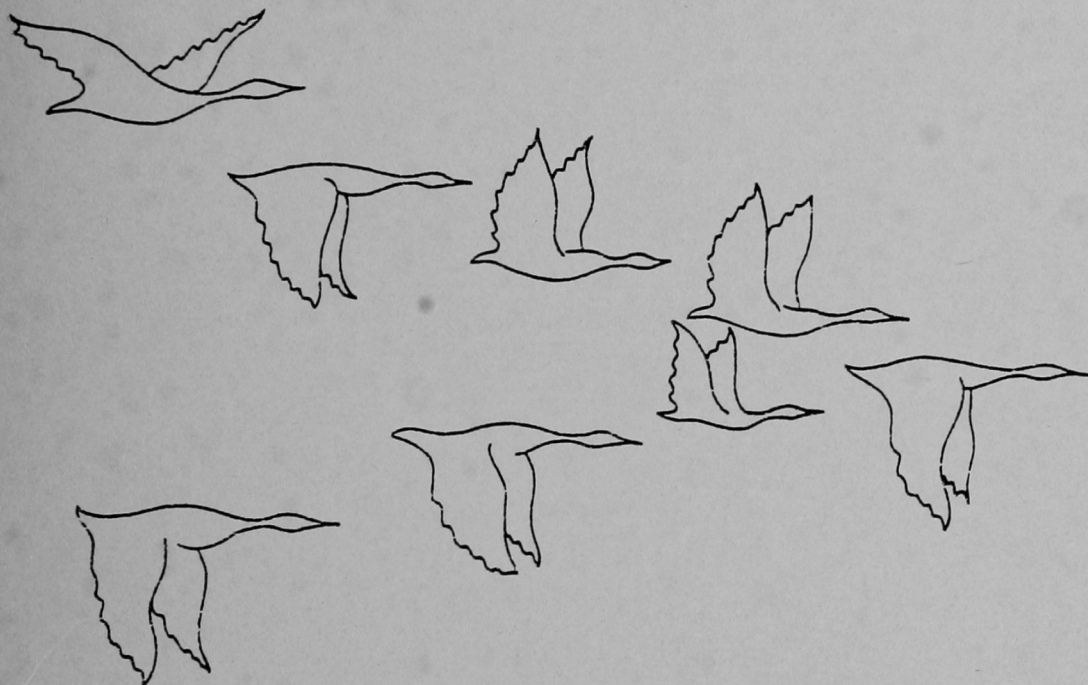


Annual Review
1983-1984



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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.

This report documents some of the important initiatives and accomplishments during the 1983-84 year but it does not attempt to provide a complete account of CWS activities within the program. Highlights of national program are first presented followed by accounts of regional activities.

Harvest Management

Permit sales

In 1983-84, a total of some 444 000 Migratory Game Bird Hunting Permits were sold which is within 5% of the amount sold in 1982-83. Noticeable decreases in the sale of permits were recorded in Manitoba (-11%) and British Columbia (-8.4%).

Regulations and Enforcement

In May 1983, the Canadian Wildlife Service began to give early notice of proposed changes in regulatory activities through the publication of Environment Canada Regulatory Agendas. These Agendas will continue to be published in May and November of each year as a supplement to the Canada Gazette. The listing of planned regulatory proposals also includes all major regulatory policy reviews and all planned or ongoing research activities that relate to regulatory issues.

Two enforcement coordinators have been added to the staff, one in British Columbia and the other in the Northwest Territories. These two appointments provide greater opportunity for liaison with the Royal Canadian Mounted Police and provincial and territorial enforcement personnel, and improved coordination of enforcement programs.

Protocol

The Protocol to amend the subsistence hunting provisions of the Migratory Birds Convention was signed by Canada and the United States in 1979. It has not been ratified yet by the United States, and so is not in effect. An additional agreement between the two countries to spell out details of how the Protocol will be implemented is now in preparation. We hope that a discussion paper on this agreement will be available for public comment in both countries during 1984. Once this additional agreement is complete, we expect that the United States will ratify the Protocol.

Habitat Protection

Land Acquisitions

Most of the land acquisition activity was confined to infilling of existing National Wildlife Areas (Tway Lakes, Baie de l'Isle-Verte, Portobello, Port L'Hébert) but one new project was initiated at Pointe-au-Père in Québec.

CWS began a process for objectively rating and ranking habitats of extreme importance to migratory birds which may be protected through acquisition. A revised rating scheme was developed for southern Canada and is currently being tested.

CWS participated along with Parks Canada in the preparation of a background paper on the conservation of lands in Yukon and the Northwest Territories being prepared by Environment Canada for release in 1984. CWS' contribution will concentrate on areas of importance to migratory birds.

The fourth year of the Wetland Mapping and Designation Program was marked by the completion of the mapping and rating of wetlands in Nova Scotia and P.E.I. and the initiation of the mapping of New Brunswick. In Ontario, the first edition of an evaluation scheme for southern Ontario wetlands was revised. In 1984, CWS will fund the translation of the document into French and perhaps prepare a publication on the statistical analysis of the data.

Wildlife Habitat Canada

In addition to ongoing habitat initiatives, CWS sponsored the development of Wildlife Habitat Canada -- a new foundation dedicated to encourage the retention and stewardship of wildlife habitat throughout Canada. The federal government has provided a \$3.0M administrative grant to the foundation along with a commitment of the funds obtained from the increase in the migratory game bird hunting fee. In October 1983, the Canadian Wildlife Service entered into an agreement with the Canadian Wildlife Federation for the services of Mr. D. Neave as Wildlife Habitat Canada Coordinator. In the past few months, a Founding Committee, comprised of federal, provincial and nongovernment wildlife organization representatives, developed a charter and bylaws. A nominating subcommittee has been responsible to obtain the first Board of Directors. At the time of writing, a proposal for 1984-85 Wildlife Habitat Canada activities is being developed for the consideration of the first Board of Directors' meeting anticipated in early July 1984.

North American Waterfowl Management Plan

Progress in Canada:

Overview Document

Revisions were completed in March 1983, and the revised draft sent to the provinces and territories for endorsement in May 1983. As requested by the Wildlife Ministers' Conference in September 1983, a second request for endorsement was called for when the "Canadian Position" was developed and circulated (March 1984).

"Canadian Position"

A set of broad policies were developed to guide discussions with the United States on the development of the North American Waterfowl Management Plan. This document was developed by a Task Force of federal, provincial, and territorial representatives and circulated to all jurisdictions in March 1984.

Provincial/Territorial Action Plans

A round of preliminary discussions with the United States was initiated in February 1984, in order to ensure that the substantive discussions with the United States beginning in June 1984 would be well organized and would provide a first draft document by September 1984. This draft, basically a technical/administrative amalgamation of the two national documents, will then serve as the basis for developing and implementing a North American Plan.

Value of Wildlife Study

The feasibility of measuring commercial and subsistence wildlife values among native and non-native peoples residing in the northern segments of the provinces was examined under the terms of contracts funded jointly by the wildlife agencies concerned. The feasibility of conducting a joint comprehensive analysis of the national survey on the recreational importance of wildlife to Canadians was also examined. These issues will be addressed at the 1984 Federal-Provincial Wildlife Conference.

Comprehensive Native Land Claims

The federal government is currently negotiating four comprehensive land claim settlements with native organizations representing the Dene/Métis of the Mackenzie Valley, the Yukon Indians (CYI), the Inuit of the

Eastern Arctic (TFN) and the Inuvialuit of the Western Arctic (COPE). A Final Agreement of the Western Arctic Claim has been approved by Cabinet and an Agreement-in-Principle is imminent in the Yukon Indian claim. These Agreements and discussion on wildlife matters in all four claims include provision for preferential native harvesting rights to migratory birds, as well as a role for native beneficiaries, through participation on advisory boards, in the management of the resource.

Latin American Program

Now in its fourth year of operation, the Program is entering a consolidation phase as well as continuing previous activities and projects.

We, along with the U.S. Fish and Wildlife Service and several of the major conservation organizations contributed to the Latin American Wetland Evaluation. This two-year effort to list, classify and evaluate each country's major wetlands is being coordinated by International Waterfowl Research Bureau. The results are due to be presented at the next IWRB meeting which will be held in Peru in 1985. Other projects funded included the collection of Peregrine Falcon prey items in Peru and Ecuador and the collection of data on and specimens of shorebirds in Argentina for toxic chemical and genetic analysis. Letters of Arrangement have now been signed with Brasil, Venezuela, Ecuador and the Letter with Peru is in its final stage just prior to signature.

We contracted out an evaluation of the Latin American Program and the results of the evaluation were encouraging. In general, the Program was judged to be "on track" and a few amendments to the operating procedures should improve its overall performance.

Native Harvest Studies

The CWS continued its involvement in studies to assess the harvest of wildlife by natives in various parts of the country. Studies were undertaken by CWS in Labrador, Québec, and Ontario, and support was given to studies undertaken by native organizations in the Northwest Territories. The Baffin Region Inuit Association study in the eastern Arctic completed year 4 of a 5-year program, and produced an interim report in which the total harvest was estimated for 1981. The Keewatin Inuit Association study in the central arctic completed year 2 of a 2½ year study. Meanwhile, efforts continued towards implementation of the guaranteed levels of harvest provisions in Québec, as specified in the James Bay and Northern Québec Agreement.

Regional Activities

Atlantic Region

Studies of breeding and feeding ecology of seabirds continued 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 early part of the year. Data analysis on the feeding ecology and population turnover of migrant shorebirds in the area of proposed tidal power developments continued. A study of the feeding ecology of sea ducks wintering off southeastern Newfoundland continued, and a study of eider energetics in southwestern New Brunswick was begun.

Population surveys of breeding marine birds were continued in Nova Scotia and eastern New Brunswick, with emphasis on herons and terns. Monitoring of waterfowl breeding populations in the Maritimes, on an experimental scale, was continued. The scope of waterfowl banding in Labrador was further expanded, with about 1000 ducks banded at four locations there in 1983.

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

A Regional Waterfowl Management Plan was approved by CWS and the four Atlantic Provinces.

Québec Region

Acquisition of Habitats

Several acquisition projects are under way, including a new one at Pointe-au-Père where eight transactions will take place. The consolidation of the Contrecoeur National Wildlife Area by the purchase of Mousseau and Lavaltrie Islands, and of the Baie de l'Isle-Verte National Wildlife Area are in progress.

Management and Development of National Wildlife Areas

Development for the benefit of wildlife and the public carried out this year in the national wildlife areas was financed under the federal New Employment Expansion and Development (NEED) program. The main activities

were related to development of the coastal wetlands for the Greater Snow Geese at Cap-Tourmente. At the Cap-Tourmente National Wildlife Area, out of 3497 registrations for controlled hunting, 528 hunters took part in this activity between September 26 and October 27.

Impact Studies

Studies of the Lac Saint-Pierre flood plains undertaken this year in cooperation with the Québec Ministère du Loisir, de la Chasse et de la Pêche (MLCP) pointed out in three reports the importance of these areas as resting places for Canada geese and puddle ducks during their spring migration.

A preliminary report was filed on the location of sensitive areas along the St. Lawrence; the report classified 15 large areas of relative importance.

Various major projects, including road construction, coastal drilling, harbour development and the installation of underwater cables were reviewed for their impact on the environment.

Research and Surveys

The analysis of the data gathered since the beginning of the LRTAP program was completed; the summary report will be finished in 1984.

Québec's regional plan under the Waterfowl Management Plan for Canada was prepared in co-operation with the MLCP. A version of this regional plan will be distributed for public consultation.

Biologists took part in the Latin American program with a study of Limicolae populations done in cooperation with the service of the regional representative for the environment in Guadeloupe.

As part of the seabird program, a study was done on the reproductive biology of the Common Tern and the Arctic Tern which nest in the Mingan Archipelago.

Research into methods for surveying ducks in the James Bay boreal forest was continued.

Regulations and Conservation

This section of the regional office completed the mapping and identification of the sanctuaries and, under NEED projects, doubled the number of wardens at sanctuaries and NWAs.

The gathering of eider down was standardized by establishing selection criteria for contractors.

Ontario Region

After full public consultation, the Management Plan for Long Point National Wildlife Area, with an endorsement by the Minister, was released to the public and is now being implemented. The year's highlight at Long Point was the release of seven Bald eaglets, with extensive newspaper, TV and radio coverage. Big Creek NWA draft Management Plan is at the final stage of public consultation; "open house" sessions have been held, and the document was also sent to various interest groups. Official opening of the D.U. development at St. Clair took place in September attracting an estimated 500 visitors. Ducks Unlimited has also developed a \$400 000 proposal for Big Creek NWA.

The increasing numbers of nesting Ring-billed Gulls generated some vociferous complaints from some Toronto residents, from farmers in southwestern Ontario, and even from residents of small municipalities along the North Channel of Lake Huron. Since control of the Ring-billed Gull population may become necessary in the future, the Region will conduct an experimental egg spraying project at the Leslie Street Spit in 1984 to evaluate effectiveness of that control method. Earlier experiments have shown that overhead wires can be very successful in keeping gulls away from public eating places and also in preventing gulls from their regular nesting sites. Common Terns, a desirable species, are able to avoid the wires and nest in the areas vacated by the gulls.

The Ontario Ministry of Natural Resources (OMNR) has now adopted a system for wetlands evaluation for Southern Ontario, prepared in cooperation with CWS. After the field application last summer the Second Edition is now ready for final publication. OMNR will spend \$200 000 annually for the evaluation and rating of wetlands as a first step in a protection program.

The Ontario Breeding Bird Atlas continues to progress with guidance, advice and monetary assistance from CWS. A network of volunteer ornithologists across Ontario (the rest of Canada and U.S.A.) has created significant support for the project. The Region is also cooperating with the Federation of Ontario Naturalists in publishing a "Bibliography of Ontario Ornithology", which should be available by September 1984. Waterfowl breeding pair surveys in northern Ontario have continued, and four final survey blocks will be finished in 1984. Resulting information will be used to improve the continental management of waterfowl stocks.

Studies of the impact of forest harvesting on boreal migratory bird populations continued in the Manitouwadge area of northern Ontario. The role of passerines in the control of forest insect pests was the highlight of the 1983 season.

Western and Northern Region

Whooping Crane Program

As part of the continuing efforts to protect and conserve the endangered Whooping Crane, CWS carried out aerial surveys in 1983 to monitor cranes and nests in or near Wood Buffalo National Park. At least 24 nests were constructed, surpassing the previous annual record of 19 nests, recorded in 1979 and 1980. Three nests were destroyed by predators, 19 eggs were collected from nests with clutches of two, and 21 eggs remained for hatching by wild parents. At least 14 chicks were observed later in the summer in the Wood Buffalo population.

The 19 eggs collected were tested and 18 with live embryos were flown to Gray's Lake National Wildlife Refuge in Idaho, as part of a cooperative USA-Canada foster parent management program. Sixteen were placed in nests of Greater Sandhill Cranes and two were shipped to Patuxent Research Center in Maryland. Eleven chicks originating from the Wood Buffalo egg transplant eventually fledged and migrated with their foster sandhill parents to the winter range in New Mexico.

Production in the wild Wood Buffalo population was not as successful. Of the 14 chicks known to hatch, only 7 young eventually migrated to Aransas National Wildlife Refuge. Causes of mortality on the breeding grounds were not determined, but predation is suspected.

As of January 1984, the world population of Whooping Cranes was 144, and includes 107 wild and 37 captive individuals. The WBNP-ANWR population totaled 75.

Anatum Peregrine Recovery Project

The first draft of the Canadian Anatum Peregrine Recovery Plan was completed and circulated to provincial and territorial wildlife agencies and to all regional CWS offices for review. A second draft will be completed this fiscal year and will serve as the basis for the CWS Anatum Peregrine Recovery Plan.

As the recovery plan was not yet in place, we conducted experiments on artificial incubation and trial re-pairing of previously unsuccessful captive held birds. Although there were no breakthroughs in artificial incubation, the results of the experimental pairing were positive, with a total of 20 pairs producing eggs and several birds mating or laying for the first time. Fifty young anatum peregrines were produced and distributed to provincial and territorial agencies for release.

A highlight for the year was the successful nesting of four pair of captive bred birds which had been released to the wild in previous years. Two pair were located in Eastern Canada (one at Arnprior and one at Montréal) and two pair nested in the west (in Edmonton and Calgary).

A new four-year project to monitor toxic chemical residues in migrant prey species of the peregrine falcon was initiated in 1983 in Peru and Ecuador. The objective is to sample residue levels in Latin America, where peregrines are known to spend the winter. Sampling during the current year was successful despite an unusual migration pattern and near impossible logistical problems associated with the effects of the 1983 El Nino.

Monitoring Migratory Bird Populations

The CWS, WNR performs two major waterfowl monitoring functions. The first function is to determine annually the status, distribution, productivity and mortality of key prairie waterfowl stocks. The second involves interpreting population shifts and predicting future trends. The latter task involves assessing the impacts that climate, land use and hunting have on major waterfowl species.

In 1983 we achieved the first objective through a series of field programs. The Waterfowl Breeding Ground Survey was conducted in May to determine the size and distribution of prairie waterfowl populations. Results of this survey are reported in Provincial Waterfowl Status Reports (June) and in a Prairie Waterfowl Status Report (July). Mallard and total duck breeding populations decreased by 6.5 and 4.6 per cent between 1982 and 1983. Weekly population and brood surveys conducted on selected transects are used to estimate annual production. Waterfowl production in prairie Canada declined in between 40 and 70 per cent below normal levels. Waterfowl mortality was assessed through a regional banding program. Banding objectives were met for both spring and autumn banding programs.

The impacts of environmental factors and agricultural land-use practices were assessed during a habitat monitoring component of the Waterfowl Breeding Ground Survey. Environmental conditions improved in prairie Canada between 1982 and 1983. The number of May ponds increased by 26.7 per cent. Agricultural practices, however, severely impacted waterfowl production habitat. In some areas the margins of 90 per cent of all monitored ponds were significantly affected by agriculture. The impact of hunting was assessed through the W&NR Hunter Performance Program. CWS personnel interviewed 697 hunter parties and performed 108 hunter observations in prairie Canada in 1983.

In 1983 these ongoing functions resulted in 7 unpublished manuscripts, 6 presentations to professionals, 3 papers for publication, 25 media contacts and 15 presentations to the public.

Crop Depredation Research

Efforts on crop depredation by waterfowl focused on isolating the biological, physical, and behavioral factors that cause waterfowl to feed on farmers' grain crops. This year two of a four-year investigation will provide a sounder biological understanding of granivorous waterfowl upon which to base damage prevention recommendations, and should identify further research needs.

Prairie Duck Predation Studies

So that we can better understand the effects of intensive agriculture and its attendant loss of upland cover on nesting success of ducks, we are studying the effects of several nesting cover features on the predation rate by crows, the principal nest predator in the parklands.

Mallard/Teal Residency Studies

After a pilot study in 1982, CWS began detailed studies on the reproductive biology of Mallards, Blue-winged Teal, Northern Shovelers and American Wigeon in the prairie parklands. Objectives include determination of factors affecting nest site selection, comparison of homing (and dispersal) among species, explanation of the biological significance and documentation of breeding area residency patterns, and determination of the effects of age and nesting experience on these parameters. Information will be used to refine management strategies aimed at maintaining harvestable populations of migratory game birds in North America. The study will continue for 5 more years.

Terrestrial Birds in Aspen Parklands

Studies continued in 1983 on a comparison of songbird numbers and species diversity between cultivated and native grassland communities intermixed with large and small aspen stands. Analyses are under way.

Assessment, Habitat and Enforcement

Management of the Migratory Birds Convention Act resulted in 210 aviculture permits, 144 taxidermy permits, 201 scientific permits, and 32 sanctuary permits issued under the regulations. Enforcement of the regulations through cooperating agencies revealed reasonable compliance with the laws, but some 156 charges were laid for various infractions. The Native Harvest surveys are presently under close design review through a government, industry and native organization workshop lead by a consultant, Peter Usher. The results of the review will help redirect the course of present surveys and lead to more efficient ones.

Land acquisitions necessary to complete the existing wildlife areas have progressed slowly, with some lands purchased and under negotiation about the Tway Lake National Wildlife Area. Prospects for land purchase on additional lands for the Last Mountain Lake Cooperative Area and lands to assist the Saskatchewan Heritage Marsh Program have been unsuccessful to date. Agreements are under negotiation with the Northwest Territorial Government Wildlife Service on management activities for the proposed national wildlife area, Polar Bear Pass.

Environmental impact assessment actions were concluded on the Beaufort Sea Development Panel in December 1983. The results of this effort will be evident in the panel's report to the Minister of Environment. Major dialogue has been ongoing between various federal agencies and the Alberta Government on the proposed Slave River Hydro Project, with the Canadian Wildlife Service and Parks Canada voicing strong opposition to the proposed actions due to the significant wildlife heritage values of the area. Renewed interest in offshore drilling in the Lancaster Sound area has required considerable effort for updating previous DOE presentations to the initial panel.

Progress on the waterfowl action plans, jointly with the Provinces and Territories, has been slower than anticipated. However, draft plans for the NWT, and the Provinces are expected to be distributed for internal management review and proceed to public consultation in the next three months.

Five-year crop damage prevention agreements with the prairie provinces were successfully negotiated.

Pacific and Yukon Region

Seabirds Research and Inventories

A series of studies investigating the breeding biology of colonial seabirds on the west coast was completed. The last species studied in this investigation was the Leach's and Fork-tailed Storm Petrels. These species are very late breeders in British Columbia and, although the program was extended through mid-October, many of the young were still in their burrows.

Systematic inventories of seabird colonies were initiated in 1983, with surveys beginning along the southeast coast of the Queen Charlotte Islands. Those surveys will be combined with permanent plots in 1984 so that long-term population changes can be monitored and appropriate management schemes implemented.

Goldeneye Research

A detailed analysis of Barrow's Goldeneye behaviour is entering its final stages. Last year it was discovered that goldeneyes maintain territories in the winter as well as the summer, and that they keep the same mate from year to year. That information could have a significant impact on future management plans for the species.

Wetland Mapping

Although NASA's inability to place its LANDSAT-D satellite in orbit delayed the project, much of the ground truthing has been completed and physical parameters determined for a large number of lakes in the interior plateau.

Habitat Management and Assessment

Management plans for all National Wildlife Areas in the region were completed according to national standards. A management strategy was implemented involving an experimental approach to habitat manipulations on National Wildlife Areas. A streamlined planning and evaluation process was developed to assist development and prioritizing of the Habitat Section's long-range plans.

In other habitat-related areas, the Marshal-Steveston unit of the Qualicum NWA was opened to the public featuring an interpretation program initiated and developed by the Habitat Manager. The feasibility of restoring habitat at the Vaseux-Bighorn NWA was investigated in cooperation with Ducks Unlimited (Canada). The migratory bird component of the Yukon River Basin study was completed and the total study is in the report preparation stage. A cooperative evaluation of Yukon wetlands was undertaken with DU (Canada) and the Department of Renewable Resources, Yukon Territory Government.

Populations and Surveys

The Populations and Surveys section completed the second year of a two-year cooperative study with Transport Canada. That program was designed to more precisely evaluate the effects of the reactivation of the Boundary Bay airport on birds, and to provide a predictive capability for bird hazards to aircraft at Boundary Bay. Cooperative waterfowl management plans were completed with British Columbia and Yukon as part of the forthcoming National Waterfowl Plan. A study of spring migrating waterfowl on the Liard River, done in cooperation with BC Hydro, was completed and published. Studies of the migration routes of Trumpeter Swans in BC continued through a winter banding program. The pelagic bird distribution program acquired survey data from seven seabird cruises last year,

the program primarily making use of volunteer observers. The section contributed to international conservation through the LAP Brazilian bird banding program.

Regulations and Enforcement

A new enforcement coordinator's position was added to the section, providing much greater opportunity for liaison and improved enforcement coordination with the Royal Canadian Mounted Police and provincial and territorial enforcement personnel. The procedure used for issuing permits was streamlined by adopting a renewal system using validation stickers on existing permits. Late hunting problems in the lower mainland area were reduced through a coordinator enforcement effort involving CWS, the RCMP and the B.C. Conservation Officer Service.

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).

COSEWIC provided an audit report of its first five years to the Federal-Provincial Wildlife Conference (FPWC), to which it reports. Fourteen additional species with nationally defined status were added to the official COSEWIC list.

CCEA, after a two year organizational phase, incorporated as an independent, non-profit private organization dedicated to promoting a national system of protected ecological areas.

In the field of humane trapping, an Interdepartmental Steering Committee on Humane Trapping has been established to ensure that the efforts of Environment Canada and of the Departments of Indian Affairs and Northern Development, External Affairs and Regional Industrial Expansion are well coordinated. Environment Canada will provide \$1.5M over a four-year period for the research and development of humane trapping devices and methods. The funds will go to the Fur Institute of Canada and the research will be carried out under the direction of the Institute's Research and Development Committee.

Discussions are ongoing to find an acceptable form of agreement with respect to the international Porcupine caribou herd.

Regional Activities

Atlantic Region

Cooperative Research

Cooperation with Newfoundland on research on the George River Caribou Herd was continued. To date over 70 wolf carcasses have been examined for sex, age, reproduction, and condition as part of a study to determine the status and role of wolves in the dynamics of the herd.

Rare and Endangered Species

For the second year, in cooperation with the provinces of New Brunswick and Nova Scotia and Parks Canada, six young Peregrine Falcons were successfully released at two sites at the head of the Bay of Fundy. Observation reports of the elusive eastern cougar continue to be submitted, none of which could be substantiated. Surveys of Piping Plover nesting beaches in Prince Edward Island and northern New Brunswick indicate relatively static population levels in those areas. Numbers of Piping Plovers nesting on protected beaches in Kouchibouguac and Prince Edward Island National Parks are increasing.

Research in National Parks

Newfoundland pine marten were released in Terra Nova National Park for the second year in an attempt to reintroduce this native species to other parts of its former range. The marten's large range and vulnerability to snaring and trapping have led to many of the released animals being accidentally killed outside the National Park.

A study of predators was begun in Fundy National Park. The objectives of the project include the determination of the interrelationships of the newly established coyote with other resident predator species.

A five-year program was begun to develop and implement fish management plans for the Atlantic Regional National Parks. Existing data will be reviewed and research in specialized studies of fish population dynamics will be undertaken.

Forestry-Wildlife

Studies on the effects of plantations on wildlife communities continued with assessments of wildlife populations in adjacent mature stands, particularly hardwood ridges that are planned to be converted to softwood. Wildlife inventories of plantations prior to herbicide application were conducted. Post-application comparisons will be carried out next year.

The movements of major predators in and around some of the largest plantations in Canada were monitored using radio-telemetry and snow tracking techniques during the winter of 1983-84.

Ontario Region

Wildlife Research

Annual monitoring of levels of organochlorine compounds in eggs of Herring Gulls from the five Great Lakes continued through 1983. Results showed that levels of many compounds are not declining as rapidly as they were in the mid to late 1970s. In fact, since 1980 most compounds monitored from Lake Ontario, and to a lesser extent in Lake Erie, have increased, though not yet significantly.

Observations were made from live-in blinds on a Herring Gull colony in eastern Lake Superior to determine the cause of low reproductive success. The major cause was cannibalism, with adult gulls killing the chicks of neighbouring gulls and, in some instances, their own. This aberrant behaviour appeared to be induced by food scarcity rather than chemical contamination.

Numbers of Double-crested Cormorants breeding on the Great Lakes continue to increase dramatically. From 1982 to 1983 the number of nesting pairs on Lakes Erie, Ontario and Nipigon and the Canadian side of Lakes Huron and Superior (on 16 colonies) increased from 1656 to 2189 or 32%.

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. This four-year study near Manitowadge is nearing completion. CWS also worked with provincial wildlife and forestry agencies, nongovernment 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

Research on Barren-ground Caribou Beverly Herd

A 5-year study of the effects of forest fires in the Northwest Territories on the movements and physical condition of the Beverly herd of barren-ground caribou is in its second year. The adequacy of the present forested winter ranges to support the population is being assessed by examining the physical condition of the caribou in early and late winter. The Fort Smith Hunters and Trappers Association is cooperating in this aspect of the study. The movements of the herd in relation

to burned areas and snow conditions is being monitored monthly throughout the winter. In the summer, the biomass of lichens and other forages is being measured in relation to forest ages and other environmental factors.

The investigation of the causes of death of newborn migratory barren-ground caribou calves of the Beverly herd, was completed in June 1983. The work was done on a 5000-km² segment of the calving ground of the Beverly caribou herd.

Remains of 101 calves and 11 cows were examined to determine the causes of death. Wolf predation was the single most important cause of death of newborn caribou in 1983 as it was in 1981 and 1982. A final report on this study is now in preparation.

Polar Bear Studies

Field observations of the ecological relationships between polar bears, seals and walruses, sea ice conditions, and polynyas were concentrated around the Dundas polynya in the early spring. In addition, the use of underwater vocalizations as a tool for studying the distribution and abundance of overwintering seals in the High Arctic was evaluated.

During the study of the reproductive ecology of polar bears in western Hudson Bay, over 300 polar bears were captured, marked and released in northern Manitoba during 1983, and data were collected on age-specific productivity, breeding interval, time of first litter production, time of reproductive senescence, time of weaning, and cub mortality rates. We also obtained information on den-site fidelity of adult females, on the movements of each age and sex class of bears while ashore in summer, and on the orientation ability of female bears leaving the denning region in spring. Blood chemistry analyses have resulted in a method of determining pregnancy of females in autumn prior to the onset of winter denning, and confirmation of fasting for most of the polar bears in Manitoba between August and November.

Research over the past 15 years in the Beaufort Sea has suggested that bears along the mainland coast are a fairly discrete subpopulation. However, there is no detailed information on how much movement occurs between the east and west portions of the Beaufort Sea. In 1980, there was an indication that most of the bears tagged north of Alaska spent some time in the eastern Beaufort Sea. In March 1983, there was an opportunity to put radio transmitters on bears in the eastern Beaufort, in conjunction with the Alaska work. A total of 19 female bears, mostly adults, were instrumented, and follow-up information on subsequent movements is still being collected.

In addition, CWS provided a central coordinating point for the storage and retrieval of polar bear research data, and for planning interjurisdictional studies between the federal, provincial, territorial and other agencies.

Rare and Endangered Species

The CWS with the authority of the Canada Wildlife Act is committed to take measures deemed necessary for the preservation of any species of non-domestic animal in danger of extinction. Within Western and Northern Region programs are under way to rehabilitate the Wood Bison and Swift Fox in Canada.

Under the terms of a cooperative 5-year agreement signed with Alberta, 30 wood bison have been transported from the source herd at Elk Island National Park to Hay-Zama in northwestern Alberta. The bison will be held in a corral for one year and then released. The herd will be monitored for approximately 3 years in order to track its progress.

The first 17 wood bison of 50 to be relocated were transported to Waterhen, Manitoba, and will be managed by a joint CWS-Manitoba authority. The initial stock will be maintained in a larger (2300 ha) enclosure from which only progeny will be released to the wild. This approach is designed to safeguard against originally relocated wood bison wandering away from the area chosen for their relocation and should have a higher probability of establishing a truly wild herd. This project is the result of the cooperative efforts of many other government agencies at the provincial and federal level as well as nongovernment agencies.

A spring survey of the wood bison that were transferred to the Nahanni River valley in the N.W.T. in June of 1980 showed three groups of wood bison totalling 24 animals (including new calves) located in the Liard River valley between Nahanni Butte and Fort Liard. The fact that this herd has produced calves in 1982 and 1983 augers well for its future.

History was made this year with the first ever reintroduction of an extirpated land mammal in Canada. On September 13, 1983, CWS, in cooperation with the Government of Alberta, University of Calgary and Wildlife Reserve of Western Canada, Cochrane, released 25 swift foxes into the wild on a large ranch near Manyberries, Alberta.

Of the 16 foxes with radio collars, four foxes have died (two were killed by bobcats, one was run over by an automobile and one died of unspecified causes), two are unaccounted for. The majority of the foxes, however, have remained in the vicinity of the release site and seem to be coping well with the rigors of fending for themselves.

Preparations are under way to release swift foxes in Saskatchewan in 1984.

Forestry/Agriculture/Wildlife Interactions

The long-term forest/wildlife study in the foothills of western Alberta concluded that clearcut logging on a small patchwood basis which left adequate blocks of mature timber interspersed throughout the area was beneficial to wild ungulate populations. Scarification following logging was detrimental to most classes of wildlife since adequate cover did not occur until 5 to 10 years later than in comparable unscarified clearcuts. Scarification after logging was especially detrimental to tree-cavity dwelling wildlife species and to furbearing mammals.

As a separate study, thirteen years of monitoring browse yield and use, and ungulate numbers and distribution were brought to a close on the Streeter Basin Experimental Watershed. Salient points at this stage of the analysis are the considerable annual variation in weight of browse produced and the fidelity of browsing ungulates (especially moose) to their locally favoured browse species and feeding areas.

Research in National Parks

This region provides on an ongoing basis 11.5 of a total of 16 person-years nationally towards wildlife and fisheries research in Canada's national parks under a memorandum of understanding between the Assistant Deputy Ministers of Parks Canada and the Environmental Conservation Service.

One of the major highlights of the year was the completion of wildlife inventories of Kootenay, Glacier and Mount Revelstoke National Parks as part of a comprehensive ecological land inventory jointly conducted by CWS, CFS and the Alberta Institute of Pedology. The data are stored in a computerized data base now providing a powerful tool for planning and management of these national parks.

A further significant achievement was the preparation of a comprehensive report summarizing data on the population dynamics of bison in Wood Buffalo National Park. The report analysed and evaluated 10 years of bison data collected by various researchers and the park warden service. Recommendations were made for further research, monitoring and management requirements. The report confirms the importance of the Peace-Athabasca Delta to this nationally and internationally significant bison population. At present the status of the population in the park is stable to declining.

The fourteenth in a series of reports on long-term large mammal research in Riding Mountain National Park was prepared. This report discusses results of field work from 1977 to 1981 regarding range, habitat and foraging relationships of ungulates in the park. Research on wolf/coyote ecology continues. The final report in the series, a major synthesis of previous research, is in progress.

A two-year inventory of the non-ungulate mammals of Elk Island National Park was concluded as was a limnological and fisheries inventory of Kootenay National Park. The latter report will have immediate implications for the management of sport fishing in the park.

A report on the walleye population in Clear Lake, Riding Mountain National Park, was completed. It was concluded that most successful spawning occurs in Clear Lake proper and not in adjacent South Lake. These results have immediate implication on the future management by Parks Canada of his sport fish species which is highly sought after by park anglers.

Pacific and Yukon Region

Another field season studying the Porcupine caribou herd was successfully completed in 1983-84. Draft reports on summer habitat requirements of the bull component of the herd, and winter range relationships were completed. A project to examine juvenile mortality and reproductive potential of the herd was begun. In addition a major advisory role was performed throughout the year regarding potential developments on the North Slope. In December 1983, Don Russell moved over from the Yukon Territorial Government into the wildlife research biologist position in Whitehorse when Art Martell moved on to Ottawa.

The forest birds research program progressed along two fronts in 1983-84. The first steps were completed in the development of a rudimentary predictive model relating forest bird density to seral stage in several forest types of British Columbia. Work continued on assessing bird populations in old growth residual stands after logging. The primary objective of the study is to determine if residual stands support bird populations with species composition and density similar to those that existed before logging.

Wildlife Toxicology

Headquarters

Considerable progress was made in our studies on bioeffects monitoring. Several additional mixed-function oxidase assays were added to the tests available and new, improved methods for assay of porphyrins and Vitamin A were developed. Pathological studies of thyroid were found to relate well to biochemical measurements of thyronines. Funds from Energy Research and Development enabled an expansion of the research on the effects of oil on seabirds to take place. Characterization of enzyme systems and histopathological studies were undertaken in cooperation with Memorial University as a background to a possible bioeffects monitoring program.

On the international scene, the Organization for Economic Cooperation and Development (OECD) Ecotoxicology Subgroup completed its work and eight additional ecotoxicology guidelines were approved by the OECD council in October 1983. The original three ecotoxicological guidelines (part of the minimum pre-market data set) were revised. An arrangement was set up to use our expertise in bioeffects monitoring to the UNEP Mediterranean Sea program starting in March 1984.

Atlantic Region

Efforts were continued to monitor and evaluate the effects on migratory birds of chemicals used in forest spray programs. A study on the effects of fenitrothion on the behaviour of White-throated Sparrows was completed. The use of pesticides in agriculture in the Atlantic Provinces was reviewed.

Western and Northern Region

Projects on rodenticides, dimethoate bran baits, two herbicides and organochlorine pesticide and polychlorinated biphenyl residues in Tree Swallows were completed to the report stage. The dimethoate bran bait project is of most interest because the field broadcast of bran baits as carriers of the insecticide dimethoate have been proposed for grasshopper control. To determine if wild birds were attracted to bran baits we assessed consumption of the baits by Coturnix Quail, Ring-necked Pheasants and Savannah Sparrows by measuring the depressions of brain acetyl cholinesterase. Only pheasants might consume hazardous quantities of the baits, and only in situations where application rate is three times higher than the recommended rate.

In the long-range transport of air pollutants program two separate projects to determine if SO₂ or acid rain SO₄ would depress foliar concentrations of selenium and change plant concentrations of other elements, were completed. •

Pacific and Yukon Region

As part of a national program to determine the level and nature of dioxin contamination of wildlife and the environment, samples of Great Blue Heron eggs, fish, and sediments were collected from several sites on the Fraser Estuary and lower Vancouver Island. The samples have been shipped to the National Wildlife Research Centre in Ottawa for residue analysis.

A three-year study on the foraging strategies and activity budgets of Dunlin (Calidris alpina) on the intertidal mudflats of Boundary Bay has been completed. Four reports analyzing various aspects of the investigation are presently being prepared. Among other things it was found that

Dunlin alter their foraging rate in response to prey size classes and species composition. Foraging rate is poorly correlated with either invertebrate density or energy density.

Wildlife Pathology and Parasitology

The Pathology and Parasitology Section investigated, diagnosed and advised on die-offs in scoters, terns, scaup, and bighorn sheep. Section personnel examined about 50 specimens of 15 species of wildlife submitted for diagnosis by various agencies, held immobilization workshops, continued monitoring of caribou for brucellosis, assisted in transplants of the endangered wood bison, and provided advice on aspects of wildlife health ranging from avicultural premises to sylvatic giardiasis. Baseline studies were continued or completed on Ungava caribou coccidia, Beverly caribou calf mortality and pine marten parasites.

Bioelectronics

The Bioelectronics Unit supplied telemetry equipment, advice and support to CWS for studies on polar bear, grizzly, coyote, bobcat, seal, turtles, for transplants of pine marten, as record-timers for bird vocalization, and as incubation temperature and departure monitors for Leach's Petrel.

Environmental Chemistry

Development of a Herring Gull bioenergetics model was realized through Great Lakes Water Quality Program and Toxfund funding. The model predicts energy expenditures from ambient temperature, photoperiod, foraging efficiency, and seasonal production or activity (breeding, fat, moult, migration) in juvenile and breeding adult gulls. An experimental study on the excretion rates of a number of compounds found in the Great Lakes was carried out on juvenile gulls from Newfoundland. These data will be used along with the bioenergetics model to develop an integrated model of toxic chemical dynamics in Herring Gulls, which will greatly assist in interpretation of data gathered over the past decade from the Great Lakes.

Dioxin analysis continued to be a high priority. An interim quantitative procedure was tested and applied to a variety of sample types from species in aquatic food chains. The most toxic isomer, 2,3,7,8-TCDD, was found to be present at low part-per-trillion levels in all samples with a relatively high loading of other organochlorines, including polar bears. The ratio to other organochlorines was relatively stable outside areas of known point-source dioxin contamination, indicating that 2,3,7,8-TCDD is

a globally distributed contaminant along with PCBs and DDE. Levels of dioxins in the Great Lakes have remained relatively stable over the past three years.

TOXIC CHEMICALS

Again this year the main focus of the program activities concerning assessments of the impacts of toxic chemicals on wildlife health and habitat was on those new industrial chemicals subject to review under Section 4(6) of the Environmental Contaminants Act and those pesticides for which registration and research permits are sought, or those which were re-evaluated under provisions of the Pest Control Products Act. For example, this year CWS advised Agriculture Canada to suspend the above-ground uses of chlordane and the last remaining use of DDT in Canada. Other evaluation activities included a critical review of avian impact assessment techniques following broad-scale forest insecticide sprays. This paper, presented at the Wildlife Toxicology Workshop sponsored by the U.S. EPA and Society of Environmental Toxicology and Chemistry, in Portland, Oregon, examined the relative merits and pitfalls of measuring acetylcholinesterase inhibition in songbirds as the primary tool for assessing spray impact.

Pesticide Evaluation

A comprehensive review of the impact on prairie wetland and waterfowl productivity of the major pesticides (10 insecticides including synthetic pyrethroids and at least 6 herbicides) currently used in Western Canada was initiated with the aid of Environment Canada Toxfunds. The study, which is scheduled for completion in September 1984, will compare the relative risks of these chemicals, summarize details of use patterns of these pesticides in relation to waterfowl habitat, review pertinent wetland ecology literature, identify information gaps, and recommend guidelines for the conduct of field studies of pesticide impacts on sloughs.

Toxic Chemicals - Wildlife Information Base

Considerable progress was made this year in consolidating the chemicals - wildlife information base at the National Wildlife Research Centre. This information base is a scientific support service for all CWS evaluation, research and monitoring activities concerning toxic chemicals. About 1232 reports pertaining to all aspects of residues and effects in wild mammals of Canada, have been fully assembled and computerized. A similar file for amphibians contains 179 citations. While the avian-toxic chemicals reprint file has identified 6000 references, 3000 reprints are in hand and coded. Other computerized files (e.g., acid rain-wildlife impact, pesticide impacts on wetlands, reptiles, etc.) are also being developed. Tabulation and preliminary analysis of the reported residues

of toxic chemicals in gamebirds and an assessment of the utility of wings of Canadian migratory gamebirds for monitoring purposes have been completed. Also preliminary reviews of avian pharmacokinetics (tissue distribution patterns, clearance rates and metabolites and amphibian toxicology-environmental chemistry) have been completed.

Research and Monitoring Projects

The Toxic Chemicals Programs Section continued to provide effective centralized scientific support services for the research and monitoring activities of the CWS-Wildlife Toxicology, LRTAP, Toxic Chemicals, and Latin American programs. These services involve the preparation of biological specimens for either toxic chemical residue analyses or for archiving in the CWS National Specimen Bank (NSB) and the management of all contracts for chemical analyses including quality assurance requirements. The section also manages all residue and related data by operating the National Registry of Toxic Chemicals Residues. This is a large and unique data base containing raw residue data for about 20 000 wildlife specimens, collected since 1966. The NSB now contains about 14 000 wildlife specimens as whole bodies or selected parts. Computerization and reorganization of the NSB was begun in 1981 and will be completed in the next fiscal year. The current CWS Environmental Specimen Banking activities were described in an invited paper delivered at the International Review of Specimen Banking Symposium and 8th Bilateral U.S.-German Workshop on environmental specimen banking, held in Washington, D.C. in September.

Several major research projects were undertaken this year. The first phase of a study to demonstrate the feasibility of using forest spray simulation chambers and the Zebra Finch (*Poepsila guttata*) as an experimental system for fundamental studies of the routes of exposure of small birds to toxic spray droplets and as a toxicity screening technique was successfully completed. This is a joint research effort with the Forest Pest Management Institute of the Canadian Forestry Service and the Atlantic Region of CWS; further development work is planned for the next fiscal year. A preliminary survey of the levels of total lead and alkyl lead in Herring Gulls and Mallards from the Great Lakes and St. Lawrence River was conducted in cooperation with the National Water Research Institute in Burlington, McGill University, and DOE Ontario Region Director General's Office. An interim report of progress at the end of the second year of a 3.5 year study of the basic properties governing the persistence and bioavailability of a homologous series of dioxin isomers will be available in the Spring of 1984. This study is funded by DOE Toxfunds and conducted in the Pesticide Research Laboratory in the Department of Soil Science, University of Manitoba.

LONG-RANGE TRANSPORT OF AIRBORNE POLLUTANTS (LRTAP)

The first phase of the LRTAP studies on the composition of wildlife communities along a gradient of lake acidity has been completed. A comprehensive review was undertaken by CWS and it was decided that future efforts to determine the changes in trophic relationship caused by acidification would be concentrated in high deposition areas of Ontario and in the calibrated basin at Keji. Four proposals covering these studies were presented to the Royal Society for review.

Ontario Region

LRTAP studies conducted in the Ontario Region have investigated trophic relationships in a series of lakes at different stages of acidification to identify the mechanisms by which acidic precipitation might influence waterfowl populations through its impacts on prey species. In 1983, food-chain studies were conducted jointly in a large unaffected but sensitive area northeast of Sault Ste. Marie and in an area northeast of Sudbury which receives high atmospheric loading levels, causing considerable habitat acidification and loss of biota. The results indicate that aquatic invertebrate composition and abundance are tied closely with the presence or absence of fish, which in turn are affected directly by acidity.

In the heavily impacted Wanapitei area, acidity has led to a reduction in the occurrence of lakes supporting viable fish populations, which in turn has altered the suitability of such lakes as nesting sites for piscivorous waterbirds, such as Common Mergansers and Common Loons. However, the reduction in fish stocks through extinction of sensitive fish species has altered predator-prey relations, leading to the proliferation of macroinvertebrate taxa which represent potential prey for waterfowl as well as many fish species. While insectivorous waterfowl such as Common Goldeneyes prefer such fishless lakes, the data indicate that reproductive success on acidic-fishless lakes is lower than expected compared to naturally-fishless lakes and might be linked to reduced insect numbers under extremely acidic conditions. Future studies will examine the hypothesis that anthropogenic acidity is limiting the abundance of major invertebrate prey species at crucial stages in the nesting cycle of waterfowl, and reducing the utilization of acidic wetlands by waterfowl.

INTERPRETATION PROGRAM

Atlantic Region

1983-84 was a busy year for interpretation in the Atlantic Region. A much reduced program was continued at Huntsman Marine Laboratory, St. Andrews, New Brunswick. Information gathering surveys were conducted in New Brunswick to determine local knowledge and opinions of wildlife. That information will be used to design appropriate future programs for

those areas. Interpretive signs and displays were set up and trails were upgraded at the Chignecto National Wildlife Area. Plans were prepared for the installation of trails and other facilities at Chignecto and Shepody National Wildlife Areas through Canada Works Programs.

Québec Region

From April to October, the Cap Tourmente National Wildlife Area received 103 300 visitors, of which 35% visited the Interpretation Centre and used the services of the naturalists. The Maison de la chasse received 23 000 visitors.

From June 25 to September 2, 10 400 people were received at the Percé Wildlife Interpretation Centre. The naturalists met 126 000 people on the beach and 20 000 at Bonaventure Island.

At the Baie de l'Isle-Verte and Point de l'Est NWAs, two NEED projects ensured continuation of the interpretation programs.

In Montréal, the Centre de conservation de la faune ailée, established under a NEED project, reached 40 000 people in Mount Royal and Notre Dame Island.

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. Demonstrations of radio telemetry to track the movements of several Blanding's Turtles continued this year. The Centre has become a major tourist attraction in central Ontario and receives between 40-45 000 visitors each year.

This year the staff at the wildlife centre visited schools in central Ontario during the winter months. This is part of an extension program to bring a wildlife and winter ecology message to the classroom.

The Friends of Wye Marsh completed their first year of operation, assisting CWS with special events during National Wildlife Week and Canadian Environment Week. The Friends also operated a sales area. They are a non-profit corporation who support CWS goals at Wye Marsh, supplementing programs with enthusiastic volunteer support.

Western and Northern Region

Regional Interpretation

There were two very significant highlights in regional interpretation programming this year. The first was the creation of a new position, a Wildlife Interpretation Biologist position located in Winnipeg. This position will help the Interpretation Section to expand programming beyond the major program at Webb, Saskatchewan. The position was filled in July by Normand Paquette under the Scientific Career Recruitment Program.

Secondly, a cooperative interpretation program with the Province of Manitoba, Wildlife Branch, was initiated at Oak Hammock Marsh Wildlife Management Unit. This marsh is an excellent place to interpret this key prairie habitat and the management techniques employed to keep it healthy. The 600 000 residents of Winnipeg, just south of the marsh, represent good visitation potential.

Prairie Wildlife Interpretation Centre

Program Delivery and Marketing

Unusually hot, dry weather in August 1983 contributed to a 7.4% decline in visitation this year. However, the program quality was certainly maintained. This year the school group program was completely changed to allow us to deal with more groups and to provide consistent programs closely related to the Centre's themes. Special efforts were made to market this program with the result that school group attendance was up by 30%. Bus tour groups also represent a large potential audience but must be made aware that the program exists. Marketing to over 52 Canadian tour companies resulted in a 62% increase in bus tour attendance. Six new displays and 3 signs were added to the short loop trail, the major experience for most visitors. An ambitious project to design new displays for the exhibit hall is under way.

Visitor Services

Improving the accessibility of the Centre for handicapped persons has been a goal for several years. This year Environment Canada, Facilities Management, contributed \$93.0K which allowed the completion of concrete walks, a ramp connecting the upper and lower levels of the building and the paving of 4 parking areas. The Province of Saskatchewan also helped the Centre by paving a municipal road up to the CWS property line.

Habitat Enhancement

In an effort to increase the use of this property by wildlife, several projects are under way. This year 5 new flax bale islands were installed

in Goose Lake as nesting sites for Canada geese. Two controlled burns were conducted on the lakeshore in an effort to improve the food for the geese. Over 2000 trees and shrubs, all chosen for wildlife, were planted in the second of a three year planting project.

Special Projects

The Centre took full advantage of three special hiring projects in 1983/84. Three persons (Summer Canada Federal Internship Program) were hired for the four summer months to work and train with our staff of naturalists. Three persons were on staff August to December on a NEED project. The staff helped maintain tree plantings, improved the fire safety of the Centre and refurbished much of the public area of the building. In January 1984 three persons were hired on a Canada Works project to assist in the construction of displays for the exhibit hall.

Pacific and Yukon Region

The attendance at the interpretation program at Creston continued to grow. Over 30 000 visitors attended the Centre this year. In addition, a new program was established in the Qualicum NWA on Vancouver Island and a cooperative program with the B.C. Waterfowl Society at the Alaksen NWA near Vancouver began in January. The latter program has 60 000 visitors/year at present and has reached 100 000/year in the past. Weekly programs on CBC French and English radio began in October. An exchange with the Royal Society for the Protection of Birds was completed, in which aspects of each country's programs were studied for possible use by the other.

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

The reputation of CITES as being a leading environmental agreement in the world today continued to gain strength during 1983. Of particular importance was the ratification of Belgium, a leading nation in the trade of wildlife and wildlife products. By the end of March 1984, eighty-three countries were enforcing the requirements of the Convention.

CITES is a leading international agreement not merely because of the level of participation by the world's nations but more importantly because of the spirit of cooperation which exists between the Parties. This cooperation was clearly evident among the fifty-nine Parties which attended the Fourth Meeting of the Conference of the Parties to CITES held in Gaborone, Botswana, April 19 to 30, 1983. In addition to the friendly relations between the countries, the meeting was highly successful also because of a somewhat unique feature of the Convention which allows for the participation of any groups having an interest in CITES. There is no

doubt that the three United Nations or International governmental organizations, three non-party States and sixty-eight nongovernmental organizations in attendance at the Conference contributed much to the meeting.

The Botswana Conference is of interest to Canadians because of the extensive participation of Canadians at Gaborone and the subject matter of the meeting.

The ten member official Canadian delegation was the largest ever, consisting of one Member of Parliament, three CWS officers including the Director General as Head of Delegation, three from the Department of Fisheries and Oceans and one person each from the Department of Indian and Northern Affairs and the Department of External Affairs. The provincial/territorial representative was from the British Columbia Fish and Wildlife Branch. In addition to the official delegation, a total of twelve people participated at the Conference on behalf of nine Canadian nongovernmental organizations being the International Primate Protection League (Canada), Inuit Circumpolar Conference, Inuit Tapirisat of Canada, Assembly of First Nations, Canadian Association of Zoological Parks and Aquariums, Canadian Committee for the International Union for the Conservation of Nature and Natural Resources, Canadian Sealers Association, Fur Trade Association of Canada and the Fur Fashion Council of Canada.

The large contingent of Canadians at the Botswana Conference was the result of two separate proposals, one submitted by the Gambia and the other by the Federal Republic of Germany. The Gambian proposal was an attempt to broaden the interpretation of the CITES agreement so as to prohibit trade in CITES regulated specimens if such specimens had been obtained by the use of cruel and painful trapping devices including for example, the leg-hold trap. This draft resolution was defeated in a plenary session of the Conference by 30 votes against and 6 for, mainly because the Parties did not consider that the resolution fell within the scope of the Convention. The Federal Republic of Germany proposed that all phocid (earless) seals not already included in Appendix I be listed in Appendix II. This proposal was defeated because the Parties felt that it was not based on scientific evidence as required by CITES and it seemed to be a politically motivated proposal.

Conferences of the Parties, held biennially, represent the primary opportunity for the Parties to amend the Appendices, the list of controlled species. Of ten Canadian proposals, the following five species were deleted from the Appendices:

Lake sturgeon (Acipenser fulvescens) from Appendix II, Longjaw cisco (Coregonus alpenae) from Appendix I, Blue walleye (Stizostedion vitreum glaucum) from Appendix I, Northern swift fox (Vulpes velox hebes) from Appendix I, Bighorn sheep (Ovis canadensis - Canadian population) from Appendix II. Although the other five proposals concerning the shortnose sturgeon (Acipenser brevirostrum) and the Canadian populations of brown bear (Ursus arctos), wolf (Canis lupus), lynx (Lynx canadensis) and bobcat (Lynx rufus) were withdrawn, it was clearly indicated to the Parties

that Canadian populations of these species were biologically sound and that their listing was solely for reasons of similarity in appearance to species that are threatened or endangered in other countries.

On April 30, 1983, in Gaborone, the Second Extraordinary Meeting of the Conference of the Parties was held. The Parties considered, and eventually approved by a vote of 27 to 9, an amendment to Article XXI of the CITES agreement allowing "regional economic integration organizations constituted by sovereign States" to accede to CITES. The amendment cannot enter into force until 60 days after two-thirds, in other words 54, of the States party to CITES at the time of the Extraordinary Meeting have ratified or accepted the amendment. Once it becomes effective, the amendment will allow an organization like the European Economic Community (EEC) to become a party to the Convention.

During November 1983, three meetings were held to discuss the Botswana Conference, how to implement its various resolutions, possible submissions for the next Conference and the overall direction of CITES both nationally and internationally. Canada, as a Vice-chairman, attended a CITES Standing Committee Meeting in Gland, Switzerland, November 1 to 4. On November 14 and 15, in Hull, Québec, a North American Regional Meeting was held, attended mainly by officials from the Canadian Wildlife Service and the U.S. Fish and Wildlife Service. Immediately following, the Canadian CITES Management and Scientific Authorities gathered in Hull on November 16 and 17.

Informing people about CITES is the primary activity of the Canadian Wildlife Service's CITES staff. The many people needing information on CITES represent a wide cross-section of the Canadian and international public. Thousands of written and telephoned requests are received each year from people in many walks of life: customs brokers, freight forwarders, zoo and aquarium people and pet traders; orchid and cacti importers and exporters, business men and women, tourists, and Canadian and foreign diplomats; provincial and territorial management and scientific authorities, Customs and Royal Canadian Mounted Police (RCMP) officers, foreign wildlife officials, the international CITES Secretariat and of course other federal Departments such as Fisheries and Oceans, External Affairs and Agriculture Canada.

In response to the need for training the people responsible for the enforcement of the CITES regulations, seminars on the Convention have been given to Customs and RCMP officers since 1981. The CITES training program continued during 1983 and by the end of the year 31 seminars involving approximately 480 Customs and RCMP officers had been presented. In addition to sessions held in Ottawa and Rigaud, Québec, as part of formal courses for RCMP and Customs, seminars were held "in the field" in Coutts, Calgary and Edmonton, Alberta, Yarmouth and Halifax, Nova Scotia, and Montréal, Regina and Toronto. By the end of 1983, about 1280 enforcement officers had attended over 110 training seminars since the program began.

To the extent possible, information sessions are held at the request of other groups who wish more complete details on CITES. In March 1983, a talk was given to some 40 Conservation Officers of the Ontario Ministry of Natural Resources in Cornwall. In addition, two presentations were made to the Canadian Association of Zoological Parks and Aquariums during their annual meeting in Victoria, British Columbia, September 17, 1983. However, perhaps the highlight of the year was the two-week CITES workshop in Washington, D.C., in August. The workshop was a gathering of CITES officials from Central and South American countries, a number of Caribbean nations, the U.S. Fish and Wildlife Service and the Canadian Wildlife Service.

Canadian participants spoke on three occasions, once describing the Canadian political set-up, another time outlining the public awareness program and the third occasion a half day session explaining in detail the legal aspects of the application of CITES in Canada. The workshop was attended by people from 23 nations.

During 1983, a new component was added to the CITES public awareness program. Already in place are a pamphlet entitled "Noah didn't need a permit what about you?" and a series of television announcements to warn the public of the restrictions imposed by CITES. In addition a number of brochures distributed by Customs and Excise, Revenue Canada, External Affairs and Agriculture Canada all contain notices on CITES.

In June and July, exhibits developed by CWS in conjunction with the National Museum of Natural Sciences were set up in the international departure lounges of airports at Mirabel, Toronto (Terminal II) and Vancouver. Called "Souvenirs of Extinction" the exhibits explain the consequences to endangered species of purchasing living specimens, or their parts and products. In particular trade in elephant ivory, crocodile and alligator products, parrots, spotted cats and marine turtles is highlighted.

In 1983, federal, provincial and territorial CITES authorities issued 3476 endangered species export permits mainly for Appendix II species. During the same period the federal authority approved 55 endangered species import permits for Appendix I specimens, 39 Transit Certificates primarily for temporary entry of circus animals and 48 Scientific Certificates for the non-commercial loan, donation or exchange between scientists of prepared scientific specimens.

