

CANADIAN WILDLIFE SERVICE

Current Activities in the Northwest Territories and Nunavut



CANADIAN WILDLIFE SERVICE
PRAIRIE AND NORTHERN REGION
Yellowknife, NWT
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Illustrations by Autumn Downey

INTRODUCTION

The Canadian Wildlife Service (CWS) has conducted wildlife research in the Northwest Territories (NWT) and Nunavut (NT) for over 50 years. However, the total CWS effort dedicated to northern wildlife issues is often not apparent. Northern expertise is widely distributed throughout the Service and as a result, projects are undertaken from several centres including Yellowknife, Iqaluit, Edmonton, Ottawa, Saskatoon, Winnipeg, Hull, Ste. Foy, and Mt. Pearl (near St. John's).

Within the Prairie & Northern Region of Environment Canada, northern wildlife program coordination and responsibilities in the NWT and Nunavut are the focus of the Northern Conservation Division, which has its headquarters in Yellowknife.

This document provides an overview of CWS northern programs and projects and is a reference guide to CWS northern expertise. (Names and addresses are at the end of the report.) Comments on the content and utility of this document are welcome. Please direct your comments to:

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A. CWS ROLES AND RESPONSIBILITIES

CWS is responsible for management of wildlife in the national interest. Its roles and responsibilities derive from the following legislation:

Migratory Birds Convention Act (MBCA)

Under this act, CWS is responsible for the conservation and management of migratory birds in Canada and administers the Migratory Birds Regulations which govern hunting and possession of migratory birds. The Migratory Bird Sanctuary Regulations provide the legal basis for CWS to establish and manage bird sanctuaries. As of 2002, there were 17 Migratory Bird Sanctuaries (MBS) in the NWT and Nunavut.

Canada Wildlife Act (CWA)

This act enables CWS to protect wildlife species in danger of extinction and to acquire lands for wildlife research, conservation, and interpretation. These lands, known as National Wildlife Areas (NWA), are managed in accordance with the Wildlife Area Regulations. NWAs are managed in cooperation with local people in accordance with the terms of various land claim agreements throughout the north. As of 2002 there are two National Wildlife Areas in Nunavut.

Wild Animal and Plant Protection Act (WAPPRIITA)

In cooperation with the provinces and territories, CWS may control or prohibit import into Canada, export from Canada, or transport between provinces of any wild animal or plant.

Species at Risk Act (SARA)

The *Species at Risk Act* will serve to prevent species or subspecies from becoming extirpated or extinct, provide for the recovery of endangered or threatened species, and encourage the management of other species to prevent them becoming at risk. The legislation takes a cooperative approach to species-at-risk management, working in conjunction with provincial and territorial partners as agreed to under the *Accord for the Protection of Species at Risk*.

Canadian Environmental Protection Act

Under this act, CWS is responsible for conducting research aimed at developing regulations to protect migratory birds and their habitat from the toxic effects of environmental contaminants.

International Issues

CWS is responsible for Canadian participation in international agreements and fora such as the Agreement on the Conservation of Polar Bears and Their Habitat, the IUCN/SSC Polar Bear Specialist Group, the Ramsar Convention on Wetlands of International Importance, and the Circumpolar Agreement on the Conservation of Arctic Flora and Fauna.

CWS plays a major role in the international management of migratory birds through the North American Waterfowl Management Plan (NAWMP), the Flyway Councils, Western Hemispheric Shorebird Reserve Network (WHSRN), and other cooperative efforts. CWS is also a participant in the Arctic Monitoring and Assessment Programme, an international program intended to document the extent and effects of environmental pollution in circumpolar countries.

National Issues

CWS plays a role in all domestic interjurisdictional wildlife issues. For example, CWS provides a secretariat for the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and participates on the Polar Bear Technical and Administrative Committees.

CWS has played a key role in determining the distribution of contaminants in wildlife species over time and distance, particularly with regard to migratory birds through the Northern Contaminants Program. CWS also collaborates with Health Canada to inform northern residents about the levels of contaminants in country foods.

B. NORTHERN INITIATIVES

In addition to ongoing roles and responsibilities, CWS programs support a number of northern initiatives.

Land Claims and Wildlife Co-Management Boards

Virtually all of the NWT and Nunavut are subject to comprehensive land claims by aboriginal peoples (Figure 1). The Inuvialuit Final Agreement was concluded in 1984, the Gwich'in Final Agreement in 1992, the Nunavut Land Claim Agreement in 1993 and the Sahtu Final Agreement in 1994. Negotiations with respect to outstanding land claims are ongoing in the southwestern NWT. CWS participates in main table and land selection negotiations and also implements various legal and administrative obligations arising from the completed land claims. CWS is an active member of the wildlife management boards set up under each of the different land claims.

North American Waterfowl Management Plan (NAWMP)

The North American Waterfowl Management Plan is an international action plan to conserve migratory birds throughout the continent. The Plan's goal is to return waterfowl populations to healthy long-term levels by conserving important habitat and improving the knowledge base upon which conservation decisions are made. "Joint Ventures" – partnerships among private organizations, individuals and government agencies – are the primary vehicle for accomplishing NAWMP objectives. In Canada, there are several joint ventures. Northern-related Joint Ventures are the Arctic Goose and Seaduck Joint Ventures.

Northern Ecosystem Initiative (NEI)

The NEI is an Environment Canada (EC) initiative intended to facilitate coordinated action to identify and address common priority issues that relate to the health and sustainability of northern communities and ecosystems. NEI's principal areas of interest are: climate change, contaminants, capacity building, ecological monitoring, and impacts of resource use activities.

Northern Contaminants Program (NCP)

Through the NCP, CWS has provided information on the acceptability of wild foods, including migratory birds, for human consumption. The identification, geographical distribution, temporal trends and effects of persistent organic contaminants and heavy metals in polar bears and sea ducks have also been extensively studied.

Arctic Council (AC)

The Arctic Council was established in 1996 as a high level forum to promote cooperation among the Arctic States, with involvement of the Arctic indigenous communities and other Arctic inhabitants, on common issues, particularly sustainable development and environmental protection in the Arctic. Five Working Groups support the Council, including one which addresses the Conservation of Arctic Flora and Fauna (CAFF). CWS is active in the CAFF Program.

C. CANADIAN WILDLIFE SERVICE ACTIVITIES AND PROGRAMS

INTERNATIONAL PROGRAMS

Conservation of Arctic Flora and Fauna (CAFF)

The CAFF Program is a forum for scientists, indigenous peoples, and conservation managers to address issues of circumpolar conservation concern. Current initiatives include: an overview of the status and trends in key circumpolar species and ecosystems, assessment of the ecological impacts of climate change, and development of a circumpolar approach to monitoring biodiversity in the Arctic. CWS is the lead agency for coordinating Canada's contribution to this program.

Duration: Ongoing

Contact: Kevin McCormick

Sea Duck Joint Venture (SDJV)

The SDJV, a component of NAWMP, is intended to enhance our understanding and management of arctic sea ducks. The SDJV identifies research priorities and funding requirements, reviews research proposals, and communicates project results to interested parties. The Venture includes representatives from the Canadian and U.S. federal governments, provincial/territorial and state governments, flyway councils and non-government groups.

Duration: Ongoing

Contact: Kevin McCormick (Management Board)
Grant Gilchrist, Lynne Dickson (Technical Committee)

Arctic Goose Joint Venture (AGJV)

The AGJV, a component of NAWMP, is intended to enhance our understanding and management of arctic geese. The AGJV identifies research priorities and funding requirements, reviews research proposals, and communicates project results to interested parties. The Venture includes representatives from the Canadian and U.S. federal governments, provincial/territorial and state governments, flyway councils and non-government groups.

Duration: Ongoing

Contact: Kevin McCormick (Management Board)
Dale Caswell, Jim Hines (Technical Committee)
Deanna Dixon (Coordinator)

North American Bird Conservation Initiative (NABCI)

The North American Bird Conservation Initiative is an agreement among organizations and agencies from Canada, Mexico and the United States, with help from the North American Commission for Environmental Cooperation, to facilitate the conservation of all native North American birds. NABCI strives to develop, through partnerships, a strong biological foundation to integrate the conservation needs of landbirds, shorebirds, waterbirds and waterfowl. NABCI also works to build and strengthen multiple linkages among public agencies, private organizations, landowners, and individuals within and among the three countries to meet objectives for the conservation of North American Birds and the habitats they depend on.

Duration: Ongoing

Contact: Loney Dickson

Northern Shorebird Program Administration

The Northern Shorebird Program is a response to needs that have been identified by national and continental bird conservation plans. In particular, the Nongame Program strives to fill gaps in CWS programs in the NWT and Nunavut that are identified in the North American Bird Conservation Initiative, and the Canadian Shorebird Conservation Plan.

Duration: 1999 to 2006

Contact: Vicky Johnston

LAND CLAIMS

Inuvialuit Final Agreement (IFA)

Signed in 1984, this was the first comprehensive land claim in the NWT. CWS is involved in a number of wildlife studies in the region and is represented on the Wildlife Management Advisory Council (WMAC) which deals with all significant wildlife issues relating to the ISR. CWS also provides advice in support of the Southern Beaufort Sea Polar Bear Management Agreement between the Inuvialuit of Canada and the Inupiat of Alaska.

Duration: Ongoing

Contact: Jim Hines

Gwich'in Final Agreement (GFA)

Full implementation of this agreement, which was signed in 1992, will occur over a number of years. A CWS employee is a member of the Gwich'in Renewable Resources Board (GRRB) which deals with all significant wildlife issues relating to the Gwich'in Settlement Area.

Duration: Ongoing

Contact: Paul Latour

Nunavut Land Claims Agreement (NLCA)

Full implementation of this agreement, which was signed in 1993, will occur over several years. A CWS employee is a member of the Nunavut Wildlife Management Board (NWMB) which deals with all significant wildlife issues relating to the Nunavut Settlement Area.

Duration: Ongoing

Contact: Kevin McCormick

Sahtu Final Agreement (SFA)

Full implementation of this agreement, which was signed in 1994, will occur over a number of years. A CWS employee is a member of the Sahtu Renewable Resources Board (SRRB) which deals with all significant wildlife issues relating to the Sahtu Settlement Area.

Duration: Ongoing

Contact: Paul Latour

Dogrib Land Claim

As the federal wildlife agency, CWS is part of the federal team negotiating a land claim with the Dogrib Treaty 11 Council. The Final Agreement was initialed in September 2002 with ratification by Dogrib communities expected by early 2003. It provides for a Wekeezhii Renewable Resource Board which will be the wildlife co-management body for the settlement area.

Duration: Ongoing

Contact: Paul Latour

Deh Cho Land Claim

The Deh Cho First Nation has expressed interest in negotiating a self-government agreement. Having completed a Framework Agreement and Interim Resource Development Agreement, it is expected that detailed negotiations will commence in early 2003.

Duration: Ongoing

Contact: Paul Latour

South Slave Land Claim

The South Slave Metis completed an Interim Measures Agreement in 2002 and is negotiating a comprehensive claim Agreement-in-Principle.

Duration: Ongoing

Contact: Paul Latour

KEY HABITAT SITES

Management of Protected Areas

CWS manages 16 MBSs and two NWAs in NWT and Nunavut. Primary management activities include the development of management plans, the review of permit applications and the production of public information. The NLCA requires management plans for all CWS protected areas in the Nunavut Settlement Area, and the negotiation of Inuit Impact and Benefit Agreements (IIBA) for many of them.

CWS issues permits with respect to activities within MBSs and NWAs, and the salvage or collection of birds in the course of scientific studies. Applications are reviewed in cooperation with impact review boards and other institutions under the various land claims.

Location: NWT and Nunavut

Duration: Ongoing

Partners: Wildlife comanagement boards, local HTOs, NTI

Contact: Paul Latour (NWT); Mark Mallory (Nunavut)

Inuit Impact and Benefit Agreement (IIBA)

Under the Nunavut Land Claim Agreement, government and Inuit must complete an IIBA for all conservation areas that existed when the final agreement was completed; and before new conservation areas are established. Environment Canada is negotiating an umbrella IIBA that will cover all of its existing Sanctuaries and National Wildlife Areas, as well as up to four proposed new areas.

Location: Nunavut

Duration: Ongoing

Contact: Victoria Johnston

Establishment of Protected Areas in the Mackenzie Valley

With the likelihood of greatly increased activity in the Mackenzie Valley from the energy, mineral and forestry sectors there is increasing pressure to establish a network of protected areas that represent the range of biological diversity in the Mackenzie Valley and protect key habitat sites. CWS is working with its partners to identify and advance such sites through the NWT Protected Areas Strategy.

Location: NWT

Duration: Ongoing

Partners: First Nations, WWF, DU Canada, CPAWS, GNWT, INAC

Contact: Paul Latour

Nirjutiqavvik National Wildlife Area

The Nirjutiqavvik National Wildlife Area, on Coburg Island, was formally designated in 1995. It provides protection for large nesting populations of Thick-billed Murres, Northern Fulmars and Black-legged Kittiwakes. In 1996, a management committee was formed which assists CWS with day-to-day management of the NWA. IIBA negotiations are nearing completion and the management plan is being developed concurrently.

Location: Figure 2 point 32

Duration: ongoing

Partners: Iviq (Grise Fiord) HTO

Contact: Mark Mallory

Igaliqtuuq National Wildlife Area

Isabella Bay on Baffin Island contains critical summer habitat for the eastern arctic population of Bowhead Whales. The community of Clyde River proposed the creation a NWA at Isabella Bay for the protection of the Bowhead Whale and its habitat. Negotiations on the IIBA are ongoing. Formal designation is expected shortly thereafter.

As part of the process of designating the area as an NWA, the CWS will conduct a wildlife and habitat inventory of the site to develop a picture of the current ecological condition of the wildlife area.

Location: Figure 2 point 29

Duration: Ongoing

Partners: Nangmoutaq HTO, INAC, DFO, GNU

Contact: Victoria Johnston, Mark Mallory

Ecological and Resource Assessment of the Proposed Edezhie Wildlife Area

In October 2002, CWS obtained a 5 year land withdrawal for the Edezhie candidate protected area (25,000 sq km), which includes pristine boreal forest and important boreal wetlands. During this period CWS will be cooperating with its partners in conducting an assessment of the ecological and mineral resources of the Edezhie area as outlined in Step 5 of the NWT Protected Areas Strategy. The location of boundaries will be identified and an area management plan developed. This information will be used in the final determination of whether to proceed with formal designation of the candidate area through such instruments as the Canada Wildlife Act, Wildlife Area Regulations.

Location: Figure 2 point 12

Duration: 2002-2006

Partners: DCFN, DUC, GNWT, WWF, INAC

Contact: Paul Latour

Habitat Mapping of the Dewey Soper Bird Sanctuary

There is concern about the potential impacts of grazing by increasing numbers of geese in the Dewey Soper Bird Sanctuary. Land cover is being mapped by using satellite (Landsat TM) imagery. Fieldwork was conducted in 1999 and the maps will be developed thereafter.

Location: Figure 2 point 19

Duration: ongoing

Partners: AGJV, PCSP, Mississippi and Central Flyway Councils

Contact: Andrew Didiuk, Mark Mallory

Habitat Mapping of Migratory Bird Sanctuaries on Southampton Island

An assessment of the availability, distribution and diversity of habitats in MBSs and NWAs in Nunavut is required to address issues of boundaries and land use in or near Conservation Areas, as well as issues regarding habitat degradation as it related to overabundant white geese. Mapping of the Southampton sites will complete the series of mapping projects already undertaken at Queen Maud Gulf MBS, McConnell River MBS and Dewey Soper MBS.

Location: Figure 2 ooint 18 and 25

Duration: 2000-2003

Partners: Coral Harbour HTO, NMNH, PCSP

Contact: Mark Mallory, Al Fontaine

Habitat and Wildlife Inventory of the Proposed Cape Searle and Reid Bay NWA

The CWS has been trying to establish protection for the seabird colonies at Cape Searle and Reid Bay since the mid 1980s. In May 2000, the community of Qikiqtarjuaq and the CWS agreed to proceed on work to create these new NWAs. Collectively, a baseline inventory of natural features and current colony size and condition will be a critical benchmark against which to assess the anticipated impacts of cruise ships and increased marine shipping activities at these sites in the future.

Location: Figure 2 point 28

Duration: 2000-2002

Partners: Nattivak HTO, WWF, Municipality of Qikiqtarjuaq

Contact: Mark Mallory, Al Fontaine

Effects of Seismic Exploration on migratory birds and their habitat in Kendall Island Bird Sanctuary

The significance of effects of seismic exploration on migratory birds and their habitat in arctic environments is unknown. With the amount of recent and future seismic exploration in the Kendall Island

Bird Sanctuary, there is a need to ascertain the nature and duration of seismic effects on bird abundance (primarily shorebirds and passerines) and vegetation. In cooperation with the University of Alberta and industry, CWS initiated a study of the effects of seismic exploration on migratory birds and their habitat in the Sanctuary.

Location: Figure 2 point 3

Duration: 2002 to 2004

Partners: University of Alberta, Industry

Contact: Paul Latour

LAND AND SEASCAPES

Environmental Review of Development Activities

CWS reviews land use permit, water licence, operating authorization and sanctuary permit applications that have relevance to migratory bird population and habitat management. Large-scale developments on Crown land (which encompasses large portions of the NWT and Nunavut) are subject to review under the various land-claim-based review processes, the Canadian Environmental Assessment Act (CEAA) or the Mackenzie Valley Resource Management Act (MVMRA).

Location: NWT and Nunavut

Duration: Ongoing

Contact: Vanessa Charlwood

The Red-throated Loon as an Environmental Indicator

Development of the oil and gas reserves in the Beaufort Sea may have a significant impact on the bird populations in the region. This study evaluates the breeding population and productivity of an indicator species, the Red-throated Loon, before and after development. The first five years of the study have been completed and the results have been analysed. The next phase of the project will depend on the timing of development.

Location: Figure 2 point 2

Duration: 1985 to undetermined end point

Partners: PCSP, INAC

Contact: Lynne Dickson

Tundra Swan as an Ecological Indicator of Oil and Gas Development in the Mackenzie Delta

The Mackenzie Delta Region is one of the most important breeding areas for Tundra Swans in North America. Approximately, 1/3 of the Eastern Population of Tundra Swans nest in the Inuvialuit Settlement Region and nearby parts of the Gwich'in Settlement Area. The continental population of Tundra Swans is small compared to most other waterfowl, and this species has low productivity and needs to be long-lived to maintain populations. Thus, Tundra Swans are potentially susceptible to over-harvest and could be

additionally impacted by energy development. Pairs, nests, and broods of swans are easily counted from the air, making this a suitable indicator species for environmental impact of oil/gas development and other environmental stressors in the delta.

Location: Figure 2 point 3

Duration: 2001 to 2003

Partners: USFWS, INAC, DU, UNBC, WHC

Contact: Jim Hines

Distribution and Abundance of Waterfowl and Other Migratory Birds in the Mackenzie Delta Region

The purpose of this project is to document changes in numbers of a number of species of waterfowl in the Mackenzie Delta, to evaluate the impacts of gas and oil development on migratory bird populations in the Inuvialuit Settlement Region and to guarantee that sustainable and high numbers of waterfowl are maintained in the Mackenzie Delta region for the use of Inuvialuit and other Canadians.

The Mackenzie Delta, Tuktoyaktuk Peninsula, and neighbouring parts of the mainland Inuvialuit Settlement Region are among the most important breeding areas for waterfowl and other migratory birds in North America. Many species of waterfowl are harvested by local residents for subsistence use, and thus, the Inuvialuit are concerned that regional populations of these species are carefully managed. As well, general concerns about the status of many species exist at national and continental levels, further emphasizing the need for careful management. Proposed development of natural gas fields in the region could have an irreversible impact on waterfowl populations.

Location: Figure 2 point 3

Duration: 2002 to 2004

Partners: WMAC, PCSP

Contact: Jim Hines

SEABIRDS

Population and Behavioural Studies of Sabine's Gulls, at East Bay, Southampton Island

The Sabine's Gull occupies an ecological niche different from other seabirds because it feeds on a variety of marine and fresh-water organisms. This study monitors long-term population densities at East Bay and identifies factors influencing annual population variation and reproductive success. Survival rates and fidelity of Sabine's Gulls to mates and nest sites will also be determined.

Location: Figure 2 point 25

Duration: 1998 to 2003

Partners: NSTP, PCSP, Memorial University, Coral Harbour HTO, NRI.

Contacts: Grant Gilchrist, Iain Stenhouse (Memorial University)

Population Surveys of Ivory Gulls Breeding on Ellesmere Island

The Ivory Gull which breeds in remote areas of the high arctic is considered vulnerable by COSEWIC because of its low numbers, few known breeding colonies and intolerance of disturbance. The last population survey was in 1985. Recently, Inuit from Resolute and Grise Fiord have reported fewer sightings of Ivory Gulls in their areas. This project will re-survey breeding colonies on Ellesmere Island, and will establish population trend data for the species. Initial surveys suggest a substantial decline in populations across Nunavut.

Location: Figure 2 point 33

Duration 2002-2004

Partners: WWF, PCSP, SARA

Contact: Grant Gilchrist, Mark Mallory

Population Dynamics of Thick-billed Murres

Thick-billed Murres are the second most-hunted migratory bird in Canada. Substantial mortality also occurs due to oiling and drowning in gill nets. In addition, aspects of murre breeding biology (diet, timing of laying, adult mass and chick growth) are affected by environmental conditions. Studying year-to-year changes in Thick-billed Murre ecology at Coats Island helps us to keep track of ongoing changes in local marine ecosystems. This ongoing study will increase our knowledge of Thick-billed Murre population dynamics so that more effective management strategies may be formulated.

Location: Figure 2 point 21 and 22

Duration: 1984 to present

Partners: PCSP, University of Ottawa, Memorial University of Newfoundland, CWS-AR, NRI, NSTP

Contact: Tony Gaston

High Arctic Seabird Studies in Lancaster Sound

The Canadian High Arctic, especially the Jones Sound/Lancaster Sound region, is an important area for breeding seabirds: Northern Fulmars, Glaucous and Thayer's Gulls, Black-legged Kittiwakes, Thick-billed Murres, and Black Guillemots. Despite the ornithological importance of the region, little is known of population trends of these species.

Biological processes in High Arctic marine ecosystems are closely tied to annual schedules of sea-ice break-up and freeze-up. Current global warming trends are likely to advance the break-up of sea-ice, and possibly reduce the amount of floating ice present at sea in summer. At present, nothing is known of the effects of recent climatic changes on Eastern Canadian High Arctic marine ecosystems or their seabirds.

At Prince Leopold Island, a comparison of the current situation with information obtained on breeding biology, phenology and diet of polar seabirds in the 1970s is to be used to monitor ongoing ecosystem changes, and how seabirds are responding to them.

Location: Figure 2 point 30, 31, and 32

Duration: ongoing

Partners: PCSP, University of Ottawa, and NSTP

Contact: Tony Gaston, Grant Gilchrist

Eastern Arctic Seabird Population Monitoring

In the late 1970's and early 1980's, population monitoring began at several eastern arctic seabird colonies. By comparing the populations of study plots over time, population increases and/or decreases of selected Thick-billed Murre, Northern Fulmar, and Black-legged Kittiwake colonies are monitored. Study plot assessment occurs at five-to-ten year intervals, rotating among colonies.

Location: Figure 2 point 21, 22, 25, 26, 30, 31, 32

Duration: 1996 to 2006

Partners: PCSP, NRI

Contact: Grant Gilchrist, Tony Gaston, Gilles Chapdelaine (Ungava Bay colonies), Mark Mallory

Contaminants in Arctic Seabirds

Seabirds, by virtue of their position in the food chain, can be used as an indicator of the health of marine ecosystems through their degree of chemical contamination. There is increasing evidence that arctic biota are exposed to contaminant levels higher than expected. This is an ongoing project which has measured contaminant levels in selected arctic-nesting seabirds and eggs since the 1970's.

Location: Figure 2 point 31

Duration: periodic and ongoing

Partners: PCSP, INAC

Contact: Birgit Braune

Reproductive Ecology of Sabine's Gull at East Bay, Southampton Island

Since its discovery, in 1818, Sabine's Gull has been rarely studied, and information on the general ecology of this species is based on little more than anecdotal reports. As an Arctic breeder and a trans-equatorial migrant, its breeding areas are rarely visited, its wintering areas have only recently been established with any certainty, and migration routes still remain something of a mystery. In addition, the Sabine's Gull is considered an outlier within the gull family (Laridae) and is recognized as phylogenetically distinct, as well as highly atypical in many aspects of behaviour. It is precisely this behavioural distinction that makes Sabine's Gull an interesting and useful subject for a reproductive ecology and behavioural study.

Location: Figure 2 point 25

Duration: 1998 to 2002

Partners: NCD, Memorial University

Contact: Grant Gilchrist

Survey of Thick-billed Murres at Cape Parry, NWT

Cape Parry supports the smallest known Thick-billed Murre colony in the Canadian Arctic. Recent genetic analysis confirms that these murres belong to the north Pacific population, rather than the north Atlantic population. Consequently, this colony occurs at the western margin of the range for the Pacific population, and may serve as an important site for population monitoring. This project surveyed the Cape Parry colony to detect any changes in the breeding population there, and contributes to an over-all seabird monitoring strategy of the Canadian Arctic developed by the Canadian Wildlife Service in 1998. Cape Parry will be surveyed every 5-10 years.

Location: Figure 2 point 5

Duration: ongoing – survey every 5 to 10 years

Partners: NCD

Contact: Grant Gilchrist

SEA DUCKS

Pacific Common Eider Reproductive Ecology and Survival in the Central Arctic

The Pacific Common Eider population that nests in central and western Arctic Canada declined by more than 50% between 1976 and 1996. Reasons for the decline are unknown. This study examines their reproductive ecology and survival in a core breeding area east of Bathurst Inlet to determine if conditions on the breeding grounds are contributing to the population decline.

Location: Figure 2 point 9

Duration: 2000 to 2010

Partners: NWMB, PCSP

Contact: Lynne Dickson

Survival and Reproduction of King Eiders at Karrak Lake

North American King Eiders are believed to have decreased by 75% over the last four decades. Basic information on changes in population size, breeding and wintering ecology of King Eiders is needed to develop a management and conservation strategy for this species. A study has been initiated at Karrak Lake which supports a “semicolonial” nesting aggregation of King Eiders.

Location: Figure 2 point 15

Duration: 1995-2003

Partners: NWMB, PCSP, Institute for Waterfowl and Wetlands Research, Delta Waterfowl and Wetlands Research Stations, University of Saskatchewan, NSTP

Contact: Ray Alisauskas

Location of Pacific Common Eider Moulting and Wintering Areas

The Pacific Common Eider population that nests in central arctic Canada and winters west of the continent declined by more than 50% between 1976 and 1996. The reasons for the decline are unknown. Harvest statistics indicate it is not heavily hunted, and most of the nesting grounds remain undisturbed by human activity. Similar declines in the other three eider species in the Bering Sea area suggest the cause is due to changing conditions on the winter areas. The at-sea location of Pacific Common Eiders is poorly understood, including where they occur in the Bering Sea. This study proposes to delineate important moulting and wintering areas for Pacific Common Eiders nesting in central arctic Canada.

Duration: 2001 to 2004

Partners: USFWS, PCSP, Sea Duck Joint Venture, National Fish and Wildlife Foundation

Contact: Lynne Dickson

Eider population count during migration past Point Barrow, Alaska

Most of the eiders that nest in western Arctic Canada pass by Point Barrow, Alaska during spring migration, making it possible to count their numbers. Systematic counts conducted in 1976, 1987, 1994 and 1996 indicated that both the King and Common Eider declined by >50% over the twenty year period. The counts will be repeated in 2003 and 2004 to determine whether these two western Arctic populations of eiders have continued to decline in numbers.

Location: Figure 2 point 1

Duration: 2003 to 2005

Partners: University of Alaska Fairbanks, North Slope Borough Alaska, USFWS

Contact: Lynne Dickson



Population Studies of Common and King Eiders Breeding in East Bay, Southampton Island

Eiders are heavily hunted in maritime Canada, parts of the NWT and Nunavut, and south-west Greenland. East Bay supports one of the highest densities of Common and King Eiders in the eastern Canadian arctic. Data collected on eider survival and reproduction from this site will provide baseline information needed to effectively manage the species.

Location: Figure 2 point 25

Duration: 1996-2006

Partners: NSTP, Trent University, Coral Harbour HTO, NRI, Greenland Research Institute, Memorial University.

Contact: Grant Gilchrist, Myra Roberston

Winter Ecology of the Hudson Bay Eider in the Belcher Islands, Nunavut

Hudson Bay eiders are an economically important species to the community of Sanikiluaq. Eiders spend the winter in open water leads near the Belcher Islands and off the west coast of Quebec. Mass die-offs can occur when these open water leads freeze. This study examines the winter ecology and winter habitat use of the eiders which will provide a better understanding of the frequency, magnitude, and impacts of these die-offs.

Location: Figure 2 point 23

Duration: 1998-2003

Partners: NWMB, WHC, WWF, Atlantic Cooperative Wildlife Ecology Research Network, Sanikiluaq, Satellite Imaging Centre of Alaska.

Contacts: Grant Gilchrist, Greg Robertson

Heavy metal contamination in King Eiders at Karrak Lake: relationship to adult survival rates

North American King Eiders are believed to have decreased by 75% over the past four decades. Earlier studies documented relatively high concentrations of cadmium and other metals in sea ducks in the Canadian arctic. This study is examining the relationship between concentrations of heavy metals in blood samples of adult, female King Eiders and their subsequent survival rates.

Location: Figure 2 point 15

Duration: 1997 to 2001

Partners: ECB, CWS – HQ, ERD, NEI

Contact: Mark Wayland

Marine Bird Surveys in Frobisher Bay

While the numbers of eiders are declining in Nunavut, Frobisher Bay represents one area that is thought to support substantial numbers. It is also the site of key marine sites, notably polynyas, that support migrating or overwintering marine birds. This study will survey the islands in Frobisher Bay thought to support colonies of eiders and guillemots. It will also survey polynyas in Frobisher Bay for temporal distribution of marine birds prior to breeding.

Location: Figure 2 point 27

Duration: 2002 to 2005

Partners: NCD

Contact: Mark Mallory

Habitat Requirements of White-winged and Surf Scoters in the Mackenzie Delta Region

Combined White-winged and Surf Scoter populations have experienced apparent long-term declines across the continent, and those populations in the boreal forest of northern Alberta, British Columbia, and the Northwest Territories (NT) may have declined by as much as 75% in the past 50 years. The main objective of the study is to evaluate how specific wetland characteristics affect the abundance, distribution, and productivity of White-winged (*Melanitta fusca*) and Surf Scoters (*M. perspicillata*) in the part of their core breeding range near Inuvik, NT. In particular, this research has been designed to look for evidence of habitat selection by these species.

Location: Figure 2 point 3

Duration: 2000 to 2003

Partners: Arctic Institute of North America, Northern Ecosystems Initiative, Science Horizons, GRRB, IWWR, NSERC, NSTP, PCSP, U of S – Department of Biology

Contact: Bob Clark

GEESE AND SWANS

Arctic Goose Joint Venture (AGJV) Coordinating Office

CWS maintains the Coordinating Office for the AGJV. The office, located in Edmonton, receives project proposals, provides project funding, tracks and reports financial information. The Coordination office also leads communication activities, assists with all policy and program documents, and provides effective liaison between the AGJV Technical Committee and Management Board, all participating partners, and other interested parties.

Duration: Ongoing

Partners: CWS P&Y, P&N, Quebec, Ontario, HQ, PCSP, Governments of NWT, Manitoba, Ontario, DU, USFWS, U.S. Flyways, State governments,

Contact: Deanna Dixon

Management of Expanding Snow Goose Populations

Feeding activities by the rapidly expanding mid-continent population of Lesser Snow Geese have caused extensive damage to coastal marshes along west Hudson Bay. This has prompted wildlife managers to consider a variety of hunting measures to reduce that population. CWS, in cooperation with the territorial, provincial, and U.S. federal and state governments, is implementing numerous techniques to increase harvest of Snow Geese and stop further environmental damage. Greater Snow Geese are also increasing and causing significant crop damage issues.

Duration: ongoing

Partners: Arctic Goose Joint Venture, Governments of NWT, Nunavut, Manitoba, Saskatchewan, Alberta, Ontario, and Quebec; USFWS, U.S. state governments, DU.

Contact: Jim Leafloor
Raymond Sarrazin
Deanna Dixon

Abundance of Breeding Shorebirds and Songbirds in Relation to the Snow Goose Colony on Banks Island

Increasing populations of Lesser Snow Geese on Banks Island could lead to possible long-term loss of important habitat for geese and other migratory birds. The purpose of this study is to determine the abundance of breeding shorebirds and passerines within, and at incrementally greater distances from, the Snow Goose colony on Banks Island as well as to evaluate the impact of increasing Lesser Snow Geese on lowland tundra habitat on Banks Island. Field studies were completed in 2002 and data analysis and reporting are underway.

Location: Figure 2 point 6

Duration: 1999 to 2002

Partners:

Contact: Paul Latour, Jim Hines

Impact of Increased Harvest on the Western Arctic Snow Goose Population

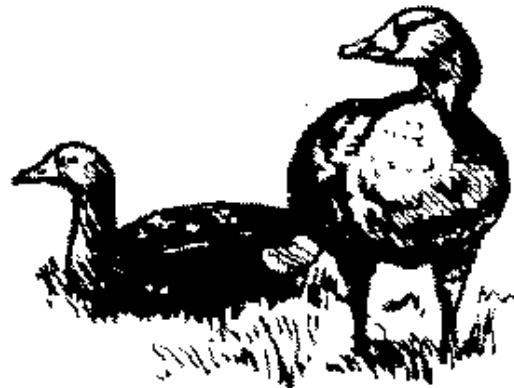
Snow Goose numbers have increased greatly on Banks Island, but numbers on the mainland remain low (e.g., Kendall Island) or have declined (Anderson River). Although it is probably desirable to increase the harvest of the overall Western Arctic population of Snow Geese, it is necessary to evaluate the impact that an increase in harvest, both within and outside the ISR, would have on goose numbers. Specifically, within the ISR, there is a need to determine what impact increased harvest would have on geese at the small mainland colonies, as well as the larger colony on Banks Island. This is to be determined by banding geese at the different colonies to determine what proportion of the harvest is coming from different areas. The study is expected to be useful for delineating areas where selective harvests of Banks Island geese can occur on the mainland of the ISR and would also provide valuable information on the shifting fall, winter, and spring distributions of Snow Geese from the Western Arctic.

Location: Figure 2 point 3, 4 and 6

Duration: 1999 to 2004

Partners: WMAC, PCSP

Contact: Jim Hines



Snow Goose Impacts on the Lowland Tundra of Banks Island

The Lesser Snow Goose colony on Banks Island has grown at a fast rate (>6% since 1981). Continued long-term population growth at this rate could result in extensive damage to the lowland tundra habitat on which Snow Geese and many other species of wildlife depend. Damage to the tundra ecosystem and subsequent crashes of Snow Geese and Muskox populations would have important socio-economic repercussions for the Inuvialuit of Sachs Harbour, NWT, who live a largely subsistence life style, and to other Inuvialuit communities that harvest large numbers of snow geese each spring.

There is an obvious and significant need to assess the present condition of lowland habitat on Banks Island and the possible impacts Snow Geese are having on other species. Managers need to know the urgency of the situation given the risks in increasing harvest rates of Banks Island Snow Geese and whether Snow Geese there are 'over-abundant'. This proposed study would address this need by taking both an extensive (remote-sensing) and intensive (ground study) approach to assessing and monitoring habitat.

Location: Figure 2 point 6

Duration: 1999 to 2002

Partners: WMAC, PCSP

Contact: Jim Hines

Nutritional Ecology and Population Biology of Ross' Geese at Karrak Lake

The largest known colony of Ross' Geese occurs at Karrak Lake, Nunavut. The objective of this project is to construct a model that describes fluctuation in the size of the spring and fall populations of Ross'

Geese in North America. It is intended to determine which factors (e.g. spring nutrition, arctic weather) most affect the variation in sizes of goose populations.

Location: Figure 2 point 15

Duration: ongoing

Partners: PCSP, University of Saskatchewan, DU, GNWT, GNU, INAC

Contact: Ray Alisauskas

Monitoring Survival and Recovery Rates in Mid-continent White-fronted Geese

Recent banding of mid-continent White-fronted Geese in the central and western arctic and in Alaska has yielded valuable information on their distribution during migration and in winter. What were formerly considered eastern and western portions of this goose population show strong mixing outside of the breeding range. Estimates of annual survival are needed to assess the effects of changes in regulations and other management actions. A five-year banding effort is currently under way.

Location: Figure 2 point 16

Duration: 1998 to 2002

Partners: Central and Mississippi Flyway Councils, PCSP

Contact: Ray Alisauskas

Dispersal in Arctic Geese

One of the most important issues related to waterfowl management in North America is the current and projected damage to arctic ecosystems resulting from exponential growth of Snow Goose populations. The focal concern is removal of arctic ecosystems through over-exploitation of vegetation communities by Snow Geese. Such communities are finite, constitute only a portion of the arctic, and are mostly limited to coastal areas. Predicted outcomes of extensive removal of vegetation include not only subsequent declines in Snow Geese, but also reduction in biodiversity through negative effects on other wildlife populations that rely on affected arctic habitats. As a result, there is a widely recognized need to reverse population growth in midcontinent Snow Geese. Components of population growth include recruitment, survival, immigration, and emigration. This study will provide estimates of immigration and emigration.

Location: Figure 2 point 15

Duration: 1999 to 2003

Partners:

Contact: Ray Alisauskas

Inventory of Snow and Ross' Geese in Arctic Canada by Vertical Aerial Photography

CWS has conducted air photo surveys of Snow and Ross' goose colonies in Arctic Canada since the early 1970s. CWS attempts to survey each of the major white goose breeding areas every five years to track changes in population size. This information is used to establish hunting seasons, bag limits, and for related management decisions.

Location: NWT and Nunavut

Duration: ongoing

Partners: PCSP, WMAC, USFWS

Contact: Dale Caswell, Keith Warner, Kathy Meeres

Population Size, Distribution and Survival of Eastern Arctic Geese

This project monitors several species of concern during annual survey and banding operations. Aerial surveys monitor the population size of small Canada Geese, Lesser Snow Geese, Ross' Geese, Sandhill Cranes and Tundra Swans on the Great Plains of the Koukdjuak (west Baffin Island) and along the west coast of Hudson Bay. Marked birds are monitored during their migration and on their wintering areas to determine their distribution and survival rate. This information is used to establish harvest regulations and to design management actions that will increase the harvest of white geese.

Location: Figure 2 point 17, 18 and 19

Duration: 1991-2007

Partners: AGJV, GNWT, USFWS, PCSP, GNU, Government of Manitoba, Central and Mississippi Flyway councils, Wildlife Management Institute, NWMB, Arviat HTO.

Contact: Dale Caswell

Greater Snow Goose Feeding Ecology and Habitat Relationships on Bylot Island

Greater Snow Geese numbers have reached record levels in recent years and continue to increase. High densities could lead to habitat degradation on Bylot Island which supports a major portion of this population. This study will consider how goose feeding activity affects the quality of their habitat and how habitat quality (and other factors) influences goose productivity.

Location: Figure 2 point 30

Duration: ongoing

Partners: AGJV, PCSP, Universite Laval

Contact: Richard Cotter

Goose Studies in James Bay

The coastal wetlands of James Bay are a major staging area for Atlantic Brant, Canada Geese, and Lesser Snow Geese, species important to the Cree and Inuit hunters of northern Quebec. Many Canada Geese also nest and rear young in nearby freshwater marshes. This study will provide information on the ecological requirements of the geese during their staging and breeding periods in order to assess, predict and mitigate impacts from development activities.

Location: Figure 2 point 24

Duration: ongoing

Partners: AGJV, James Bay Energy Corporation, Groupe Environment Shooner, Eeyou Corporation

Contact:

Status, Demography and Winter Habitat use of Western High Arctic Brant

Western High Arctic (WHA) Brant breed mainly on Prince Patrick and Melville islands in the western Canadian Arctic Archipelago and winter almost exclusively in Padilla Bay, Washington. Although more research is needed, analysis of mitochondrial DNA together with field observations, suggest that these birds may be distinct from all other brant stocks in North America. If this were true, the WHA Brant population, numbering only 4-8,000 birds, would be one of the rarest goose stocks in the world.

Basic demographic data are needed to understand the dynamics of this population and to ensure that recruitment exceeds or equals harvest and natural mortality over the long-term. For example, virtually nothing is known about the migration strategy used by WHA Brant in the fall. There is a need to assess habitat selection patterns of WHA Brant versus Black Brant in terms of important sites (including protected areas) and habitat types used in winter and during the hunting season.

Location: Figure 2 point 7 and 8

Duration: to 2003/04

Partners: AGJV, PCSP

Contact: Sean Boyd

Snow Goose Banding and Associated Inventory

Monitor and assess information on the population dynamics of Snow Geese before, during, and following the projected major adjustments in harvest management programs for all major colonies.

Duration: 1998 to 2008

Partners: AGJV, US Flyways, USFWS

Contact: Dale Caswell

LANDBIRDS

North American Breeding Bird Survey

This survey provides long-term trend information on many of the forest birds in the southern NWT. The NWT surveys are part of a larger program which is conducted across Canada and the United States.

Location: NWT and Nunavut

Duration: Ongoing

Contact: Craig Machtans

Forest Bird Studies in the Liard Valley in Relation to Timber Harvesting

The Liard Valley is one of the key areas of resource development in the Northwest Territories. Exploration and development of natural gas reserves and some commercial forestry in the area is changing the landscape. A five year project assessed bird-habitat relationships in the area and created a baseline data set for monitoring long term changes of birds in the area. Periodic resampling is planned to track population changes.

Location: Figure 2 point 13

Duration: 1998 to 2002

Partners: INAC, GNWT, Acho Dene Koe First Nation

Contacts: Craig Machtans

Assessing the Impacts of Seismic Lines on Forest Songbirds

The effect of seismic lines on forest birds has not been studied. Conjecture based on other fragmentation studies or expert advice has been the primary source of information on impacts of seismic activity. At one extreme, very high densities of small individual disturbances destroy much habitat, and impacts are inevitable. However, there are many areas of the boreal where seismic lines are common but not super-abundant, where the actual impact is still speculative. The lack of any research on this topic creates problems.

This study will aim to quantify the impact of the 4-6m linear lines on forest songbirds. This represents the current “worst-case” scenario for seismic lines, and if effects cannot be documented for this level of disturbance, it is reasonable to assume that the more conservative approaches are even lower in impact.

Location: Figure 2 point 13

Duration: 2002 to 2003

Partners: Anadarko Canada Corp., Canadian Forest Oil, INAC,GNWT, Acho Dene Koe First Nation

Contacts: Craig Machtans

NWT/Nunavut Bird Checklist Survey

The NWT/Nunavut Bird Checklist Survey is a volunteer-based program that gathers data on the distribution and abundance of birds in the NWT and Nunavut. The Survey also collects historical bird data for use in environmental assessments.

Location: NWT and Nunavut

Duration: ongoing

Partners: PC, INAC, numerous other government and non-government agencies and individuals

Contact: Craig Machtans

Monitoring Boreal Forest Birds

The need for baseline information on bird distribution and population status is strongly defined in many regional and national documents. Several proposed initiatives are being pursued to achieve a regional monitoring program to help collect this information. Proposed work will likely include intensive and extensive surveys of birds throughout the Northwest Territories, and will be linked to national strategies and plans for monitoring boreal forest birds.

Location: NWT

Duration: ongoing

Contact: Craig Machtans

SHOREBIRDS

Arctic Shorebird Monitoring Program for North America

Results from shorebird surveys conducted on migration routes show that nearly 80% of Canadian shorebird species are in decline. A breakdown of those data shows that populations of most Arctic breeders are in decline. We are hindered in our ability to address and reverse population declines by our lack of knowledge about the birds and their habitats. Additionally, for arctic breeding species, information about breeding distribution and breeding density is minimal or lacking completely.

This program will estimate the population of most breeding shorebird species across the arctic, produce maps of distribution and abundance of shorebirds and identify high-quality habitats for each shorebird species. These initiatives will help implement the Northern Shorebird Conservation Strategy, and coordinate and implement the arctic shorebird monitoring segment of PRISM (Program for Regional and International Shorebird Monitoring).

Location: NWT and Nunavut

Duration: 2001 to 2006

Partners: HCAD, USFWS

Contact: Victoria Johnston

Taiga and Boreal Shorebird Monitoring Program

The taiga and boreal shorebird monitoring program in the NWT will attempt to identify long term trends in relative abundance of Lesser Yellowlegs and other shorebirds, and determine which species merit further study and/or conservation. These actions will help to implement the Northern Shorebird Conservation Strategy and Action Plan.

Location: NWT

Duration: 1999 to 2006

Partners:

Contact: Victoria Johnston

Energetic condition and breeding in the Ruddy Turnstone

The Ruddy Turnstone (*Arenaria interpres*) has been identified as a species of high concern by the Canadian Shorebird Conservation Plan working group, however their breeding ecology in North America is poorly understood. Comparative studies of their reproductive physiology and energetics are critical to understanding how physiological mechanisms affect reproductive success. This project investigate the stress responses of Ruddy Turnstones during the breeding season, coupled with detailed records of breeding behavior, ecology, and productivity. The primary questions to be answered are:

- 1) What is the body condition of turnstones when they arrive on the breeding grounds?
- 2) Is there a relationship between stopover habitat quality (primarily Delaware Bay, US) and arrival condition?
- 3) How do the birds' energy budgets change throughout the breeding season?
- 4) Are these changes a function of parental investment in their eggs?

Location: Figure 2 point 25

Duration: 2002 to 2004

Partners: University of Maine, Polar Continental Shelf Project

Contact: Victoria Johnston

Ecology and Eco-energetics of High-arctic Shorebirds

Shorebirds undertake lengthy migrations every year from their breeding grounds in high-arctic Canada to wintering grounds in Europe and the Americas. This study investigates the energy budgets of shorebirds during their annual cycle, how and where shorebirds accumulate the energy reserves necessary for their demanding life cycle, the role of body reserves in breeding, and shorebird populations in relation to predator cycles. It will also help to predict how climate change may affect arctic shorebirds' distributions and their ability to complete their migrations.

Location: Figure 2 point 34

Duration: Ongoing

Partners: University of Groningen (The Netherlands), Netherlands Institute for Sea Research, Joint Nature Conservation Committee (U.K.), DND, PCSP

Contact: Guy Morrison

Population Studies of Shorebirds Breeding at East Bay, Southampton Island

The Canadian Arctic supports a large proportion of Canada's breeding shorebirds but their population trends and reproductive success are poorly known. On Southampton Island, local Inuit have reported recent population declines. This study will monitor long-term population densities at East Bay and identify factors influencing annual population variation and reproductive success.

Location: Figure 2 point 25

Duration: ongoing

Partners: NSTP, PCSP, Trent University, Coral Harbour HTO, NRI.

Contacts: Vicky Johnston, Grant Gilchrist, Erica Nol (Trent University)

BOREAL WATERFOWL

Waterfowl Population Management in the Western Arctic

The purpose of the Western Arctic waterfowl program is to ensure that northern residents receive full consideration in national and international waterfowl management programs. This work entails establishing annual bag limits and hunting regulations, reviewing and developing waterfowl management plans, and evaluating the potential impact of development on waterfowl populations and habitat.

Location: NWT

Duration: ongoing

Partners: WMAC, federal, territorial, provincial, and state governments

Contact: Jim Hines, JF Dufour

Productivity of Boreal Forest Duck and Grebe Populations

The boreal forest covers one-third of Canada and supports an estimated 25-50% of the continent's breeding ducks. This study is intended to: 1) document the long-term population trends and productivity of waterfowl in the boreal forest; 2) determine factors which might limit the growth of these populations; 3) determine the habitat preferences and requirements of northern waterfowl; and 4) evaluate methods for surveying northern aquatic birds. In conjunction with this study, CWS is investigating waterfowl, gull and tern populations using the North Arm of Great Slave Lake during migration, nesting and moulting periods.

Location: Figure 2 point 10

Duration: 1985 to present

Partners: DU, INAC, AHSD/EC

Contact: Jim Hines, JF Dufour

Population Ecology of Lesser Scaup in the Boreal Forest of Western Canada

Numbers of Lesser Scaup have declined well below continental population goals and there is considerable concern about the well-being of this species. This study will evaluate factors which limit the reproductive success and potential growth of Lesser Scaup populations in an important part of their North American range - the boreal and subarctic region of the Northwest Territories.

Location: Figure 2 point 11

Duration: 1985 to present

Partners: University of Saskatchewan, Delta Waterfowl Foundation, NWT Department of Transportation, DU.

Contact: Mike Fournier, Bob Clark, Jim Hines

WATERBIRDS

Ecology of Horned and Red-necked Grebes

Horned Grebes, Red-necked Grebes, and other aquatic birds are potential indicators of the health of aquatic ecosystems in boreal and sub-arctic regions. Environmental and behavioral factors that influence the reproductive success of grebes are being studied near Yellowknife, Northwest Territories.

Location: Figure 2 point 11

Duration: 1986 to 2003

Contact: Jim Hines

POLAR BEARS

Long-term Trends in Polar Bear Ecology in Relation to Climatic Change

The western Hudson Bay Polar Bear population lives near the southern limit of the distribution of the species, where it is most vulnerable to changes in ice formation as a consequence of environmental or climatic fluctuations. Over the past 15-20 years, the condition and natality of this population of Polar Bears have been declining. These declines appear to be directly related to a trend towards the earlier breakup of sea ice in western Hudson Bay, due to warmer spring temperatures, which reduces the time that polar bears have access to seals. Although the declines in condition and natality have not yet led to a decline in the size of the population, it is clear that if the trends continue in the same direction, they will eventually have a detrimental effect on the ability of the population to sustain itself. The effects of long-term climatic change are not only restricted to Polar Bears in western Hudson Bay, but will be of obvious significance to polar bears throughout the circumpolar Arctic. The Hudson Bay population is the only one for which sufficient data currently exists to examine trends and determine effects.

The purpose of this study is to capture an annual sample of Polar Bears, of all age and sex classes, to determine whether the declining trend in both cub production and body condition, which has occurred over the past 20 years, is continuing or has stabilized in order to provide timely data to assist in the ongoing, long-term conservation and management of polar bears in western Hudson Bay.

Location: Figure 2 point 20

Duration: Ongoing

Partners: Manitoba Conservation, NEI, NSERC, NWMB, PC, WWF (Canada), WWF (AP)

Contact: Ian Stirling, Nick Lunn

Polar Bear Male and Female Reproductive Success

This study will describe the mating system of Polar Bears as determined from genetic evidence. Aspects of the mating system including the degree of inbreeding (inbreeding avoidance), frequency of mate choice, and the effective population size (proportion of adults breeding) will be examined. In addition, the study will estimate the mean and variance in male reproductive success, and examine individual reproductive success in relation to age and physical condition. Due to the long time span over which samples have been collected, estimates of lifetime reproductive success, reproductive lifespan, and the heritability of reproductive success will be determined. Genetic determination of parentage will also allow for a re-assessment of the frequency of natural adoption in polar bears, and the occurrence of multiple paternity within individual litters. The availability of a long-term dataset of field observations and tissue samples in conjunction with an efficient genetic methodology for parentage assessment will allow for a unique assessment of mating structure in a large, long lived mammal.

The ability to examine mating structure will allow for a critical examination of the effect of current management practices, including the effects of the removal of males in a 2:1 ratio to females and the effects of removal of large (older) males from the population.

Location: Figure 2 point 20

Duration: 2002 to 2005

Partners: NSERC, STAGE, U of A

Contact: Ian Stirling

Movements and Population Dynamics of Polar Bears in the Beaufort Sea

The purpose of this study is to more accurately define the population dynamics and movements of Polar Bears in the Beaufort Sea, and how those bears may be affected by proposed hydrocarbon development and shipping.

Location: Figure 2 point 2

Duration: 2000 to 2007

Partners: PCSP, RWED, USFWS, USGS

Contact: Ian Stirling

Polar Bear Ecology and Behaviour

This study analyzes the behaviour of undisturbed Polar Bears, evaluates the significance of polynyas to Polar Bears, and determines the relative importance of different habitat types to the bears.

Location: Figure 2 point 20

Duration: Ongoing

Partners: PCSP, U of A

Contact: Ian Stirling

Ecology of Harbour Seals Summering in the Churchill River

Industrial activities (including hydroelectric development) and climatic change have been identified as factors causing significant ecological change on a regional scale in Hudson and James bays. Recent unpublished data indicate that numbers of Harbour Seals may be increasing in western Hudson Bay, possibly in response to climatic warming, and that Harbour Seals are becoming more important in the diet of Polar Bears in western Hudson Bay. This suggests that this species may be an important indicator of ecological change accompanying climatic warming in the Arctic.

The objective of this project is to study the year-round ecology of Harbour Seals that summer in the lower Churchill River. Satellite transmitters will be attached to locally-captured seals, then the movements throughout the year will be documented.

Location: Figure 2 point 20

Duration: 2001 to 2004

Partners: DFO (Mont Joli), Manitoba Hydro, NSERC, U of A

Contact: Ian Stirling

Assessment of the Status of Ringed Seals in Western Hudson Bay

Over the past 15-20 years, the condition and natality of Polar Bears in western Hudson Bay have been declining. These declines appear to be directly related to a trend towards the earlier breakup of sea ice in western Hudson Bay, due to warmer spring temperatures, which reduces the time that Polar Bears have access to seals. How Ringed Seals may be affected by long-term ecological or climatic fluctuations is unknown because there are few data on the biology of Ringed Seals anywhere in Hudson Bay that can be used to compare them to their conspecifics in other areas, evaluate hypotheses about their ecology, or aid in their conservation.

The objective of this project is to collect baseline data on some biological parameters (e.g., population age structure, reproductive rates, and diet) for Ringed Seals in western Hudson Bay as part of a long-term study of the ecological relationships between Ringed Seals and Polar Bears.

Location: Figure 2 point 2

Duration: Ongoing (inactive 2002)

Partners: NSERC, NWMB

Contact: Ian Stirling, Nick Lunn

OTHER SPECIES

Recovery of Wood Bison

Wood Bison are presently classified as "threatened" by COSEWIC. CWS, in cooperation with provincial and territorial governments and other interested parties, is working to establish a least four discrete, free-ranging, disease-free, and viable populations of 400 or more Wood Bison in suitable habitat within their original range in Canada. Presently, the total population is estimated at nearly 4000, including 3000 in six free-ranging, disease-free herds. CWS is a member of the Wood Bison Recovery Team which is now in the process of implementing the completed, approved, and published Recovery Strategy (October 2001).

Location: Figure 2 point 14

Duration: Ongoing

Partners: PC, Governments of NWT, Alberta, Manitoba, Yukon, and British Columbia; Alaska Department of Fish and Game, USFWS, Government of the Republic of Sakha (Yakutia), Russia; First Nation governments

Contact: Hal Reynolds

Ecology of Whooping Cranes

Annual surveys are undertaken to determine the extent of breeding areas in Wood Buffalo National Park (WBNP), numbers of nests, eggs and young, and the location of non-breeding birds. A joint project between CWS, WBNP and the University of Alberta is investigating food availability and chick survival on the breeding grounds.

Location: Figure 2 point 14

Duration: Ongoing

Partners: USFWS, PC, University of Alberta

Contact: Brian Johns

Northern Species at Risk - Habitat Stewardship Program

As part of the Government of Canada's commitment to Species at risk recovery and conservation, the Habitat Stewardship Program was initiated nationally in 1999, and in northern Canada in 2001. The Habitat Stewardship Program provides financial support to private citizens and non-federal agencies to undertake projects designed to identify, describe, and conserve the habitat of COSEWIC listed species, and to promote management actions that will conserve species at risk. In northern Canada, the Habitat Stewardship Program has supported habitat stewardship projects on Bowhead Whales, Woodland Caribou, Peary Caribou and Wood Bison.

Location: NWT and Nunavut

Duration: Ongoing

Partners: GNWT, GNU, northern wildlife management Boards, WWF, DFO, PCA, INAC

Contact: Paul Latour

ENFORCEMENT

Coordination of Enforcement Activities within NWT and Nunavut

Enforcement of CWS legislation in the NWT and Nunavut is largely undertaken by GNWT and GNU Renewable Resource Officers and the RCMP. The CWS Wildlife Enforcement Coordinator is responsible for ensuring appropriate enforcement of the MBCA, the MBS Regulations, the NWA Regulations, the CWA, the Game Export Act, and WAPPRIITA. The Coordinator is also empowered to assist territorial colleagues in enforcing the NWT Wildlife Act.

Location: NWT and Nunavut

Duration: Ongoing

Contact: Garry Bogdan

ECOLOGICAL MONITORING

Coordination of EMAN-North Network

The Ecological Monitoring and Assessment Network (EMAN) is a national network of sites, agencies, and researchers who are engaged in long-term ecological monitoring. EMAN-North is a network linking the many groups and individuals involved in ecological monitoring in northern Canada (Yukon, Northwest Territories, Nunavut, northern Manitoba, and Labrador). The goal of EMAN-North is to improve understanding of ecological change in northern Canada through promoting, coordinating, and communicating the results of long-term ecological monitoring. Environment Canada staff (based in Whitehorse and Yellowknife) chair the EMAN-North Steering Committee.

Location: NWT and Nunavut

Duration: ongoing

Partners: PC, INAC, DFO, NRCAN, GNWT, GNU, GYU, NRI, ARI, UBC, numerous individual researchers

Contact: Kevin McCormick

LIST OF ACRONYMS

AC	Arctic Council
AES	Atmospheric Environment Service
AGJV	Arctic Goose Joint Venture
AHSD	Arctic Hydrometric Surveys Division
ARI	Aurora Research Institute
CAFF	Conservation of Arctic Flora and Fauna
CEAA	Canadian Environmental Assessment Act
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWA	Canada Wildlife Act
CWS	Canadian Wildlife Service
DFO	Department of Fisheries and Oceans
DND	Department of National Defense
DU	Ducks Unlimited
EC	Environment Canada
EMAN	Ecological Monitoring and Assessment Network
EPB	Environmental Protection Branch
GFA	Gwich'in Final Agreement
GNU	Government of Nunavut
GNWT	Government of the Northwest Territories
GRRB	Gwich'in Renewable Resources Board
GYU	Government of Yukon
HTC	Hunters and Trappers Committee
HTO	Hunters and Trappers Organization
IFA	Inuvialuit Final Agreement
IGC	Inuvialuit Game Council
IIBA	Inuit Impact and Benefit Agreement
INAC	Department of Indian Affairs and Northern Development
ISR	Inuvialuit Settlement Region
IWWR	Institute for Wetland and Waterfowl Research
MBCA	Migratory Birds Convention Act
MBS	Migratory Bird Sanctuary
MVMRA	Mackenzie Valley Resource Management Act
NAWMP	North American Waterfowl Management Plan
NEI	Northern Ecosystem Initiative
NFA	Nunavut Final Agreement
NLCA	Nunavut Land Claim Agreement
NOW	Northwater Polynya
NRCAN	Natural Resources Canada
NRI	Nunavut Research Institute
NSERC	National Science and Engineering Research Council
NSTP	Northern Scientific Training Program
NTI	Nunavut Tunngavik Incorporated
NWA	National Wildlife Area
NWMB	Nunavut Wildlife Management Board
NWRI	National Water Research Institute
NWT	Northwest Territories
PC	Parks Canada Agency
PCB	Polychlorinated Biphenyl
PCSP	Polar Continental Shelf Project
RCMP	Royal Canadian Mounted Police
SDJV	Seaduck Joint Venture
SFA	Sahtu Final Agreement
SRRB	Sahtu Renewable Resources Board
STAGE	Strategic Application of Genomics in the Environment
UBC	University of British Columbia
U of A	University of Alberta

U of S	University of Saskatchewan
USFWS	US Fish and Wildlife Service
USGS	US Geological Service
WAPPRIITA	Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act
WBNP	Wood Buffalo National Park
WHC	Wildlife Habitat Canada
WHSRN	Western Hemispheric Shorebird Reserve Network
WMAC	Wildlife Management Advisory Council (Inuvialuit)
WWF	World Wildlife Fund
WWF (Canada)	World Wildlife Fund (Canada)
WWF (AP)	World Wildlife Fund (Arctic Programme)



Figure 1. Land claim areas of the NWT and Nunavut.



Figure 2. Location of CWS field projects in the NWT and Nunavut.

- | | |
|---|---|
| 1. Point Barrow, Alaska | 16. Perry River, Nunavut |
| 2. Beaufort Sea, NWT | 17. West coast of Hudson Bay, Nunavut |
| 3. Mackenzie Delta, NWT | 18. Harry Gibbons Migratory Bird Sanctuary, Nunavut |
| 4. Anderson River Delta, NWT | 19. Koukdjuak, west Baffin Island, Nunavut |
| 5. Cape Parry, NWT | 20. Churchill, Manitoba |
| 6. Banks Island, NWT | 21. Coats Island, Nunavut |
| 7. Prince Patrick Island, NWT | 22. Ivujivik, Quebec |
| 8. Melville Island, NWT | 23. Sanikiluaq, Nunavut |
| 9. Bathurst Inlet, Nunavut | 24. James Bay |
| 10. North Arm of Great Slave Lake, NWT | 25. East Bay, Southampton Island, Nunavut |
| 11. Yellowknife, NWT | 26. Ungava Bay |
| 12. Proposed Edezhie Wildlife Area, Horn Plateau, NWT | 27. Frobisher Bay |
| 13. Fort Liard, NWT | 28. Cape Searle and Reid Bay, Nunavut |
| 14. Wood Buffalo National Park, NWT | |
| 15. Karrak Lake, Nunavut | |

29. Igaliqtuuq National Wildlife Area, East
Baffin Island, Nunavut
30. Bylot Island, Nunavut
31. Prince Leopold Island, Nunavut

32. Nirjutiqavvik National Wildlife Area,
Coburg Island, Nunavut
33. Ellesmere Island, Nunavut
34. Alert, Nunavut

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