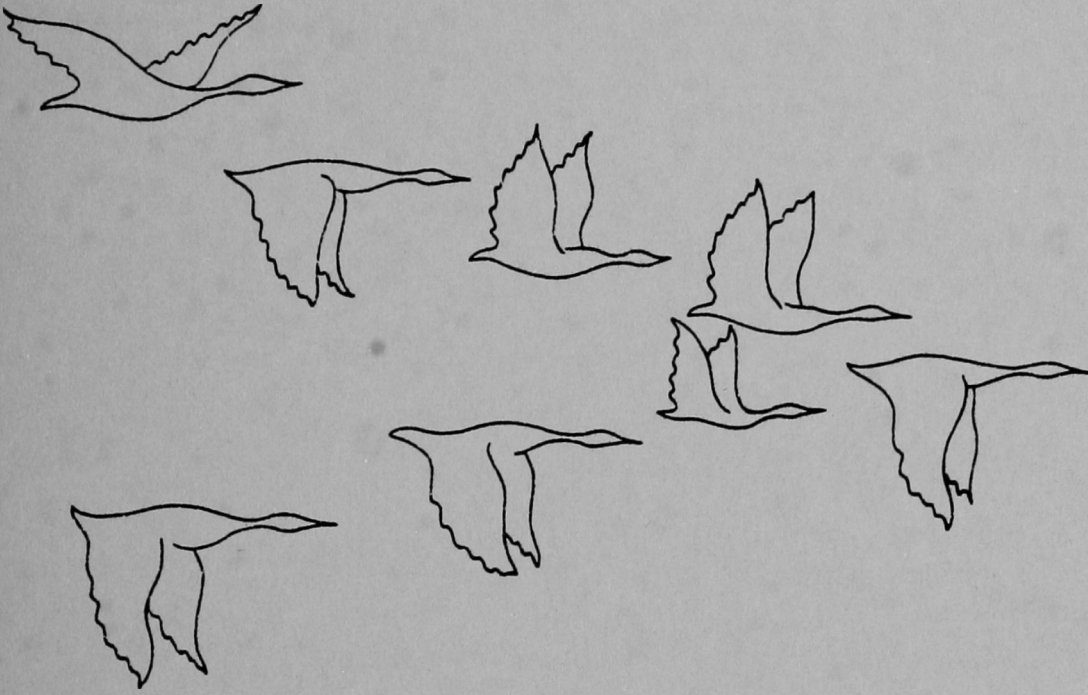


Annual Review
1982-1983



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Canadian Wildlife Service

Canada

CANADIAN WILDLIFE SERVICE

The Canadian Wildlife Service (CWS) is part of Environment Canada, a federal department, and is responsible for the protection and management of migratory birds through development of regulations, habitat management and supporting research and surveys. With the provinces and territories, the Service undertakes programs of research and management related to other wildlife where there is a national interest. CWS also runs interpretation programs in five of Canada's wildlife regions. CWS carries out wildlife research for Parks Canada and advises other federal agencies on wildlife matters. CWS participates in international agreements and programs on wildlife conservation.

Administratively, CWS is organized into a Headquarters Office in Hull, Québec, and five regional offices: Atlantic (Sackville, New Brunswick); Québec (Ste-Foy); Ontario (Ottawa); Western and Northern (Edmonton, Alberta); and Pacific and Yukon (Delta, British Columbia).

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MIGRATORY BIRDS CONSERVATION PROGRAM

The Migratory Birds Conservation Program is the largest within CWS and encompasses a broad range of activities directed towards the conservation and management of migratory bird species. Total resources dedicated to this program approximated 190 person years and \$10.5 million.

This report documents some of the important initiatives and accomplishments during the 1982-83 year but it does not attempt to provide a complete account of CWS activities within the program. Highlights of national programs are first presented followed by accounts of regional activities.

Harvest Management

In 1982-83, a total of 466 000 Migratory Game Bird Hunting Permits were sold, which is approximately the same number as in 1981-82. The only significant change was in Ontario where there was a noticeable increase in the number of hunters.

The 1982-83 year marked the fourth year of the program of stabilized hunting regulations in Canada. Regulations were stabilized by agreement with the provinces and the U.S. federal and state governments in order to allow intensified studies to assess the impact of hunting regulations on game bird populations. In Canada, the primary focus has been on the Prairies where intensified survey and banding programs have been initiated together with a major study of hunter performance.

The CWS participated in the funding of the Baffin Region Inuit Association study to assess the harvest of wildlife by Inuit in the eastern Arctic. The study is designed to provide detailed information on the harvest of all wildlife species by each community. This information will prove invaluable to the management of important migratory bird populations. The CWS also participated in the launching of a similar major study by the Keewatin Inuit Association in central Northwest Territories (NWT). This was the first year of a project which will last at least 3 years. In 1982-83, the results of the first major native harvesting study were published for the Cree of northern Québec and discussions have begun towards implementation of the guaranteed level of harvest provisions as specified in the James Bay and Northern Québec Agreement.

In 1979, Canada and the U.S. federal government signed a Protocol to amend the Migratory Birds Convention to allow a regulated spring hunt by native subsistence hunters in Canada. To date, the Protocol has not been ratified by the U.S. Senate and it is therefore yet to take effect

in either country in 1982. The CWS and U.S. Fish and Wildlife Service agreed to develop a "negotiation report" which will specify in more detail how the Protocol will be implemented in each country and which will hopefully satisfy the requirements of the U.S. Senate. The negotiation report should be prepared in 1983 following a period of consultations.

Habitat Protection

In 1982, Canada hosted the International Waterfowl Research Bureau (IWRB) annual meeting and took advantage of the opportunity to announce that we were dedicating 14 new areas as Wetlands of International Importance pursuant to the terms of RAMSAR Convention. The sites encompass some 10.6 million hectares and puts Canada first among nations in its commitment to protect major wetlands. The dedicated wetlands are listed on page 7(a).

The small CWS land acquisition budget was bolstered by contributions from Ducks Unlimited (DU) in 1982. Most of the activity was confined to infilling of existing National Wildlife Areas (Stalwart, Baie de l'Isle Verte, Lac St. François, Port L'Hébert) but one new project was initiated at Isles de la Girardeau in Québec. The total area acquired was approximately 557 hectares.

Canada also entered its first formal agreements with DU for the development and management of National Wildlife Areas. Management agreements were signed for two areas in the Atlantic Region, two in the Québec Region and one in Ontario. Management plans were prepared for each of these areas and good progress was made on the preparation of management plans for all National Wildlife Areas. The management plan for Long Point NWA was completed.

THE CWS began a process for objectively rating and ranking habitats of extreme importance to migratory birds which may be protected through acquisition. A rating scheme was developed for southern Canada and is currently being tested. For the N.W.T. and Yukon, CWS participated in the development of the publication DOE Areas of Interest in the North, which identified 136 sites of special importance to migratory birds. In 1983, CWS plans to publish a list of sites which it may be interested in managing as NWAs or sanctuaries.

The Wetland Mapping and Designation Program marked its third year by completing the mapping and rating of wetlands in Nova Scotia and P.E.I. In Ontario, the First edition of an evaluation scheme for southern Ontario wetlands was completed. In 1983, CWS will fund

continued testing of the capabilities and limitations of the system while other agencies and groups within the province are beginning implementation.

In Prairie Canada, the continued loss of small wetlands and associated uplands due to agricultural practices is now clearly having a noticeable impact on several important duck populations, including mallard, pintail and blue-winged teal. It is now obvious that, unless CWS and other groups and agencies resolve to find and take remedial measures, these duck populations will continue to decline and will likely maintain themselves at well below historical levels.

The federal government will be reviewing available options and determining what additional steps it can take to address this and other important habitat protection problems in 1983.

Waterfowl Management Plan

The CWS and sister provincial agencies made some progress towards the ultimate goal of developing a joint North American Waterfowl Management Plan. A new schedule was developed for completion of various specified steps in Canada by the Wildlife Ministers' Conference. Dr. Macaulay of Ducks Unlimited is serving on an interchange program to co-ordinate completion of the task.

Value of Wildlife Study

The federal and provincial governments and some other conservation groups sponsored a Statistics Canada survey of the value of wildlife to Canadians in 1982. A total of 76 000 questionnaires were completed and analysis of these data continued through 1982-83. The results will formally be presented at the 1983 Federal-Provincial Wildlife Conference.

Latin American Program

Now in its third year of operation, this program is beginning to assume a shape. The objective of the program is to undertake joint projects with Latin American and Caribbean countries to enhance the conservation of birds shared by Canada and those countries. In 1982-83, a variety of projects were sponsored including: preparation of an atlas of shorebirds in South America, winter ecology of Common Terns in Venezuela, demonstrations of cannon-netting techniques in Brazil, and

an inventory of bird species in the Antilles. A formal letter of arrangement for cooperative work was signed with Brazil and several more are anticipated in 1983.

Regional Activities

Atlantic Region

Studies of breeding and feeding ecology of seabirds continued in Hudson Strait, on the Labrador coast and in east Newfoundland. Data assembly and processing for the revised atlas of pelagic distribution of seabirds made considerable progress in the latter part of the year. Investigations of the feeding ecology and population turnover of migrant shorebirds in the area of proposed tidal power developments continued; nearly 2000 shorebirds were banded in August and September. A study of the feeding ecology of sea ducks wintering off southeastern Newfoundland was initiated.

Population surveys of breeding marine birds were continued in Nova Scotia and southwestern New Brunswick, with emphasis on eiders and terns. Monitoring of waterfowl breeding populations in the Maritimes, on an experimental scale, was begun. The scope of waterfowl banding in Labrador was expanded; although initial attempts were less successful than anticipated, the basis has been laid for more productive operations in the coming year.

The wetland inventories and atlases for Nova Scotia and Prince Edward Island were nearing completion, despite interminable delays with computerization of the data. A start was made on similar work in New Brunswick. Resource inventories continued on several National Wildlife Areas, with emphasis on waterfowl and other marsh birds at Shepody and Chignecto NWAs and on vegetation of brackish impoundments at Wallace Bay and Cape Jourimain NWAs. Land assembly continued at Port Joli NWA.

Québec Region

The five-year survey of waterfowl nesting in the sanctuaries along the north shore of the Gulf of St. Lawrence was repeated for the twelfth time since 1925.

Because of the increased interest in the Black Duck in eastern North America, an effort was made to band more of this species than previously. About three times more Black Ducks were banded than in previous years.

Studies to trace Greater Snow Geese during their migratory stops along the St. Lawrence River as well as studies to look at the effects of grazing by the geese on regeneration of the American bulrush in the Cap Tourmente NWA wetlands were continued.

Ontario Region

Full public consultation on the draft management plan for Long Point National Wildlife Area led to a final plan incorporating the results of the consultation. A number of "open house" sessions were held so that various interest groups, or other members of the public, could interact with regional habitat staff responsible for the management of Long Point. The initial open house in April 1982 featured extensive media coverage -- radio, TV, local newspapers, and was attended by regional CWS managers as well as by the Director General, Mr. Tétreault.

The nesting population of Ring-billed Gulls continued to increase rapidly in southern Ontario resulting in an increasing number of complaints about gull nuisance problems. CWS staff responded to an increasing number of complaints and public enquiries about gulls, including damage to tomato crops, earthworm depletion and flight safety problems at Ontario airports. In addition to issuing scare or kill permits to a number of farmers and airport managers, a public information brochure was prepared on gull biology and management. Progress was made in 1982 in achieving relief from gull nuisance problems at specific sites through the installation of overhead wires.

In cooperation with the Ontario Ministry of Natural Resources and with input from Lands Directorate, a wetland evaluation system for southern Ontario was developed, field tested and presented to the Ontario government. The evaluation system, which will be a major element in the Ontario wetland policy, assesses the biological attributes, social features, hydrology and special features of any particular wetland, and can produce a ranking of wetlands based on their overall value. Further field testing is scheduled for 1983-84.

CWS provided guidance, advice and financial assistance to the Ontario Breeding Bird Atlas project which finished its second year of operation. The project, sponsored by the Federation of Ontario Naturalists, uses the contributions of a network of volunteer ornithologists across Canada. The field work will continue for an additional three years, with a major atlas to be produced at the termination of the work. Knowledge of the status of migratory birds nesting in Ontario will be very significantly improved. Waterfowl breeding pair surveys were carried out by helicopter in four, 100 km on each side, survey blocks.

Knowledge of waterfowl status in northern Ontario increases with each additional set of data, and the resulting information used for improving continental management of waterfowl stocks.

Long-term studies of the impacts of boreal developments, particularly forest harvesting techniques, on migratory bird populations continue in northern Ontario, with most of the work centered on the Manitouwadge area. From this study CWS has been able to have some influence on the attitudes of the forest industry, particularly gaining acceptance of the notion that migratory birds can play a significant role in the control of forest insect pests.

Western and Northern Region

As part of the continuing efforts to protect and conserve the Whooping Crane, CWS carried out aerial surveys in 1982 to monitor cranes and nests in or near Wood Buffalo National Park. Seventeen nests (plus one suspected re-nest) were found. Single eggs were removed from 16 nests in late May, as part of a cooperative U.S.-Canada foster parent management program, and sent to Grays Lake National Wildlife Refuge in Idaho. Fourteen of 16 eggs were placed under Greater Sandhill Cranes at Grays Lake and two were given to the Patuxent Research Center in Maryland. The latter two eggs hatched successfully while eight of 14 Canadian eggs hatched in Idaho. Of these eight, only four chicks reached the flight stage. Seven juveniles were color-banded in or near Wood Buffalo National Park during August. Six of these birds were equipped with radio transmitters, although two cranes succumbed to wolf predation.

As in 1981, the CWS cooperated with the U.S. Fish and Wildlife Service in a fall migration tracking project. Four radio-equipped juveniles were monitored during various parts of their southward migration between Wood Buffalo National Park and Aransas National Wildlife Refuge, Texas. Six juveniles (including one unbanded bird whose hatching location is unknown) safely arrived at Aransas. Two chicks, however, died on the Texas refuge during the winter. As of March 1983, 71 Whooping Cranes comprise the Wood Buffalo-Aransas population.

The peregrine experimental releases were expanded with the addition of two new release sites in the Maritimes and one new site at Cap Tourmente. A total of 77 captive-raised birds were available for release or captive breeding and were distributed across Canada to eight provinces and the two territories. Aside from the breeding success, the program achieved very promising results in experimental pairing which will be followed up in 1983. If successful, the new pairing

methods should result in increased production for the duration of the project. The first and second drafts of a Canadian Peregrine Recovery Plan were written and edited and circulated to all provinces and regions for input and revision.

Migratory bird research has focused on the relationship between populations and their habitats. Research was conducted at the St. Denis NWA on factors affecting the productivity of breeding dabbling ducks. The importance of environmental factors to the welfare of Mallards was assessed in a study of their physiological condition during drought and non-drought years. Habitat utilization by migrating and breeding shorebirds at Last Mountain Lake was studied to determine the types of areas required for these species. The impact of agricultural changes to the landscape on songbird populations in the Aspen Parkland was evaluated. Studies on crop damage caused by field feeding waterfowl was initiated last fall in an attempt to reduce this chronic problem.

The Migratory Birds Population Management Section evaluated the status and distribution of major game bird populations. The Section designed and implemented a regional waterfowl production monitoring program and assessed the status of waterfowl production habitat. The Section continued operational programs for assessing waterfowl mortality, and calculating the distribution of harvest between Canada and the United States. The program to assess Western and Northern Region hunting regulations was augmented by the implementation of several Canada-U.S. Fish and Wildlife Service cooperative ventures aimed at evaluating North American duck hunting.

Pacific and Yukon Region

Increased emphasis on coastal and seabirds has resulted in the publication of a comprehensive atlas of west coast seabirds. Field work for shorebird studies has also been completed which will make a significant scientific contribution. Recent initiatives to initiating forest bird investigations have been recognized throughout the Pacific northwest.

Once again, activities in the Creston Valley have been very successful with another excellent operational year on the Management Area. A comprehensive management strategy for the Area has been completed and accepted by the public.

First List of Canadian Wetlands Designated as
of International Importance

Site	Status	Approx. area (ha)
Mary's Point NWA, New Brunswick	National Wildlife Area	1 200
Cap Tourmente NWA, Quebec*	National Wildlife Area	2 200
Long Point NWA, Ontario	National Wildlife Area	13 730
Delta Marsh, Manitoba	Provincial Crown land	23 000
Last Mountain Lake, Saskatchewan	Migratory Bird Sanctuary and Wildlife Area	15 600
Whooping Crane Summer Range, Alberta and NWT	In and adjacent to Wood Buffalo National Park	1 689 500
Peace-Athabasca Delta, Alberta	Within Wood Buffalo National Park	321 300
Hay-Zama Lakes, Alberta	Alberta Fish and Wildlife Crown Reservation	321 300
Alaksen NWA, British Columbia	National Wildlife Area	520
Old Crow Flats, Yukon Territory	Federal Crown land	617 000
Polar Bear Pass NWA, Bathurst Island, NWT	Federal Crown land	296 000
Queen Maud Gulf MBS, Keewatin and Mackenzie, NWT	Migratory Bird Sanctuary	6 200 000
Rasmussen Lowlands, Keewatin, NWT	Federal Crown land	300 000
McConnel River MBS, Keewatin, NWT	Migratory Bird Sanctuary	32 800
Dewey Soper MBS, Franklin, NWT	Migratory Bird Sanctuary	815 900
	Total - 15 sites	10 650 050

* nominated in 1981

WILDLIFE RESEARCH AND CONSERVATION PROGRAM

Headquarters

Secretariat services were provided to the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and to the Canadian Council on Ecological Areas (CCEA).

After many months of negotiations and an outlay of \$115 000 by Environment Canada, the end came to Canada's one and only raccoon dog fur farm in December 1982 when all animals were killed and pelted. Further importations of the species into Canada are now prohibited except under federal permit.

With the incentive given by the potentially disastrous importation of raccoon dogs, a concerted effort was made to develop a new Wildlife Export-Import Act. Substantial agreement among all provinces, territories and the federal government has been reached and it looks as though, at last, the resolution of this long-standing issue is at hand.

Discussions have started once again to try to find an acceptable form of agreement with respect to the international Porcupine caribou herd.

In the field of humane trapping, the Canadian General Standards Board came to agreement on standards for mechanically powered, trigger activated humane trapping devices. It is expected that the standards will be certified by the Canadian Standards Council in 1983. We believe these to be the first standards in the world for humane trapping devices. Canada has now proposed to the International Organization for Standardization (ISO) that international standards be developed based on the Canadian model. CWS has also been an active participant in the group charged with establishing the Fur Institute of Canada.

Canada was the 1983 recipient of the Wildlife Conservation Award of the Safari Club International. The Honourable John Roberts, Minister of the Environment, accepted the award on behalf of all Canadian wildlife agencies at a ceremony in Las Vegas, Nevada, in April 1983.

In concert with the provinces and territories, a review was undertaken of the species listed in the Appendices to the Convention on International Trade in Endangered Fauna and Flora (CITES). Plans to delist several species, because they do not meet the criteria for listing, were presented to a public hearing on the subject in Ottawa, in

November 1982. It was the first public hearing held on CITES, and attracted attention from a number of non-government organizations. It is anticipated that further public hearings will become a regular part of future Canadian planning with respect to CITES.

A National Policy on Wildlife was the theme of both the 44th and 45th Federal-Provincial Wildlife Conferences. The Canadian Wildlife Service is pleased to have been able to participate with the provinces, territories and several non-government organizations in translating those theme discussions into a text which was approved by the Wildlife Ministers Conference in September 1982. The resulting publication, Guidelines for Wildlife Policy in Canada, represents a significant milestone in the history of wildlife conservation in this country, but it will require the concerted effort of governments and citizens to see that action ensues. The first evaluation of the guidelines is slated for 1987.

Atlantic Region

Cooperation was continued with Newfoundland on research on the George River caribou herd. As part of a predator study, over 50 wolf carcasses were analysed for sex, age, reproduction and condition. In cooperation with the provinces of Nova Scotia and New Brunswick, and Parks Canada, six young Peregrine Falcons were successfully released at two historic nesting sites at the head of the Bay of Fundy. Another reintroduction project, again in cooperation with Parks Canada, led to the successful release of pine marten in Terra Nova National Park. The marten were removed from one of the few remaining areas containing small populations of the species on the island of Newfoundland. That area is presently threatened by logging operations.

With over 400 000 acres of forest land sprayed for spruce budworm in New Brunswick in 1982, continued efforts were made to monitor and evaluate the effects of the chemicals used on migratory birds. Research on the inhibitory effects of the pesticides on brain cholinesterase in birds has contributed to the technique being accepted as a standard in pesticide monitoring programs.

Preliminary results of a two-year study of plantations in New Brunswick have indicated that numbers and species of wildlife in plantations up to 20 years old are not significantly different from naturally regenerating stands. The results were not conclusive, however, since earlier plantations were not managed as intensively as the more recent ones. Studies will continue in 1983-84 using radio telemetry.

Ontario Region

Forestry is a major industry and land use in central and northern Ontario, and CWS continued research on the effects of forest cutting on the boreal mammal community. It has also worked with provincial wildlife and forestry agencies, non-government groups, and the wood products industry to organize a national symposium on forestry and wildlife management. The purpose of the symposium, which is scheduled for May 1984, is to promote the integration of forestry and wildlife management in Canada.

Western and Northern Region

Polar Bear Studies

The study of the reproductive ecology of polar bears in western Hudson Bay continued through its third year with excellent results. The ecological significance of the Churchill dump as a supplemental food source to bears that feed there is being compared to bears that do not as part of long-term population studies in that area.

Nineteen polar bears were fitted with conventional radio collars in the Beaufort Sea as part of a cooperative program with the U.S. Fish and Wildlife Service and the Northwest Territories Wildlife Service.

Field studies of the Dundas polynya were continued in order to observe the behavioural and ecological relationships between polar bears, seals and walruses. A study was completed on the use of underwater vocalizations for studying the distribution of wintering pinnipeds in the High Arctic. Monitoring of seal populations in relation to industrial activity continued in the Beaufort Sea, Amundsen Gulf and Prince Albert Sound.

Caribou Research

The year 1982 marked the commencement of a new 5-year study that will assess the effects of forest fires on the movements and condition of caribou on their winter range in the southern Mackenzie District. The study is being done under the Canada-NWT cooperative agreement for research through the authority of the Canada Wildlife Act. Funding is from two federal departments but valuable field assistance is contributed by the Fort Smith Hunters and Trappers Association. The past two years have seen especially heavy burns of caribou winter range and the study is timely as a consequence.

A second year of the study of mortality of juvenile caribou from the Beverly herd was completed and plans made for a third year of investigation. This study, conducted jointly with personnel from the NWT Wildlife Service, demonstrated that predation by wolves is a significant factor in the mortality of newly born caribou calves.

Rare and Endangered Species

There have been six known mortalities of the original 28 wood bison transplanted into the Nahanni River Valley of the NWT in June 1980, of which four have been man-caused. During 1982-83, a group of 12 bison wintered in the vicinity of Fort Liard and another group of four near Nahanni Butte. Although it is not known if any of the four calves born in 1982 survived the winter, it appears that the wood bison have established a home range in the region. In December 1982, it was reported that seven wood bison that moved to British Columbia in 1980 were observed just north of Fort Nelson.

Approval in principle was reached for transfers of wood bison to Alberta and the Yukon Territory. Transfers to holding facilities in both jurisdictions could occur within the next two years.

The proposal for the introduction of wood bison into the Interlake region of Manitoba was postponed because of lack of funds. The proposal may be revived in cooperation with the Department of Indian and Northern Affairs, the Manitoba Wildlife Branch and of the Waterhen Indian Band.

The reintroduction of the swift fox into southeastern Alberta was postponed because the province of Alberta refused approval for the planned release. There are about a dozen foxes and their offspring in pens awaiting that approval so that they can be released into the wild in the Manyberries District.

The introduction of swift foxes into Manitoba and Saskatchewan has been more successful in planning, but the actual introduction must await the selection of suitable habitat in those provinces and the habituation of captive foxes to the release sites for a period of about six months.

Research in National Parks

An inventory was taken of small mammals of Elk Island National Park. Surveys were extensive and covered a wide range of species.

Riding Mountain National Park wolf and coyote studies were continued with help from outside funding. Objectives were to extend the program over time so that predator/prey responses can be studied under variable conditions within an area of no human consumption of ungulates.

A review of the status of bison in Wood Buffalo National Park was carried out in conjunction with the park staff. The project involved extensive reviews of the data base to evaluate the history, seasonal distribution and effects of environmental factors on changes in numbers of the spectacular resource within this northern park.

Limnology projects were carried out in Riding Mountain, Kootenay, Glacier, Mount Revelstoke and Jasper National Parks. Emphasis on these projects related to faunal surveys in streams and lakes and fisheries management.

Final reports on biophysical studies for Banff and Jasper National Parks were completed. Similar inventories are in progress in Kootenay, Revelstoke and Glacier National Parks. Planning was undertaken for a workshop on bear management problems in national parks.

Planning for the continuation of prescribed burn studies in Prince Albert National Park has been completed and field work will be carried out in 1983-84.

Wildlife Pathology and Parasitology

Cooperative studies on caribou calf mortality on the calving grounds of the Beverly herd, and on the reproductive condition and health status of that herd on its winter range were carried out.

Several outbreaks of disease and mortality caused by parasites and microorganisms were investigated.

Requests from CWS, Parks Canada, and other government and non-government agencies were responded to with advice and assistance on diseases and parasites of wildlife and their control, techniques for chemical restraint, and transportation, accommodation and relocation of wildlife.

Baseline studies of parasitism in caribou and wolf populations were continued.

WILDLIFE TOXICOLOGY

Headquarters

Revised guidelines on the use and acceptability of oil spill dispersants were completed with input from CWS. On the research side of this project, studies on the effect of ingested oil on seabirds showed the induction of anemia in Herring Gulls and Puffins exposed to Prudhoe Bay crude oil. It appears that the primary mechanism of toxicity is via an effect on circulating red blood cells. The results of this study have been accepted for publication in Science.

A Registry of Congenital Anomalies in colonial fish-eating birds has been established as a monitor of tetratogenic substances in the aquatic environment. The data on approximately 250 000 chicks, provided by researchers and banders, are being computerized. Indicator species have been selected which provide good geographic coverage and handled in sufficient numbers to provide a meaningful sample. These data will be subjected to detailed epidemiological analyses using methods employed by public health agencies. To date, eight distinct types of anomalies have been reported and it would appear that occurrence of one in 20 000 could be considered as a background level. Episodes where the occurrence exceeded this rate by 100 to 200 times have been reported in Lake Ontario, the Green Bay region of Lake Michigan and in Long Island Sound.

On the international scene, the final report of the Organization for Economic Cooperation and Development (OECD) Hazard Assessment Working Party on Natural Environmental Effects has been accepted by the Chemicals Group of OECD. The Data Interpretation Guides for the ecotoxicological tests have been edited after national comments had been received. Dr. Peakall was invited by the Royal Swedish Academy of Sciences to take part in a workshop to develop a list of global environmental priorities for the 1980s, both for research and management. A synopsis of this meeting is to be published in Ambio shortly.

Ontario Region

CWS continued to monitor the level of toxic substances, namely a variety of organochlorine compounds, in the eggs of Herring Gulls from the five Great Lakes. Trends continue downward in most chemicals and on most lakes. Lake Superior has proved to be a dilemma, however, because levels have not tapered off at the same rate as in the lower lakes, and

reproduction in many of the gull colonies there has been disastrous for two years in a row. We are now conducting tests to confirm the presence of several new toxicants, and this spring will conduct a detailed study to identify the cause of reproductive failure.

Western and Northern Region

The second year of a three-year study was completed to determine if SO_2 from sour gas extraction plants and acid rain SO_4 would depress concentrations of selenium in forage plants consumed by wild herbivores. Selenium data for wood bison forages were analysed. The analysis gave new insight into the potential for selenium deficiency diseases in wildlife in western Canada.

New projects concerning organochlorine contamination in grebes in the Prairies, effects of herbicides on food quality for wild herbivores and the attractiveness to birds of dimethoate bran baits for grasshopper control were commenced.

Environmental Chemistry

Dioxins continued to be the principal interest of the Environmental Chemistry Section. Eggs of several piscivorous species were screened for the presence of tetra- to octachlorodibenzodioxins: Great Blue Herons from British Columbia, Red-necked Grebes from Manitoba, Coho Salmon and Herring Gulls from Ontario, Herring Gulls from the Bay of Fundy, and a Bald Eagle from Labrador. The toxic 2,3,7,8-TCDD isomer was found in all samples at levels ranging from 8 to 264 parts per trillion. The Great Blue Heron eggs also contained detectable amounts of higher chlorinated dioxins which may have originated from chlorophenols used in the forest products industry. A joint project between CWS HQ, CWS Pacific Region and Prof. Rappe of the University of Umea, Sweden, has been approved for 1983-84 to study this hypothesis through more extensive analysis of Heron eggs and prey species.

The accumulation of organochlorines and heavy metals in Arctic marine food chains was studied in a joint project with the NWT Wildlife Service through analysis of Polar Bear livers collected by Inuit hunters in the central Arctic from Tuktoyaktuk to Lancaster Sound. Relatively uniform contamination by PCBs and cyclodiene-type pesticides was found, particularly those compounds and their metabolites related to technical chlordane. Levels of DDT-related compounds appeared to have declined significantly since a similar survey was performed by CWS in the early 1970s. Long-range transport of persistent pesticides

which have replaced DDT is therefore occurring in the Arctic by atmospheric deposition or ocean currents. Distribution of heavy metals in polar bear livers was less uniform than that of organochlorines, probably reflecting more localized geological conditions. Mercury levels were highest (up to 200 parts per million) in the Beaufort Sea and Melville Island areas, and cadmium levels were highest in the Lancaster Sound area, but always less than 1 part per million. Selenium concentrations were highly correlated to those of mercury, which probably protects the bears from mercury toxicity.

LONG-RANGE TRANSPORT OF AIRBORNE POLLUTANTS (LRTAP)

The wildlife research under LRTAP was begun in 1980 to examine the changes in food availability and habitat quality caused by acid deposition and to follow the response of wildlife in terms of numbers and diversity. The patterns of waterbird distribution in relation to water chemistry parameters have been studied in Ontario and Québec. Based on interim findings, it appears that some species such as the Black Duck may prefer less acidic habitats while the Goldeneye tends to select the more acid, fishless lakes. Acid conditions cause increased metal solubility and mobility and studies are being carried out on the levels of metals in wild mammals in acidified areas. As part of its program, an extensive literature review on the occurrence of metals in wild mammals is being undertaken. Because of the potential for sulphur to depress the availability of selenium (a trace element essential in nutrition) experiments are continuing to measure the dose-response relationship between acid rain sulphate and selenium levels in soils and plants. A well documented effect of acid rain is the leaching of aluminium into runoff which enters streams and lakes. While the impact of excessive aluminium on fish has prompted considerable study, the influence on other biota is less well understood as, for example, the potential for uptake by insects consumed by birds. A study of the effects of aluminium on the growth of juvenile Ring Doves is near completion and experiments to measure changes in productivity and egg porosity are under way.

The Working Groups set up under the U.S.-Canada Memorandum of Intent on Transboundary Air Pollution completed their third and final reports in late 1982. CWS contributed sections on the biological impacts of LRTAP to the Working Group 1 report. A Federal-Provincial LRTAP Research and Monitoring Coordinating Committee (RMCC) has been set up to continue the exchange of information on the research program and to establish the Canadian position for further negotiations on transboundary air pollution with the U.S. CWS has members nominated to the Aquatic Effects, Terrestrial Effects and Health Subgroups of RMCC.

Ontario Region

Further field data were collected to determine the possible effects of acid rain on waterfowl populations in northern Ontario. The first phase of a predictive model was developed based on waterfowl data from the 1980, 1981 and 1982 nesting seasons. Further testing and refinement of the hypotheses developed will occur in 1983 in an area significantly impacted by acid rain.

In addition, an examination of food-chain relationships has revealed that aquatic invertebrate composition is tied closely with the presence/absence of minnows, which in turn are affected by pH regimes. Waterfowl that rely heavily on invertebrates respond somewhat differently to pH shifts than do those that rely principally on fish.

Western and Northern Region

Separate projects to determine if SO_2 or acid rain SO_4 would depress foliar concentrations of selenium and change plant concentrations of other elements under field conditions were conducted for the second out of three years planned. . The status of these projects was reported in a paper entitled The Effect of SO_2 on Food Quality for Wild Herbivores (Proc. Symp. Acid Forming Emissions in Alberta and Their Ecological Consequences) and in a CWS manuscript report entitled Acid Rain SO_4 and Food Quality for Wild Herbivores.

INTERPRETATION PROGRAM

Atlantic Region

There is no Wildlife Interpretation Centre in the Atlantic Region, although planning was undertaken during the year for Interpretation Programs for the Atlantic Wildlife Region, the Atlantic Administrative Region, Chignecto NWA and northeastern New Brunswick. Projects will begin in 1983. The Atlantic Region Program will concentrate on NWAs and will be very mobile.

Québec Region

Interpretation activities were concentrated on three fronts:

1. Priority was given to programs which were presented at the two Wildlife Interpretation Centres:
 - (a) At Cap Tourmente, about 91 000 persons visited the NWA. Of those, 40 000 benefited from the services of naturalists who offered them guided walks, informal talks or provided information at the Centre. In mid-October the new exhibit hall at the Interpretation Centre was officially opened by the Honourable John Roberts.
 - (b) At Percé, seasonal naturalists welcomed 67 000 visitors at the Interpretation Centre, on the beach or at l'île Bonaventure. Work has been under way since September on remodelling the exhibit hall.
2. Satellite information programs at Pointe de l'Est and at Baie de l'Isle Verte NWAs were offered during the summer under the Student Employment Program. Another team of students conducted a feasibility study of offering an interpretation program at Lac Saint-François NWA.
3. The Regional Interpretation Section participated in two extremely popular shows in Montreal: Le Salon du Camping in April and Le Salon des Sciences et de la Technologie in May. More than 250 000 visitors saw the CWS exhibit; 15 000 of those were personally contacted.

Ontario Region

At the Wye Marsh Wildlife Interpretation Centre, about 80 km north of Toronto, CWS operated a year-round program for school groups and for the general public. During the summer months visitors participated in guided walks through fields and forest, and canoe excursions into a large cattail marsh. Of particular interest was a demonstration of radio telemetry to track the movements of several Blanding's Turtles. This is a large but secretive and uncommon species, whose habits are poorly understood. The Centre has become a major tourist attraction in central Ontario and receives between 40 and 45 thousand visitors each year.

Early in 1983, a group of local residents incorporated to form a non-profit organization to support and augment the CWS program at Wye Marsh. The "Friends of Wye Marsh" will operate a sales area at the Centre and - through receipts from sales and grants - contribute money and time to a variety of events, demonstrations and research projects in conjunction with the Centre's regular activities. Similar schemes have proven to be valuable adjuncts to the operation of national parks in Canada and the U.S.A. Besides offering financial and entrepreneurial opportunities not otherwise available, the "cooperating associations" expand environmental awareness and focus support from the local community.

Western and Northern Region

1982-83 was a busy year at the Prairie Wildlife Interpretation Centre at Webb, Saskatchewan. The most significant events included the following:

Program Delivery: Visitation at the Centre was up 15% to 22 169 despite a 10% drop in tourism in the region. School tours were up 10% and our off-site campground events and Sunday specials were up 40% or more.

Changes in media included the completion of the Trail Guide, a self-guiding brochure for the outer loop trail. What's Outside, a checklist of common flora and fauna, was also published. Two new displays, a live black-tailed prairie dog display and a marsh aquarium, were added to the display hall. New displays are under development for the short loop trail. A Prairie WIC colouring book is currently at the printers.

Program feedback was collected through the new National Visitor Survey which will be analysed by computer.

Visitor Services: Significant development was carried out by students working under the Summer Employment Program. Three shade shelters and a waterline were added to the picnic site and many visual improvements were made. Ramps, walks and railings for the handicapped were started but remain to be completed.

Habitat Improvement: To ensure that visitors have the maximum chance to experience wildlife, several projects were begun. Trees and shrubs were planted as the first of a three-year planting plan. Four bale nest islands in Goose Lake were used by Canada Geese. A number of bird boxes were erected.

Staff: At the peak of the season, 22 persons were employed directly or indirectly at the Centre: three indeterminate staff, eight naturalists and a clerical position on a contract with Bufo Inc., four naturalists on the Career Oriented Summer Employment Program and one coordinator and five students on the Summer Employment Program.

Cooperation: The Prairie WIC cooperated with the Saskatchewan Natural History Society in the operation of the bookshop at the Centre. The Swift Current Wildlife Federation responded to our request and provided 16 large round flax bales for new nest islands. Former Prairie WIC senior naturalist, Chris Harris, worked out of the Centre in a Parks Canada term position developing signage for the proposed Grasslands National Park.

Planning: A Prairie WIC Marketing Plan was completed as was the Prairie WIC Maintenance Management Plan and the Prairie Wildlife Regional Plan. Several other planning goals carry over into the new year.

Marketing: The three border crossing information bureau displays were refurbished for the 1982 summer season and two of those have now been completely rebuilt in cedar. The fourth highway billboard and a 12-foot gopher directional were added along the Trans-Canada Highway. Small signs advertising the Centre were erected in seven picnic sites along the Trans-Canada. The PWIC erected displays at the South Saskatchewan Wildlife Federation convention in Moose Jaw and a Showcase '83, an education exposition and conference for 5900 teachers.

Regional Interpretation

A concept plan for interpreting the Arctic region was prepared under contract by the Faculty of Environmental Design, University of Calgary.

Pacific and Yukon Region

The number of persons visiting the Creston Wildlife Interpretation Centre was 8% higher from May to August in 1982 than during the previous year. However, the Centre was closed for renovations from November to March, and the total number of visitors dropped from 27 000 to about 26 200. A paved access route to the Centre for handicapped visitors is now available.

Interpretation plans for Alaksen NWA and the Marshall-Stevenson Unit of Qualicum NWA were completed and will be implemented in 1983-84.

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED
SPECIES OF WILD FAUNA AND FLORA (CITES)

By the end of March 1983, 81 countries had ratified and were fully participating in CITES. The major work of the CITES Parties in 1982-83 concerned the 10-year review of the species included in the Appendices. During the Third Conference of the Parties held in New Delhi, India, in 1981, the Parties resolved, in response to a proposal co-sponsored by Canada and Switzerland, to complete a 10-year review of the Appendices. The review is designed to evaluate the effectiveness of the Convention and is to be completed in time for the April 1983 Conference of the Parties, planned for Gaborone, Botswana.

As the representative for the North American region on the CITES Central Committee for the 10-year review, Canada coordinated the North American regional review during 1982-83. Two regional meetings - one in Vancouver in February, and the other in Texas in September - were held. Although not a Party to CITES, Mexico attended both meetings along with Canada and the U.S.A. As a result, Canadian and American proposals for amendments to the Appendices to be considered in Botswana have the full support of the Mexican wildlife agency, the Direccion General de Fauna Silvestre. In addition to the regional meetings, Canada participated at the CITES Standing Committee and Central Committee meetings held at the CITES Secretariat in Gland, Switzerland, in June.

In Canada, the review led to the preparation of status reports on eleven species with corresponding proposals for amendments to the Appendices having been submitted to the CITES Secretariat prior to the 1983 Botswana Conference deadline of November 20, 1982. On November 4, 1982, the CITES Scientific Authority held a public hearing to solicit from non-government organizations scientific information concerning the proposals. Such information may also be submitted up to and including the Botswana Conference and the proposals may be withdrawn at any time prior to voting at the Conference. As their populations are considered neither endangered nor threatened, and since there is effective Canadian protection for them, the timber wolf Canis lupus, bighorn sheep Ovis canadensis, grizzly Ursus arctos, lynx Lynx canadensis, bobcat Lynx rufus and lake sturgeon Acipenser fulvescens, were proposed for deletion from Appendix II. The northern swift fox Vulpes velox hebes, longjaw cisco Coregonus alpenae and the blue walleye Stizostedion vitreum glaucum, all included on Appendix I, were proposed for removal from the Appendices since all are believed to be genetically extinct. The river otter Lutra canadensis, although not endangered or threatened in Canada, resembles other more endangered

otter species. For the protection of these foreign species, the river otter is proposed for retention on Appendix II as a "look-alike". The eleventh proposal is for the transfer of the shortnose sturgeon Acipenser brevirostrum from Appendix I to Appendix II since additional populations of this species have been found and it is not considered endangered.

If a country disagrees with the listing of a species, in accordance with the Articles of the Convention it may place "reservations" against the inclusion of that species in the Appendices. When reservations are entered, the country is considered by other CITES members as a non-Party state with respect to the species involved. The placing of reservations has caused problems for Canada for two reasons: as a result of a resolution of a Conference of the Parties, Canada must continue to issue CITES permits for shipments involving species she has placed under reservation; entering reservations on species misleads the public into believing CITES permits are not needed and thus exporters risk having shipments detained by other CITES Parties. Consequently, during October 1982, Canada withdrew all the reservations she had placed. This led to the following species being included on the Appendices:

Appendix I

<u>Sotalia</u> spp.	Humpback dolphins
<u>Sousa</u> spp.	Humpback dolphins
<u>Neophocaena phocaenoides</u>	Black finless porpoise
<u>Eschrichtius robustus</u> (<u>glaucus</u>)	Gray whale
<u>Balaenoptera borealis</u>	Sei whale
<u>Balaenoptera physalus</u>	Fin whale
<u>Branta canadensis leucopareia</u>	Aleutian Canada Goose
<u>Coregonus alpenae</u>	Longjaw cisco
<u>Stizostedion vitreum glaucum</u>	Blue walleye

Appendix II

<u>Ursus arctos</u> (North American subspecies)	Brown (grizzly) bear
<u>Ovis canadensis</u>	Bighorn sheep
<u>Anser albifrons gambelli</u>	Tule White-fronted Goose
<u>Acipenser fulvescens</u>	Lake sturgeon

Lifting the reservations also allowed Canada to submit to the CITES Secretariat for consideration at Botswana, proposals on the longjaw cisco, blue walleye, grizzly, bighorn sheep and lake sturgeon.

When a nation becomes a Party to the Convention on International Trade in Endangered Species, that nation makes a commitment to apply at least the minimum requirements of CITES. One method of accomplishing this is through effective enforcement of the CITES regulations. So that Canada's international credibility is maintained, the CITES office of CWS has been presenting training seminars on the CITES regulations to Customs and Royal Canadian Mounted Police officers. After several trial seminars during 1981, the CITES training program began in earnest in 1982 and during the year 63 seminars were presented to a total of 574 Customs and RCM Police officers in such varied locations as Drummondville, Sault Ste. Marie, Hamilton, Windsor, Thunder Bay, Winnipeg, Regina, Victoria and Whitehorse. The seminars include a history of the Convention, a description of the CITES regulations, an explanation of the Appendices and a slide presentation of CITES regulated specimens. Since the program began, over 80 seminars have been presented to approximately 800 enforcement officers. CITES is applied in Canada through the Export and Import Permits Act.

Throughout the world, the major enforcement problem for CITES Parties has been recognition of the species and products in trade. To assist enforcement agencies, member states have been cooperating in the development of an Identification Manual which, when completed, is expected to comprise twelve volumes. Work on Canada's initial contribution to the manual occurred during 1982-83 and resulted in the submission to the CITES Identification Manual Committee of information sheets on all bear species (Ursidae) and all falcons (Falconidae) found around the world. The National Museum of Natural Sciences coordinated the preparation of the information sheets which are expected to be distributed to all CITES Parties during 1983.

Conducting training on the CITES regulations and gathering material on how specimens may be identified ensures that Canada lives up to her international obligations under CITES. However, in addition to ensuring the laws are abided by, preventative measures are needed. Prevention of unintentional infractions of the law can only be achieved through better public awareness of CITES. Originally released in 1979, the Noah Didn't Need a Permit, What About You? pamphlet continued to be distributed widely and was well received during 1982. As well, the TV clips which were produced at the same time are still aired by television stations across Canada as public service announcements. To supplement these efforts, the CWS, in conjunction with the National Museums of Canada, is preparing a CITES exhibit entitled "Souvenirs of Extinction". At the end of March 1983, it was in its final stages of preparation and it is anticipated that the exhibit will be on display in international departure lounges at airports in Mirabel, Toronto and Vancouver by June 1983. In addition, during 1982 CWS published and distributed one CITES report: No. 9, August 1982, 1981 Annual Report for Canada.

Both nationally and internationally, the CITES program continues to grow. In 1982, the CITES staff at the Canadian Wildlife Service increased 50% - from 2 to 3! Internationally, a Canadian, Mr. Eugene Lapointe, was appointed Secretary General of the CITES Secretariat effective April 15, 1982. Mr. Lapointe, a lawyer, previously served for the Department of Industry, Trade and Commerce and was responsible for the legal aspects of the application of CITES in Canada. In that capacity, Mr. Lapointe participated in the First Conference of the Parties held in Berne, Switzerland, in 1976 and the Second Conference held in San José, Costa Rica, during 1979. Mr. Lapointe also attended the 1979 CITES Extraordinary Meeting in Bonn, West Germany, which resulted in an amendment of the Convention Articles allowing the Parties to fund the CITES Secretariat directly.

During 1982, federal, provincial and territorial CITES authorities issued 3320 endangered species export permits. During the same period, the federal authority issued 52 endangered species import permits for Appendix I specimens, 43 Transit Certificates mainly for temporary entry of circus animals and 47 Scientific Certificates for the non-commercial loan, donation or exchange of prepared scientific specimens between scientists.

