Northwest Territories Biodiversity Action Plan

Major Initiatives on Biodiversity

Northwest Territories Biodiversity Action Plan – *Major Initiatives on Biodiversity*

2004

NWT Biodiversity Team

Canada

Wildlife Management Advisory Council (NWT)

National Library of Canada Cataloguing in Publication

NWT Biodiversity Action Team
Northwest Territories Biodiversity Action Plan: major initiatives on biodiversity / NWT Biodiversity Action Team.

Includes bibliographical references.
ISBN 0-7708-0107-2

1. Biological diversity conservation – Northwest Territories. 2. Ecosystem management – Northwest Territories. 3. Environmental policy – Northwest Territories. I. Northwest Territories. Dept. of Resources, Wildlife and Economic Development II. Title.

QH77.C3N67 2004 333.95'16'097193 C2004-900928-1

Copies of this publication may be obtained free of charge from:
Wildlife and Fisheries Division
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This document is available on the internet at:
http://www.nwtwildlife.rwed.gov.nt.ca/biodiversity/biodiversity_action_plan.htm

Bientôt disponible en français sous le titre:
Plan d'action pour la biodiversité aux Territoires du Nord-Ouest – Initiatives majeures sur la biodiversité.

Suggested citation:
NWT Biodiversity Team. 2004. Northwest Territories Biodiversity Action Plan – Major Initiatives on Biodiversity. Department of Resources, Wildlife and Economic Development, Government of the Northwest Territories, Yellowknife, NT. 202 pp.

Cover concept and photo credits:
Ecosystem function – leaf returning to ground
Species as building blocks of biodiversity – insects are part of the most numerous species group *(Leucorrhinia hudsonica)*
Dragonfly, courtesy of Paul Catling

Goal I – Barrenground Caribou, courtesy of Paul Nicklen

Goal II – East Arm of Great Slave Lake Landscape, courtesy of Chris O'Brien

Goal III – At Camp, courtesy of Tessa Macintosh

Goal IV – Polar Bear, courtesy of Paul Nicklen/RWED Collection

Goal V – Northern Perspective of Earth, courtesy of NASA/JPL

Designed and Printed in the Northwest Territories
Printed on Recycled Paper

Message from the NWT Biodiversity Team

Dear Reader,

It is with pleasure that we present a first report on biodiversity actions in the Northwest Territories (NWT), Canada.

This report describes the numerous initiatives undertaken by organizations and groups working in the NWT that touch directly and indirectly on the goals of the Canadian Biodiversity Strategy (CBS) and the United Nations Convention on Biological Diversity (UNCBD). We have tried to prepare a complete and relevant list. Although the list is long, we may have missed some important actions. As we would like to make this list complete, please contact any of the members of our Team to provide input on any missing biodiversity actions or on any errors.

Everyone can use the present list of NWT actions to:

- analyse our progress in implementing the UNCBD;
- strengthen linkages between our actions and others relevant to the NWT at the local, regional, national and international levels;
- provide opportunities for participation of local and aboriginal communities, interested individuals and groups, business interests, and the scientific community in implementing the Strategy; and
- help develop national and international progress reports.

Many directives in the CBS are relevant from a national perspective; the relevance of specific actions may vary across regions. It is, therefore, up to the people of the NWT to draw upon the CBS to define our own goals and objectives in biodiversity conservation. How each organization and group will choose to implement the CBS may depend on their own policies, plans, priorities and capabilities.

During the next months we would like to analyse the list, looking to the gaps between commitment and action. This will help us develop potential future actions and opportunities for coordination. We look forward to sharing our findings and hearing your input.

Participation in the Biodiversity Team remains open.
The Biodiversity Team would benefit from your participation.

Yours truly,

NWT Biodiversity Team

NWT Biodiversity Team

- Aurora College and Aurora Research Institute
- Canadian Parks and Wilderness Society
- Canadian Wildlife Service, EC
- Dene Nation
- Department of Fisheries and Oceans
- Ducks Unlimited Canada
- Forest Management, RWED
- Gwich'in Renewable Resource Board
- Indian and Northern Affairs Canada
- NWT Protected Areas Secretariat
- Parks and Tourism Division, RWED
- Parks Canada, Western Arctic Field Unit
- Parks Canada, NWT Southwest Field Unit
- Sahtu Renewable Resources Board
- Wildlife and Fisheries Division, RWED
- Wildlife Management Advisory Council (NWT)
- World Wildlife Fund Canada (NWT)
- Department of Transportation, GNWT (observer)
- Canadian Museum of Nature (observer)

See contact information on page 199.

Acknowledgements – List of Contributors

The NWT Biodiversity Team would like to acknowledge the efforts of many individuals who provided material, wrote and reviewed text, and helped during the production of this report. We greatly appreciate their support, and look forward to working with them and others on NWT biodiversity actions in the future.

Special thanks to:
Jamie Bastedo – who provided the first draft of "The Changing Face of Biodiversity" and wrote many additional sections for the Companion to the NWT Biodiversity Action Plan, soon available on the internet.

Our many thanks to:
Adrian D'Hont
Adrienne Jones
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Brenda Hans
Brett Elkin
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Bruce Mcdonald
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Introduction

On December 4, 1992, Canada became the first industrialized nation to ratify the United Nations Convention on Biological Diversity (UNCBD). In doing so, this country made a commitment to go beyond the words of the convention to implement actions that reflect a set of values and way of living that is ecologically sustainable.

Since 1992, many organizations and agencies working in the Northwest Territories (NWT) have initiated a broad array of programs related to many aspects of the UNCBD.

The NWT Biodiversity Team

In November 1995, the Canadian Biodiversity Strategy was approved and ratified by Cabinet, and signed by then Minister of Renewable Resources, the Honourable Silas Arngna'naaq. Upon signing, the NWT agreed to make every effort to implement the Strategy in its jurisdiction. In 2001, the Department of Resources, Wildlife and Economic Development (RWED), Government of the Northwest Territories, assumed the task of developing a list of all the programs and actions being carried out in the NWT and helping to produce a Biodiversity Action Plan. RWED considered early on that a report on biodiversity-related actions for the NWT should reflect not only what government is doing, but should include initiatives from all people and organizations within the NWT. The listed initiatives would therefore include the actions of as many groups, departments, and organizations as possible.

In 2002 and 2003, RWED sent invitations to governments, organizations, and groups that might be interested in being part of a Biodiversity Team. Since then, the NWT Biodiversity Team has been working towards an action plan to guide the implementation of the Canadian Biodiversity Strategy (CBS) in the Northwest Territories. The CBS is Canada's primary response to the UN Convention on Biological Diversity.

Biodiversity in Other Words

The web of life

- **dè** = the Land in Dogrib
- **Dè** = Earth
- **Nungorutitailinahuaknik** = Conservation in Inuvialuktun
- **Ecosystem** = all things infused with life, including rocks (Dene meaning)

UN Convention on Biological Diversity

The Convention promotes three main objectives:

- the conservation of biodiversity;
- the sustainable use of biological resources; and
- the fair and equitable sharing of benefits arising from the use of genetic resources.

The Convention and its three objectives represent an increasing awareness worldwide of both the value of biodiversity, and the increasingly severe threats that it faces.

Canadian Biodiversity Strategy

The Canadian Biodiversity Strategy (CBS) is Canada's primary response to the Convention: a national framework that puts the Convention into a Canadian context.

NWT Biodiversity Action Plan

The NWT Biodiversity Action Plan will list NWT biodiversity actions, analyze gaps and overlaps, and outline recommendations for further actions toward the implementation of the CBS and the UNCBD in the NWT over the next decade. With the Action Plan, the Team would like to transform the strategic directions of the CBS into practical proposed actions for use by groups, governments and agencies interested in biodiversity conservation and sustainable use in the NWT.

The NWT Biodiversity Action Plan is a tool for implementation and a response to our commitments.

Conservation starts by taking care of the land, if it is looked after it will replenish itself, the same goes for our wildlife. If we limit how much we take and do not waste, future generations will continue to harvest successfully from the land.

Holman Working Group, Olokhaktomiut Community Conservation Plan Holman, NWT, 1994

To assess what further actions will be required to meet our commitments under the UNCBD, a gap analysis must be carried out. Until the present list developed by the Biodiversity Team, there has been no comprehensive inventory of biodiversity-related initiatives in the NWT against which to compare international commitments under the Convention and Canadian commitments according to the CBS. It is through an analysis of these current actions and commitments that we will develop priorities for future biodiversity initiatives.

The major products of the Biodiversity Action Plan are:

- Report 1 on current activities related to biodiversity in the NWT.
  ✓ This report.
- A web page on biodiversity in the NWT.
  ✓ Biodiversity web page produced and hosted at http://www.nwtwildlife.rwed.gov.nt.ca/biodiversity/biodiversity_action_plan.htm

  The web page provides access to additional information, including background material and more details on some actions. It will be updated to include any actions not described in Report 1.
- A searchable list of NWT-based activities and initiatives related to biodiversity.
  ✓ This database can be found on the Biodiversity web page.

  The list can be used to quickly find and compare our commitments to what is already being accomplished and proposed priorities for the future.
- Report 2: A future report that will include a gap analysis and recommendations and proposed future actions.

Together these products make up the NWT Biodiversity Action Plan.

The Changing Face of Biodiversity

The Big Picture

The Global Stage

The greatest diversity of life on Earth, measured by number of species, occurs in habitats with the most year-round solar energy, the least ice and snow cover, the most varied terrain, and the greatest climatic stability over long periods of time.

Wildlife in the NWT is well adapted to cold temperatures, and makes up a major component of global northern biodiversity. From the highest peak in the Mackenzie Mountains to the floor of the Beaufort Sea, organisms of one kind or another inhabit virtually every square centimetre of the NWT's surface. As with everywhere on the planet, wherever there is liquid water, organic molecules, and an energy source, there is life.

Many NWT landscapes are renowned worldwide for pristine ecosystems, where large numbers of terrestrial herbivores and marine species share habitats with healthy predator populations. For thousands of years NWT wildlife species have been of tremendous importance both ecologically and culturally to northern Aboriginal People.

Find more: on world biodiversity at *www.nhm.ac.uk/science/projects/worldmap/index.html* and on Canadian biodiversity at *www.canadianbiodiversity.mcgill.ca*

Biological Diversity

The NWT, like other polar regions, is home to a relatively small number of species compared to the hotbeds of biodiversity that rim transition zones between different ecosystems near the equator. But did you know that from bacteria to bowheads, the minimum number of species in the NWT is probably somewhere around 30,000?

Estimate source:
GNWT 2001. NWT Species 2000

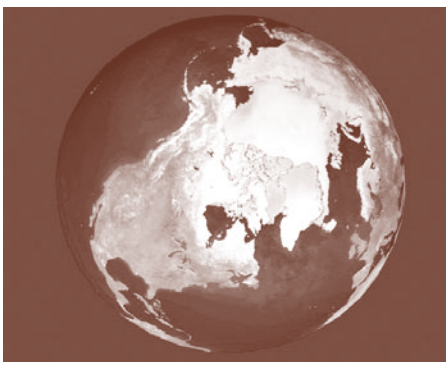
Change is the Rule

As the ecological history of any region on earth will show, change is the rule. Ecosystems are constantly changing, and this is no less true in the diverse landscapes of the NWT. The two most powerful forces of recent change are climate and humans.

Throughout the eons, players on the ecological stage we now call the NWT have come and gone in response to changing climates, shifting geological terrains, and the rise and fall of oceans. These ever-shifting rhythms have unfolded naturally until recently, when the activities of industrialized human societies began to augment the impact of natural changes.

No one can accurately predict the full consequences of our global "experiment" with the forces of natural change. What is known is that, in spite of its relatively whole and healthy ecosystems, the NWT will not be immune to their impacts.

A northern view of Earth.
Photo: Courtesy of NASA/JPL-Caltech



The purposes of this chapter are to understand the complex forces of change influencing today's biodiversity and to learn how to respond to them effectively. We first need to ground ourselves in the ecological history of our land.

Excerpt from: "*The Flood*"

Source: Dr. Elizabeth Cass Material, Gwich'in Language Centre

The Loucheux (Gwich'in) say that, many years ago, all of the Northern part of Canada was covered with ice. One day, due to the heat of the sun, the ice melted and there was a great flood.

One Indian had time to build a raft for his wife and himself, and they even had a little wigwam on the raft. Many animals swam towards them and tried to get on the raft. They took as many as they could, but they had to stop taking on animals because of the danger of sinking.

Among the animals who swam to the raft was the beaver, and the beaver saw a poor little ground squirrel who was clinging to a branch. The ground squirrel begged the beaver to take him on his back and kindly the beaver did so.

There was also a large porcupine there who requested a ride, but the beaver told him that he could not possibly take them both. However, the great big porcupine jumped on the squirrel's back and the little beaver was nearly submerged.

The beaver tried to argue, but he couldn't because if he opened his mouth he would have drowned. So with great difficulty, the beaver managed to get to the raft.

That is why the beaver has a flat back with no fat on it. All his fat is on his belly. The ground squirrel is flattened above and below, because he was on the beaver's back and he had the weight of the porcupine above him. The porcupine has no fat on his belly because he was resting on the ground squirrel and he only has fat on his back.

Also, the people say, because the beaver and the porcupine are now such enemies, you must never, never go hunting the two of them on the same day, because you will be unlucky.

Recopied, with permission, from:
Gwindòo Nành' Kak Geenjit Gwich'in Ginjik
More Gwich'in Words About the Land
Gwich'in Renewable Resource Board – 2001, page 45

Barrenground Caribou
Photo: Courtesy of RWED collection

Creating the Canvas for Biodiversity – Evolution of a Landscape

Old Times: The Shield, the Plains, the Islands, and the Mountains

The geology of the NWT represents a virtual time capsule of the earth's history.

Find more: about the formation of NWT's landscape in the Companion to the NWT Biodiversity Action Plan at *www.nwtwildlife.com/biodiversity/biodiversity_action_plan.htm*

The Precambrian Shield of the eastern NWT contains the oldest known rocks on earth. These rocks, which are up to four billion years of age, formed the ancient mountains, volcanoes and plains of the Precambrian Eon.

Over time, most of the Precambrian bedrock eroded and sediments were laid down in the seas along the western portion of the NWT. The Interior Platform slowly formed into what we see today as the Mackenzie Valley and most of the Arctic Islands. These sedimentary rocks were eroded and re-deposited in response to sea level rise and fall. In the distant past, the land and sea floor that now form a large part of the NWT were situated near the tropics. Specimens of Devonian biodiversity can be found as fossils near Norman Wells. Today, in the Mackenzie Valley and the seabed of the Beaufort Sea, the remains of this tropical biodiversity are pumped out of the ground in the form of oil and natural gas.

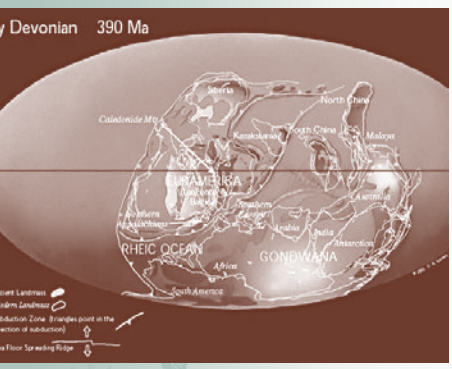
See ➔ Timeline on the next page.

About 65 million years ago, all the mountains in western North America, including the Mackenzie Mountains in the westernmost NWT, were uplifted when tectonic plates collided. The sedimentary and igneous rocks along the western edge of the North American plate buckled against the more interior sedimentary rocks. By then, most of the landmass that forms the NWT was situated in the northern hemisphere, near where we find them today.

See ➔ Map of the Late Cretaceous period on the next page.

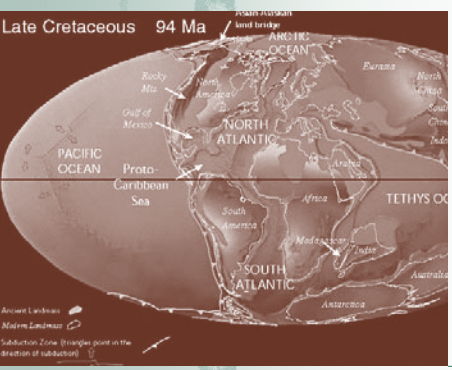
Taiga Shield near the East Arm of Great Slave Lake.
Photo: Courtesy of Chris O'Brien

Mackenzie Mountains
Photo: Courtesy of Chris O'Brien



Early Devonian

Photo: Courtesy of Chris Scotese/ PALEOMAP Project



Late Cretaceous

Photo: Courtesy of Chris Scotese/ PALEOMAP Project

Probable age of the Earth

Oldest known rock in the World

Oldest known fossils

First cells with nuclei

First invertebrates

First vertebrates

First dinosaurs

First humans (thickness of the line)

4500
4400
4300
4200
4100
4000
3900
3800
3700
3600
3500
3400
3300
3200
3100
3000
2900
2800
2700
2600
2500
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100

Millions of years ago

Transition time toward atmosphere with oxygen

PRECAMBRIAN

PALEOZOIC

Cambrian
Devonian
Carboniferous

MESOZOIC

Triassic
Jurassic
Cretaceous

CENOZOIC

Recent Times – Glaciers, Beringia, and Lake McConnell

Beginning about one million years ago, in response to a marked cooling of the earth and the accumulation of thousands of feet of compacted snow, vast ice sheets began moving across much of the present day NWT.

During the Pleistocene epoch (in the Cenozoic Era) there were, in fact, four separate glaciations of the NWT, each one punctuated by the redevelopment of vast forests. Also between these glaciations, and during the partial retreat of the glaciers within each event, the land bridge between Asia and North America, called Beringia, served as a conduit for the movement of numerous species of plants and animals into the NWT and the rest of North America.

The melting of the last ice sheet to cover the eastern half of the present day NWT resulted in a huge lake – glacial lake McConnell. Its subsequent partial draining left behind three of the most significant features in the NWT – Great Bear Lake, Great Slave Lake and the Mackenzie River – and a multitude of wetlands. This rich mosaic of eskers, raised beaches, rock outcrops, waterlogged lands, rivers and lakes are all "footprints" of the last glaciation and influence the distribution of NWT's biodiversity today.

In addition, all areas that escaped the ice – called refugia – are special places where many species may have survived the last glaciation. Some of this biodiversity is rare or not present elsewhere in North America.

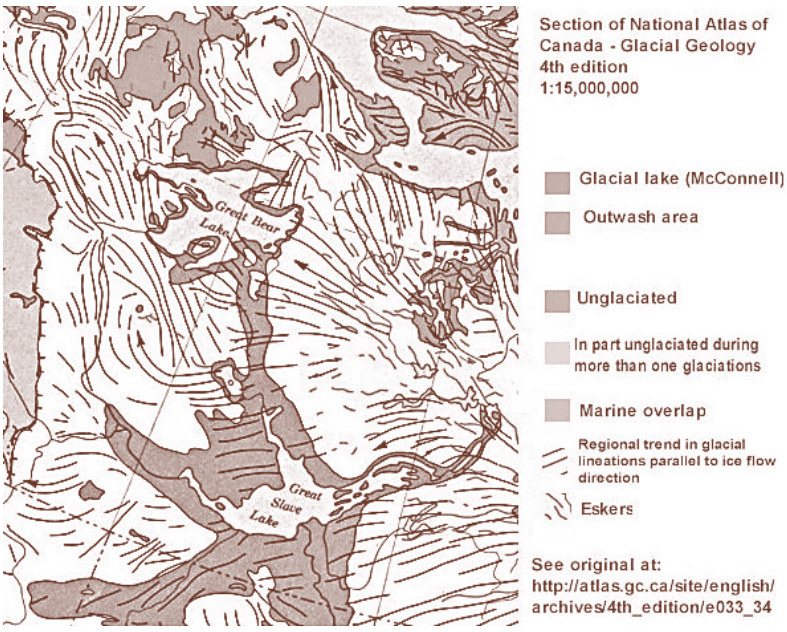
Today's northern glacier – a glimpse of our past.

Photo: Courtesy of Goverment of Yukon

Learn more:
About past North American megafauna and Beringia at the Yukon Beringia Interpretive Centre at www.beringia.com

Learn more:
About evidence for McConnell Lake and Its catastrophic disappearance in the Companion to the NWT Biodiversity Action Plan at www.nwtwildlife.com/biodiversity

Courtesy of Natural Resources Canada – Section of Map



Taiga Shield
Photo: Courtesy of RWED collection

The Dene people called their homeland Denendeh, a large part of the NWT.

Sahtu is Great Bear Lake in Slavey.

Wekweti is Rock Lake in Slavey.

Deh Cho is Big River in Slavey, and is the Dene name for the Mackenzie River.

Today's Landscape

The NWT represents a huge part of Canada, covering about 1.2 million square kilometres. This makes it Canada's third largest jurisdiction, after Nunavut and Quebec. To grasp the variety of habitats in this immense land, it helps to view the NWT as a composite of six ecozones, distinct natural regions characterized by relatively uniform landforms, geology, and biodiversity.

Taiga Shield

Dominating the eastern part of the NWT, the Taiga Shield occurs where the northern boreal forest, or taiga, and the Canadian Shield overlap. This ecozone is an ecological crossroads between two very different biomes, the boreal forest and the tundra, and offers a relatively wide variety of habitats for wildlife. Here, boreal lakes, wetlands and evergreen forests are interwoven with shrub expanses, open lichen lands and sedge meadows more typical of the tundra.

The consequent overlap of arctic and sub-arctic species gives this area a special richness in diversity. For instance, at the southern limit of their summer range are such arctic species as the common redpoll and arctic terns. A host of water birds and forest species reach their northern limit here including the common tern and white-throated sparrow.

Among the characteristic mammals of this ecozone are barrenground caribou, which winter here. Hundreds of thousands of caribou from barrenground herds make this journey each fall and return to the tundra to calve each spring.

Lake trout, whitefish, arctic grayling, burbot and northern pike are the most common fish species, that thrive in this ecozone's many lakes and rivers.

Some of this ecozone is included in the traditional lands of the T'atsaot'ine (Yellowknife Dene), the Tlicho (Dogrib) and the North Slave Métis. About 18,700 people live in the NWT portion of the Taiga Shield, in seven settlements ranging in size from a population of 170 in Wekweti to 18,400 in Yellowknife. This ecozone is geologically complex and is known for its important mineral deposits.

Taiga Plains

The Taiga Plains ecozone is a region of low-lying valleys and plains dominated by Canada's largest river, the mighty Mackenzie (called the Deh Cho in Slavey), and its many tributaries. It is bounded to the east by two huge lakes – Great Bear Lake and Great Slave Lake, to the west by the rolling foothills of the Mackenzie Mountains, to the north by the Mackenzie Delta, and to the south by the denser spruce forests of the Boreal Plains.

On the nutrient rich alluvial flats bordering rivers, white spruce and balsam poplar may grow to an impressive height and girth, rivalling the largest of trees found anywhere in Canada. Riparian willow and alder habitats support abundant moose. Barrenground caribou from the Porcupine herd overwinter

in the northwest corner of this ecozone while scattered groups of woodland caribou are found throughout the area during all seasons. In summer, raptors such as the bald eagle, peregrine falcon and osprey are familiar sights. Hundreds of thousands of ducks, geese and swans use the region's many lakes, rivers, and wetlands as staging or nesting areas. The Mackenzie Valley forms one of North America's most well traveled migratory corridors for waterfowl breeding along the Arctic coast.

The Dene have hunted and trapped throughout this region for centuries. This ecozone is the traditional lands of the Dene living in the Deh Cho region, the Gwich'in, the Sahtu' T'ine (Sahtu Dene) and some of the land of the Tlicho (Dogrib). All of these territories make up the land that is known as Denendeh, which means "the Creator's Spirit flows through this Land". Most communities along the river grew up near traditional sites with good fishing and hunting potential and around fur trading posts established in the 1800s. Today about 18,000 people live in the NWT portion of the Taiga Plains, in 21 communities located from the western shore of Great Slave Lake to the edge of the great delta of the Mackenzie River. Much of the ecozone has significant potential for oil and gas development, and it is where the 3.7 square kilometres of NWT's developed agricultural lands are found.

Mackenzie Valley, near Wrigley.
Photo: Courtesy of Leslie Leong

Boreal Plains

In the NWT, this ecozone encompasses the Slave River Corridor. It lies between the Buffalo River and the Talston River, much of it within Wood Buffalo National Park. Larger than Switzerland, this park is home to the world's largest free-roaming herd of wood bison and the only known nesting site of the endangered whooping crane that have not been re-introduced. Waterfowl from four North American flyways funnel into this ecozone's abundant wetlands and use the productive deltas of the Athabasca and Slave Rivers as key staging areas along the way. In addition to bison, this area supports over 40 other species of mammals, including an abundance of moose and black bear plus the relatively rare fisher. This ecozone is home to the only species of reptile known to breed in the NWT – the red-sided garder snake – and the northernmost population of breeding white pelicans in North America.

Wood Buffalo National Park
Photo: Courtesy of Leslie Leong

The Slave River has been an important travel corridor and hunting area for the Dene for thousands of years. It later became a vital fur-trading route for the Métis and other people when posts were established further north. The NWT portion of this ecozone is home to about 2,900 people living in two communities: Fort Smith and Fort Resolution. Besides ongoing hunting and trapping, the area has become a centre for small businesses including tourism.

Southern Arctic

For thousands of square kilometres, the pattern of habitats in the southern Arctic "barrenlands" is the same: sprawling shrublands, wet sedge meadows, and cold, clear lakes. Superimposed on this pattern are impressive glacial landforms such as giant eskers and kettle lakes, patterned ground formations created by intense frost action in the soil, and occasional outcrops of bald Canadian Shield.

Treeline in the southern Arctic.
Photo: Courtesy of Chris O'Brien

This ecozone is bounded to the south by the treeline, a broad ecological frontier between the taiga forest and the treeless arctic tundra. Over a belt, which may be 100 kilometres wide, small-scattered clumps of stunted spruce trees occur on warmer, sheltered sites.

Grizzly bears, arctic ground squirrel, barrenground caribou and muskoxen are among the distinctive wildlife species inhabiting this ecozone. Moose are also present, particularly within the well-treed Thelon River Valley. Some polar bears roam the coastal areas during the summer and follow the growing pack ice north as winter sets in.

Like barrenground caribou, willow ptarmigan migrate only as far as the taiga forest to find food and shelter during the winter months. In summer, the broad silhouette of the rough-legged hawk is a familiar sight as it scans the mossy hummocks and shrublands for abundant voles and lemmings.

This ecozone's many wild rivers, such as the Thelon, Back and Coppermine, and its abundance of large mammals attract a growing number of ecotourists, fishers and hunters from all over the world. The Southern Arctic is rich in mineral resources, including gold, base metals, and includes the bigger portion of the diamond-rich Slave Geological Province. About 1,300 people live in the NWT section of this ecozone in two communities, but about 1,000 extra people work there in operating mines and exploration camps.

Boreal Cordillera

This ecozone is a complex land of magnificent beauty. It includes mountains, hot springs, countless rivers slicing their way between shear rock walls, and broad windswept plateaus dominated by arctic shrubs and flowers. In this land are found Canada's tallest waterfalls, deepest canyons and wildest rivers. Some of this ecozone also escaped the latest glaciation, making it a special place for rare animals and plants.

Straddling the Yukon-Northwest Territories border, this ecozone contains the northernmost extension of the Rocky Mountain chain.

Because of its diversity of habitats – from dense spruce forests to alpine tundra, mountain peaks to marshy flats – this ecozone includes a wide array of wildlife species. It supports a wide range of mammals including the collared pika and the northernmost populations of mountain goats and Dall's sheep. The birds that nest here include a mingling of species typical of the arctic and sub-arctic, as well as eastern and western Canada. Common species of the forested habitats include woodland caribou, marten, black bear, varied thrush and white-winged crossbill. River and wetland habitats support several distinctive waterfowl species including harlequin ducks and the trumpeter swans.

This ecozone includes the northern-most traditional land of the fabled Kaska tribe of the Nahanni Dene, who lived there earlier. This ecozone also includes some of the traditional hunting area of the Gwich'in, Sahtu, and the Deh Cho Dene. Very few people live year-round in the NWT portion of this ecozone, with some variation in settlement numbers with the opening and closing of mines, including the mining operation near Tungsten.

Nahanni River near Virginia Falls, with Flat River in background.

Photo: Courtesy of S. Carrière

Northern Arctic and the Beaufort Sea

Much of the Northern Arctic ecozone in the NWT consists of hills and wide plains once submerged by the sea. Inland, the landscape may be covered by very little vegetation, with frost-shattered rock for hundreds of square kilometres.

Plant life in the Northern Arctic is generally sparse and dwarfed. A desert-dry climate, the presence of continuous permafrost, poorly developed soils and gale force winter winds make life challenging for all but the hardiest of species.

Although some areas of this region are virtually devoid of plant life, like other desert regions, relatively lush "oases" are found scattered across the landscape. Here they are confined mostly to coastal lowlands, sheltered valleys and moist, nutrient rich corridors along streams and rivers. These oases are essential to the survival of mammals, birds and other species living in this ecozone year-round – like the muskox, polar bear, and the endangered Peary caribou – and those coming from thousand of kilometres to breed – like many waterfowl, shorebird, and gull species.

The Beaufort Sea is a significant portion of the Arctic Ocean. The Beaufort Sea shares some of its biodiversity with the Chukchi Sea in northern Russia, the Atlantic Ocean, via the eastern Arctic Ocean, and the Pacific Ocean, via the Bering Sea. The Beaufort has a very harsh climate and is ice-covered for most of the year. However, it harbours "polynyas", where ocean circulation and winds create ice-free areas for most of the year. These polynyas are very productive. They are important to nutrient production, and form a major component of arctic marine ecosystems.

This ecozone and seascape include part of the traditional homeland of the Inuit and Inuvialuit. The area's sedimentary rocks contain abundant fossil fuels and development for natural gas is particularly active. The NWT's portion of this ecozone has two communities, where about 640 people live.

Beaufort Sea and shore.
Photo: Courtesy of RWED collection

Crown fire in
the Mackenzie Valley.
Photo: Courtesy of Forest Management, RWED

Forces of Change

Natural Forces of Change

Natural forces continually influence the distribution and abundance of species in the North.

Fire

Large forest fires are not uncommon in the NWT. On average, every forested area of the NWT will burn once in 200 years. Our forested landscape is immense and less than 0.5% of our forests burn each year[1]. Many boreal and taiga species, both animals and plants, benefit from this regular cycle of fires, which can purge old, stagnant forests of insects and disease. The distinctive "mosaic" of forest types created by fires usually results in a net boost in the overall productivity and diversity of habitats.

Natural Fluctuations

Northern ecosystems are characterized by their large fluctuations or cycles in population numbers. These fluctuations include the well-known 10-year cycles in snowshoe hare numbers, and the large variations in numbers of lemmings, mice and voles that occur every three to five years over entire regions. There is increasing evidence that caribou populations also fluctuate naturally every 40 to 60 years. In addition, the predators of these species soon follow their prey in a cycle of high and low numbers. Peaks in numbers may occur in the same time over very large areas, making these large-scale fluctuations one of the most important phenomena of northern ecosystems. Why and how these fluctuations occur is still debated, but changes in food availability and quality, and in reproductive and mortality rates appear to have a role. The synchrony of these fluctuations across many ecozones also points to a possible overriding influence: the ever-fickle northern climate.

- **Fluctuations =** ups and downs
- **Decadal =** occurs every 10 years
- **Synchrony =** occurring at the same time

Climate

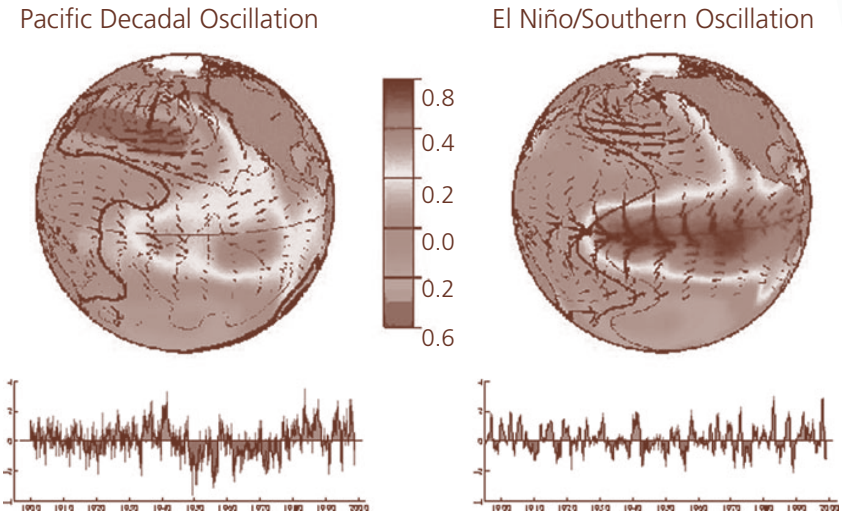
Large weather fluctuations are the norm in the North. In addition to large daily and seasonal differences in weather, the Arctic is subject to climatic variations occurring over the continent, or even globally. These phenomena are called decadal atmospheric oscillations. The best-known of these is El Ninõ. In the North, three oscillations, called the Arctic Oscillation, the Pacific Oscillation, and the North Atlantic Oscillation, influence our climate to some degree and are linked to natural changes in atmospheric pressures over large expanses of the oceans surrounding North America. They have a large-scale influence on both our summers and winters. They can result in, for example, heavier snows, drought, a warmer winter or a stormier one. Our northern ecosystems respond quickly to these extremes, and northern species have adapted to them[6].

Caribou
Photo: Courtesy of J. Nagy/RWED

Isostatic Rebound

Isostatic rebound is the subtlest force of change on our ecosystems. When glaciers were present the ice pushed much of northern Canada hundreds of metres down. Gradually, as glaciers started to melt over 8,000 years ago, the northern landscape has been bouncing back – in some places by a rate as much as half a centimetre per year. As the land continues to rebound over

the next few thousand years, water-filled dimples and veins in its surface will become shallower and drain more quickly. Gradually, the land's ability to catch and hold water will decline, resulting in a net loss of northern lakes. The most visible evidence of isostatic rebound is found in the northern arctic ecozone, where layers upon layers of beaches can be seen along the shore of islands and headlands in the Arctic Ocean.



From the Joint Institute for the Study of Atmosphere and Ocean.
http://www.jisao.washington.edu/main.html

The Mackenzie Delta is influenced by both isostatic rebound and climate change.
Photo: Courtesy of J. Nagy/ RWED

Human Forces of Change

Changes in ecosystems rarely have one single cause. Typically, multiple stressors, some triggered by human activity, will reinforce each other and, either simultaneously or in sequence, force a change on biodiversity.

- **Stressor =** force of change

Six major "stressors" have the greatest impact on ecosystems around the world, including in the NWT [2].

Habitat Alteration

Each species requires specific habitat conditions to thrive. Some species have a wider tolerance for changes to these requirements, but all species and populations will suffer if minimum requirements cannot be met. Many human activities inadvertently modify or destroy important and irreplaceable habitat. The result may be the decline of a population, or even the extirpation of a species. Altered habitats also frequently mean that certain species that are better suited to that habitat, or more resistant to change, may expand their range. These species may compete with native species that previously thrived in this area, or may carry new diseases.

Human and non-human forces of change: Road and Forest Tent Caterpillars *(Malacosoma disstria)* defoliation in the mid-1990s, southern NWT.
Photo: Courtesy of RWED Forest Management

Climate Change

Most climate authorities agree that the fastest, most pronounced global warming will occur in northern latitudes, and of all the world's major ecosystems, boreal forests, muskeg and tundra ecosystems are the most vulnerable[3]. Profound alterations to the biology, chemistry and thermal structure of many lakes and rivers in neighbouring ecosystems are already occurring in response to climate change.

Amber-marked Birch Leaf Miner *(Profenusa thomsoni)* larva – an alien invasive sawfly attacking leaves of Paper Birches in some NWT communities.

Photo: Courtesy of BC Ministry of Forests

- **Alien =** from elsewhere; from outside North America

Visible effects of air pollution near a gold mine smelter, Yellowknife, NWT.

Photo: 1998 Karin Steinecke/Courtesy of University of Bremen, Germany

Invasive Alien Species

The movement of non-native species into an area – either through intentional introduction or through natural range expansion – can have mixed effects on biodiversity. While some alien species are benign, or even beneficial, others can grow and spread rapidly, causing serious ecological damage by over-running natural habitats or introducing disease. There is some growing concern in the NWT over the spread of exotic insect species and the potential harm they may cause to northern species.

Pollution

Pollution from either local or remote sources can reduce the quality of atmospheric, freshwater, marine, and soil resources and environments. Bioaccumulation of persistent organic pollutants (POPs) in northern food chains has had devastating effects on fish-eating and predatory birds, such as bald eagles, cormorants, ospreys and peregrine falcon. PCBs (polychlorinated biphenyls), compounds found to cause liver damage, affect calcium metabolism, weaken the immune system, and interfere with reproduction in seals, have been found in the Arctic at elevated levels.

Population

Around October 12, 1999, the world population reached 6 billion. It continues to climb at an annual rate of 1.4%, adding roughly 200,000 people each day or the equivalent of a major city of 1.4 million each week[2].

Set against this global context, the NWT remains virtually uninhabited. On the Canadian stage we account for only one tenth of one per cent of the country's population. About 42,000 people live here in 33 communities, most of which have fewer than 500 people. However, in the future, increasing pressures from the needs of a growing global population, although of external origin, may negatively affect biodiversity in the NWT by increasing demand for biological resources to the point where their use becomes unsustainable[5].

Overharvesting

Subjecting biological resources to unsustainable harvesting pressures is another important force that puts biodiversity at risk. Overexploitation of species can result in the loss of genetic diversity, and can decrease the relative abundance of other species. Over-exploitation may include over-fishing and over-harvesting. This is not so much of a concern today in the NWT as it has been in the past. However hunting pressures elsewhere can affect our resources, as with the case of the Eskimo curlew *(Numenius borealis)*, which was hunted to near extinction on its wintering grounds in the southern United States. Overharvesting can pose a potential threat in the future.

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NWT's population is about 0.1% of Canada's. Yellowknife in winter.

Photo: Courtesy of RWED collection

"The Eskimo Curlew has virtually disappeared from the earth. Once very abundant in North America, it suffered from overhunting in the 19th century, with up to two million birds harvested every fall."

Excerpt from www.qc.ec.gc.ca/faune/oiseaux_menaces/html/courlis_esquimau_e.html

How to Use Chapter 2 – NWT Biodiversity Action Plan

The objective of this report is to provide a listing of all the actions and initiatives in the NWT that contribute to meeting our national and international commitments as set out under the Canadian Biodiversity Strategy (CBS) and the Convention on Biological Diversity (CBD). Whereas Chapter 1 sets the stage on biodiversity in the NWT, Chapter 2 aims to outline and describe the initiatives already in place in the NWT to ensure the conservation and sustainable use of biological resources.

Each section of this chapter describes related actions and initiatives, and includes a matrix listing these initiatives and linking them to the CBS strategies and CBD articles that they fulfill. This matrix will be posted on the web as an interactive database. Initiatives listed in this chapter are divided into the five major goals of the Canadian Biodiversity Strategy:

These goals are divided up into the following sections:

Goal I: To conserve biodiversity and use biological resources in a sustainable manner.

Goal II: To improve our understanding of ecosystems and increase our resource management capability.

Goal III: To promote an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner.

Goal IV: To maintain or develop incentives and legislation that supports the conservation of biodiversity and the sustainable use of biological resources.

Goal V: To work with other countries to conserve biodiversity, use biological resources in a sustainable manner and share equitably the benefits that arise from the utilization of genetic resources.

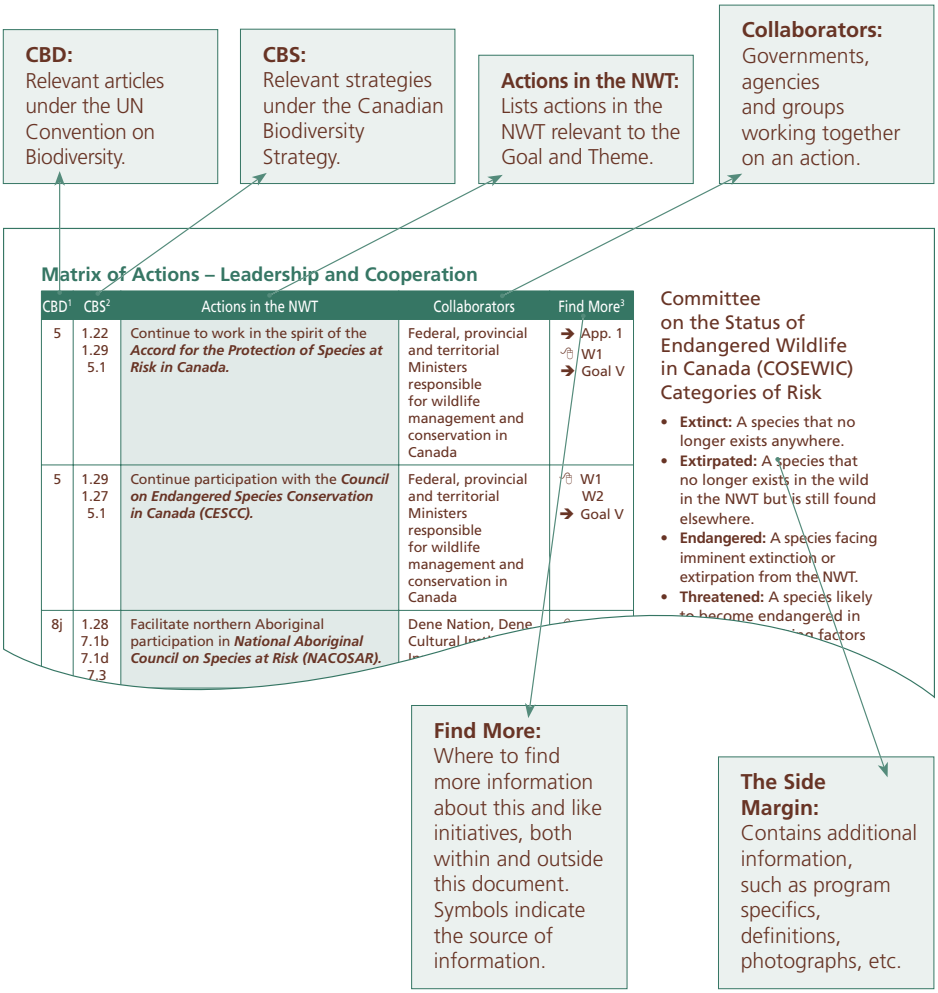
The Text

Actions and initiatives in the NWT that help to fulfill the objectives of the CBD and the CBS are highlighted in bolded italics. These actions are summarized in the matrix below.

The Matrix

Following each section of text, a summary of listed actions is presented in matrix format. The matrix gives a concise overview of each action, linked to corresponding articles and strategies from the UN Convention on Biological Diversity and the Canadian Biodiversity Strategy, respectively.

The matrix shows the collaborating governments, agencies and groups that work together to implement the listed action, and lists sources, either within or outside of the report, where the reader can obtain more information about that particular action.



Major NWT Initiatives on Biodiversity

GOAL I

To conserve biodiversity and use biological resources in a sustainable manner.

Species at Risk Initiatives

Species can be considered the building blocks of the world's biological diversity. Through time, some species have disappeared and new species have evolved as ecosystems changed with climate, geological movements, and global environmental fluctuations (see Chapter 1).

During the past two centuries, humans have modified the earth's ecosystems on such a scale that the rate at which species disappear has increased dramatically (Wilson 1992). Ultimately, this rate of species extinction changes the earth's ecosystems to an extent that will affect our own survival (Leaky and Lewin 1995). Unlike past large extinctions, this time, humans could have a major role to play.

One of the main goals of the *Convention of Biological Diversity* is "to protect or recover wild species at risk of extinction, and their habitats". In Canada and in the NWT, many organizations and governments have adopted this goal as one of the major objectives behind their actions on biodiversity.

In 1996 all provincial, territorial and federal governments responsible for the management of wildlife in Canada agreed in principle to the ***Accord for the Protection of Species at Risk in Canada***. This Accord was adopted to "prevent species in Canada from becoming extinct as a consequence of our activities". Through this Accord, they committed to take a leadership role and cooperate in a Canada-wide approach to protect species at risk. This Accord provides principles and directions for many actions on wild species at risk in Canada and in the NWT.

See ➔ *Appendix 1* for a copy of the Accord.

Wolverine – a species of special concern.

Photo: Courtesy of Paul Nicklen

Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Categories of Risk

- **Extinct:** A species that no longer exists anywhere.
- **Extirpated:** A species that no longer exists in the wild in Canada but is still found elsewhere.
- **Endangered:** A species facing imminent extinction or extirpation.
- **Threatened:** A species likely to become endangered if limiting factors are not reversed.
- **Of Special Concern:** A species with characteristics that make it particularly vulnerable to human activities or natural events.
- **Not at Risk:** A species that has been evaluated and found to be not at risk.
- **Data Deficient:** A species where there is insufficient information to support status designation.

Similar categories would be used by the NWT Committee on Species at Risk under NWT species at risk legalization to assess the status of species in the NWT.

Leadership and Cooperation

All northerners have a role to play in preventing species from becoming at risk and in recovering species from near extinction. However, northern governments and Aboriginal organizations have the capacity to play a leadership role in facilitating all northerners' efforts.

Under the federal *Species at Risk Act (SARA)* leadership and cooperation actions on species at risk in Canada are facilitated by two councils:

- the ***Council on Endangered Species Conservation in Canada*** (CESCC) with Ministerial members from the federal, provincial and territorial governments. The Minister of the Department of Resources, Wildlife and Economic Development, GNWT is a member of CESCC; and
- the ***National Aboriginal Council on Species at Risk*** (NACOSAR) with members from six Aboriginal organizations in Canada.

See ➔ Goal IV for more information on SARA.

Matrix of Actions – Leadership and Cooperation

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
5	1.22 1.29 5.1	Continue to work in the spirit of the ***Accord for the Protection of Species at Risk in Canada.***	Federal, provincial and territorial Ministers responsible for wildlife management and conservation in Canada	➔ App. 1 W1 ➔ Goal V
5	1.27 1.29 5.1	Continue to work with the ***Council on Endangered Species Conservation in Canada (CESCC).***	Federal, provincial and territorial Ministers responsible for wildlife management and conservation in Canada	W1 W2 ➔ Goal V
8j	1.28 7.1b 7.1d 7.3	Facilitate northern Aboriginal participation in the ***National Aboriginal Council on Species at Risk (NACOSAR).***	Dene Nation, Dene Cultural Institute, Inuvialuit Joint Secretariat, and others.	W2

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Stewardship

Preserving wildlife for future generations is part of the traditional ethic of northern Aboriginal people. Today in the NWT, many Aboriginal and non-Aboriginal organizations, governments, and industry promote conservation activities and have adopted environmental policies that include conservation of wild species (see Goals II and IV). This is supported in a modified Accord by the inclusion of the "stewardship principle", which states "activities contributing to the conservation of species should be supported as an integral element in preventing species from becoming at risk" (Accord, see Appendix 1).

Species at Risk Legislation

The Accord requires that all parties "establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada" (Accord, see Appendix 1).

The federal ***Species at Risk Act*** (SARA) was established to provide protection of wild species on Crown and federal lands across Canada. In the spirit of the Accord, the Government of the Northwest Territories (GNWT) is developing ***NWT Species at Risk Legislation*** to provide complementary protection of wild species in NWT.

See ➔ Goal IV for more information on legislation applying to biodiversity in the NWT.

Matrix of Actions – Species at Risk Legislation

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8k	1.21 5.1	***Species at Risk Act (federal)***	CWS, DFO, PCA	W2 ➔ Goal V
8k	1.21 4.08	Continue drafting the ***proposed NWT Species at Risk Act.***	GNWT	W3 ➔ Goal IV

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

General Status Monitoring

The first step in preventing species from becoming at risk of extinction involves monitoring the biological status of all wild species. In the NWT, the *General Status Ranks of Wild Species in the Northwest Territories* program performs this task: every five years, wild species are ranked according to their general biological status (GNWT 2000). This status ranking is fast and coarse, but is designed to prioritize species for more detailed risk assessment. A standard ranking method is used by all jurisdictions in Canada (CESCC 2001), including the NWT.

Organizations and governments working on wildlife management in the NWT participate in the general status monitoring of NWT species. In addition, species experts and knowledgeable persons with traditional knowledge, from both inside and outside the NWT, help by sharing information on species. The NWT continues to cooperate closely with all jurisdictions in Canada, especially Nunavut, to share information and standardize methods (CESCC 2001).

Matrix of Actions – General Status Monitoring Initiatives

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
5 7a 7b	1.35 2.02 2.04 2.10 6.3	Continue work and publish a report every five years on the ***General Status Ranks of Wild Species in the NWT.***	In the NWT: RWED, CWS, WMAC-NWT, DFO, SRRB, GRRB, FJMC, PCA and knowledgeable persons	📖 D1 D2 🖱 W6 ➔ Goal II

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Peregrine Falcon – the *tundrius* sub-species is of special concern and the *anatum* sub-species is threatened.

Photo: Courtesy of RWED collection

NWT Species on the COSEWIC List 2003

Endangered
- Peary Caribou (Banks and High Arctic)
- Bowhead Whale
- Eskimo Curlew
- Whooping Crane

Threatened
- Peary Caribou (Low Arctic)
- Wood Bison
- Woodland Caribou (Boreal)
- Anatum Peregrine Falcon
- Ross' Gull
- Shortjaw Cisco
- Northern Wolffish

Special Concern
- Grizzly
- Polar Bear
- Wolverine
- Woodland Caribou (Northern Mountain)
- Ivory Gull
- Tundrius Peregrine Falcon
- Short-eared Owl
- Yellow Rail
- Northern Leopard Frog
- Western Toad

Detailed Risk Assessment and Status Designation

The ***Committee on the Status of Endangered Wildlife in Canada (COSEWIC)*** is responsible under SARA for assessing in detail the biological status of wild species in Canada. Each year COSEWIC examines the risk of extinction or extirpation of a number of species. In making their decision, COSEWIC uses detailed species status reports and a set of quantitative criteria similar to those developed by the World Conservation Union (IUCN 1994). COSEWIC reassesses species every 10 years.

Voting members from the three territorial governments, including the GNWT, northern members of species specialist groups within COSEWIC, and all the wildlife co-management boards provide northern input into COSEWIC. The ***COSEWIC Aboriginal Traditional Knowledge Sub-committee*** facilitates the inclusion of Aboriginal traditional knowledge in all aspects of COSEWIC's work, especially early on in the process, during the drafting of species status reports.

In 2003, 21 species (or sub-species) from the NWT were on the COSEWIC list, of which four species were "endangered" and seven species were "threatened". COSEWIC provides a list of species at risk to governments as advice and makes its decisions independent of political and socio-economic factors. Under SARA, the Minister of the Environment is responsible for the legal designation of species at risk in Canada (see Goal IV).

The threats facing species at risk in Canada may vary across the country. For example, a species may be at a lesser risk of extirpation in the NWT than further south in Canada. Conversely, other species may be at a greater risk in the NWT. Under the proposed NWT Species at Risk legislation, the GNWT would create a NWT ***Species at Risk Committee*** (SARC) to assess in detail the biological status of species in NWT. This committee would include members with scientific and traditional knowledge and use quantitative criteria to determine risk of extirpation and list species in categories similar to those used by COSEWIC.

Matrix of Actions – Detailed Risk Assessment and Status Designation

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6a 8k	1.22 1.26 1.27	Continue participation in ***COSEWIC.***	In the NWT: RWED, GRRB, SRRB, WMAC-NWT, FJMC, DFO, CWS, PCA, Governments, NGOs, Universities	W4 W5
8j	7.1b	Facilitate northern Aboriginal participation in ***COSEWIC Aboriginal Traditional Knowledge Sub-committee.***	In the NWT: SRRB, GRRB, WMAC-NWT, FJMC	W4
6a 8k	1.22	Continue work on ***proposed NWT SARC.***	Lead: RWED	W3

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Species Protection

Under SARA and the proposed NWT Species at Risk legislation, a species legally designated as "endangered" or "threatened" cannot be harvested and will be protected from harassment, unless allowed for and controlled in a recovery strategy. It will also be against the law to damage or destroy the den, nest or home of an individual of these species. Both legislations will provide tools to manage and protect the critical habitat of these species. Habitat protection for species at risk in the NWT could be provided under the NWT Protected Area Strategy (see next section) or using *Species-at-Risk Conservation Areas* or other tools such as management plans and land use plans.

Mechanisms that control trade are available to protect species at risk from over-exploitation. The federal ***Wild Animal and Plant Protection and Regulation of International and Inter-provincial Trade Act*** *(WAPPRIITA)* controls international trade, inter-provincial and inter-territorial transport in wild animals and plants (or their products) to protect species and ecosystems from the introduction of harmful wild species. This Act also implements the legislated obligations of Canada under the ***Convention on International Trade in Endangered Species*** *(CITES)*. CITES controls the international trade and movement of animal and plant species that are, or that may be, at risk due to excessive commercial exploitation. The GNWT Department of Resources, Wildlife and Economic Development (RWED) is the management and scientific authority of WAPPRIITA and CITES in the NWT, whereas Environment Canada (EC) is the overall administrator in Canada.

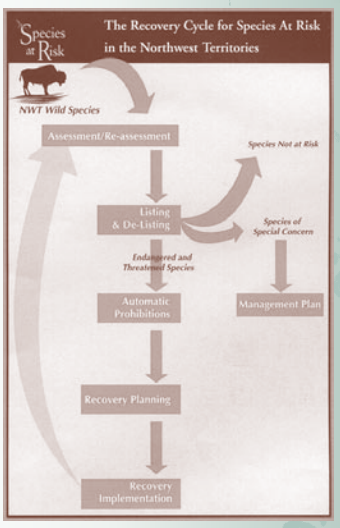
See ➔ Goal IV for more information on legislation applying to biodiversity in the NWT.

Species Recovery

All NWT recovery initiatives are developed in cooperation with other jurisdictions, Aboriginal governments and communities. All ***Recovery Teams*** working on NWT species at risk have members from either the Government of the NWT or a federal agency working in the NWT, and involve interested wildlife co-management boards and NWT communities in recovery decisions and actions.

Recovery Teams share information and report on their efforts through the ***Recovery of Nationally Endangered Wildlife*** (RENEW). This group works under the general direction of CESCC, and helps teams standardize recovery planning and share recovery experience across Canada, including the NWT. The Director of Wildlife and Fisheries, RWED, is a member of RENEW.

To date, most Recovery Team members come from governments, academia, and non-governmental organizations. NWT communities participate in recovery through community meetings, workshops and field projects. Depending on the recovery needs of a species, teams may have input from other countries (e.g., United States input in ***Whooping Crane*** Recovery Team,) or organizations and governments across Canada (***Woodland Caribou*** Recovery Working Group, ***Peregrine Falcon*** Recovery Team, ***Peary Caribou*** Recovery Team and ***Wood Bison*** Recovery Team). Multi-species Recovery Teams look at the needs of more than one species at risk in addition to the management needs of other species in a specific area. To date, there are no multi-species Recovery Teams in the NWT.



Reproduced from Protecting NWT Species at Risk – A Northern Approach (GNWT 2000)

Peary Caribou – an endangered species.

Photo: Courtesy of Paul Nicklen

Proposed Recovery Process

Recovery Strategy Strategic document is due one year after the Legal Designation of a species as "endangered", two years for a "threatened" species.

Done in consultation with communities and organizations that have interests in the species, including Aboriginal organizations in the NWT.

Determines:

- Feasibility of recovery
- Strategy to reduce or eliminate threats to species
- Population and distribution objectives
- Further studies needed
- When Recovery Action Plans should be completed

Action Plans

Plans have due dates according to Recovery Strategy. Done with further consultation at the community level. More than one plan can be developed to reflect regional priorities and needs.

Determines:

- Critical habitats
- Detailed measures to protect habitats
- Detailed measures to reduce or eliminate threats to species
- Detailed monitoring program
- Costs

Before 2001, recovery initiatives were organized into ***Recovery Plans***. These plans are currently being updated. As proposed under SARA and the new NWT Species at Risk legislation, new recovery initiatives should be developed using a two-step approach: ***Recovery Strategy*** and ***Recovery Action Plans***. Recovery Strategies must be completed within one year after the legal designation of a species as "endangered", and two years after a "threatened" designation. Under the new federal SARA, recovery strategies for NWT species on the COSEWIC list will be due between 2006 and 2008.

In addition, under SARA and the proposed *NWT Species at Risk Act*, a ***Management Plan*** (see also Goals II and V) must be developed for all species legally designated as "Special Concern". The management needs of polar bear, a species listed as special concern in Canada by COSEWIC, have been detailed in plans developed under international agreements: the ***International Polar Bear Agreement on the Conservation of Polar Bears and Their Habitat (1973)***, and the international community-based ***Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea (1988)***. All management efforts for polar bears in the NWT are developed in the spirit of these agreements.

Activities related to grizzly bear, a species listed as special concern in Canada by COSEWIC, are managed according to a ***Co-management Plan for Grizzly Bears in the Inuvialuit Settlement Region, Yukon Territories and Northwest Territories*** and ***Management Agreement for Grizzly Bears in the Gwich'in Settlement Area***.

Matrix of Actions – Species Recovery

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
5	1.29 2.14 2.19 5.1	Continue participation and administration in the NWT of the ***Convention on International Trade in Endangered Species (CITES)*** under the ***Wild Animal and Plant Protection and Regulation of International and Inter-provincial Trade Act***.	In Canada: CWS; In the NWT: RWED	W7 ➔ Goal II Goal V
5	1.26 1.27	Continue participation in ***RENEW.***	In the NWT: RWED, CWS, PCA, all recovery organizations	D3 W2
8f 9c	1.23 1.28 5.1	Update the 1994 ***Whooping Crane Recovery Plan*** and continue recovery work in the NWT with communities in South Slave, and with input from partners in Canada and the United States.	Lead in Canada: CWS-PN with PCA, SK, AB, MB; International: US; In the NWT: PCA, RWED South Slave	D4 D5 W8 W9 ➔ Goal V
8f 9c	1.23 1.28	Continue recovery work under the ***Wood Bison Recovery Plan*** and continue recovery work in the NWT with communities in the South Slave and Deh Cho with input from partners in Canada.	Lead in Canada: University of Calgary, with MB, AB, YK, YFWMB; In the NWT: CWS, RWED-HQ, RWED South Slave, PCA, Fort Resolution Aboriginal Wildlife Harvesters Committee, DCFN	D6 W10

Matrix of Actions – Species Recovery (continued)

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8f 9c	1.23 1.28	Finalize the draft ***Peary Caribou Recovery Strategy*** and continue recovery work in the NWT with input from Inuvialuit communities and partners in Canada, especially Nunavut.	Lead: Trent University with GNWT, NU, NWMB, WMAC-NWT, CWS, PCA	W11
8f 9c	1.23 1.28	Draft the ***Woodland Caribou Recovery Strategy*** and continue recovery work in the NWT with input from communities across the NWT and from partners in Canada, in particular Alberta, British Columbia, and Yukon.	Across Canada Lead: CWS-HQ, AB, BC, QC, MB, ON, NF, SK, HTFCC; In the NWT: GNWT, WMAC-NWT, SRRB, PCA, DCFN	W12
8f 9c	1.23 5.1	Update the 1988 ***Peregrine Falcon Recovery Plan*** into a ***Peregrine Falcon Recovery Strategy and Action Plan*** and continue monitoring work in the NWT with input from communities across the NWT and from partners in Canada and the United States.	Across Canada: CWS-HQ, YK, NU, BC, AB, SK, MB, ON, QC, NB, NS, NF&L, PCA, HTFCC, NWMB, YFWMB, WMAC-NS; In the NWT: GNWT, CWS-PN, CWS-YK, WMAC-NWT, GRRB, SRRB	D7 W13 ➔ Goal V
8f 9c	1.23 5.1	Continue work under ***International Polar Bear Agreement on the Conservation of Polar Bears and Their Habitat (1973)***, including management plans in the NWT.	Canada, Denmark, Norway, Russia, United States with Polar Bear Specialist Group of the IUCN; In Canada: CWS	W14 W15 ➔ Goal V
8f 9c	1.23 1.28 5.1 7.1 7.3	Continue work under the ***Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea***, including Inuvialuit community management plans in the NWT.	In Canada: IGC; In the US: North Slope Inupiat, Fish and Game Management Committee and Department of Wildlife Management	D9 W15 ➔ Goal V
8f 9c	1.1 1.4 1.12 1.23 1.28	Continue implementation of the Co-management Plan for ***Grizzly Bears in the Inuvialuit Settlement Region, Yukon Territories and Northwest Territories***.	GNWT, GYK, Inuvik HTC, Paulatuk HTC, Tuktoyaktuk HTC, IGC, WMAC-NS, WMAC-NWT, PCA	W21
8f 9c	1.1 1.4 1.23 1.28	Continue implementation of the ***Management Agreement for Grizzly Bears in the Gwich'n Settlement Area***.	GRRB, RRCs, and RWED	W22

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Grizzly – a species of special concern.

Photo: Courtesy of Paul Nicklen

Recovery Funding

Managing species at risk and recovering species from near extinction can be expensive.

Recovery Teams usually plan and coordinate recovery efforts. Recovery Teams, however, very rarely have funds to initiate recovery actions themselves. Local organizations, groups and governments, in consultation with Recovery Teams will invest in recovery efforts.

In the NWT, funding for species at risk is, in part, obtained through internal program expenditures for wildlife management in the GNWT, Environment Canada (EC) and the Department of Fisheries and Oceans (DFO). Special internal funds are also available for projects on species at risk in National Parks including parks in the NWT through the ***Species at Risk Recovery Action and Education Fund.***

Additional funding for recovery efforts in the NWT is available for any interested groups or governmental agencies by application from:

- ***Research funding programs from the wildlife co-management boards.***

Funding for non-governmental organizations is available by application from:

- ***Habitat Stewardship Program for Northern Species at Risk,*** and
- ***Endangered Species Recovery Fund.***

Federal agencies can obtain additional funding from the:

- ***Federal Inter-departmental Recovery Fund.***

Matrix of Actions – Recovery Funding

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
9c 12b	1.28	Continue funding under the ***Species at Risk Action and Education Fund.***	PCA	
9c 10d 12b	1.28	Continue funding under the ***Research Funding by Wildlife Co-management Boards.***	SRRB, GRRB	W16 W17
9c 10d 12b	1.28	Continue funding under the ***Habitat Stewardship Program for Northern Species at Risk.***	Lead: EC, with GNWT, GNU, WCMBs, WWF, DFO, PCA, INAC	W20
9c 10d 12b	1.28	Continue funding under the ***Endangered Species Recovery Fund.***	WWF and EC	W18
9c 12b	1.28	Continue funding under the ***Federal Interdepartmental Recovery Fund.***	EC	W19

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

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W1: www.nwtwildlife.rwed.gov.nt.ca/biodiversity

W2: www.speciesatrisk.gc.ca/species/strategy/index_e.cfm

W3: www.nwtwildlife.rwed.gov.nt.ca/legislation/legislation.htm

W4: www.cosewic.gc.ca/index.htm

W5: www.nwtwildlife.rwed.gov.nt.ca/publications/speciesatriskweb/speciesatrisk.htm

W6: www.nwtwildlife.rwed.gov.nt.ca/monitoring/monitor.htm

W7: www.cites.ec.gc.ca/

W8: www.nwtwildlife.rwed.gov.nt.ca/publications/speciesatriskweb/whoopingcrane.htm

W9: www.mb.ec.gc.ca/nature/whp/ramsar/df02s07.en.html

W10: www.nwtwildlife.rwed.gov.nt.ca/publications/speciesatriskweb/woodbison.htm

W11: www.nwtwildlife.rwed.gov.nt.ca/publications/speciesatriskweb/pearycaribou.htm

W12: www.nwtwildlife.rwed.gov.nt.ca/publications/speciesatriskweb/woodlandcaribou.htm

W13: www.nwtwildlife.rwed.gov.nt.ca/publications/speciesatriskweb/peregrine.htm

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W15: pbsg.npolar.no/convagree/inuvi-inup.htm

W16: www.srrb.nt.ca/funding.html

W17: www.grrb.nt.ca/fundfr.html

W18: www.wwfcanada.org/en/cons_pgms/ESRF/Guidelines.asp

W19: www.cws-scf.ec.gc.ca/irf-fir/app_process_e.cfm

W20: www.mb.ec.gc.ca/nature/ecb/da02s16.en.html

W21: www.taiga.net/wmac/consandmanagementplan_volume3/grizzly.html

W22: www.grrb.nt.ca/wildfr.html

Protected Areas Initiatives

Planning and Implementation

The NWT Protected Areas Strategy

The Canadian Biodiversity Strategy recognizes that protected areas play an integral role in the effort to conserve biodiversity. In September 1999, the GNWT and the Government of Canada approved the ***Northwest Territories Protected Areas Strategy (NWT-PAS)***. The purpose of the NWT-PAS is to provide a framework and set of criteria to guide the work of planning and establishing protected areas in the NWT. The strategy was developed by a multi-agency Advisory Committee and drafted after many years of consultation. The NWT-PAS (PAS-AC 1999) contains two goals:

- **Goal 1:** *"to protect special natural and cultural areas"*; and
- **Goal 2:** *"to protect representative core areas within each ecoregion."*

In essence, the second goal aims to protect areas that represent the biodiversity of each of the NWT's 42 terrestrial ecoregions, as described in the *National Ecological Framework for Canada* (ESWG 1995).

The following designations can be used for protected areas in the NWT:

Protected Area Designation	Responsible Agency
National Parks and Reserves	Parks Canada Agency, Heritage Canada
National Marine Conservation Areas	
Marine Protected Areas	Department of Fisheries and Oceans
Migratory Bird Sanctuaries	Canadian Wildlife Service, Environment Canada
National Wildlife Areas	
Marine Wildlife Areas	
Natural Environment Recreation Parks	NWT Department of Resources, Wildlife and Economic Development
Wilderness Conservation Areas	
Cultural Conservation Areas	
Thelon Game Sanctuary	
Critical Wildlife Areas	

See ➔ Goal IV for more information on enabling legislation for protected areas.

In July 2000, a ***NWT-PAS Implementation Advisory Committee*** (IAC) was established to monitor the implementation of the NWT-PAS, to provide a forum for information, and to advise the territorial and federal ministers on matters relating to the implementation of the NWT-PAS. The IAC consists of 13 members comprising regional Aboriginal organizations, industry, environmental organizations and governments and meets several times per year in the various NWT communities.

"This Protected Areas Strategy (PAS) promotes a balanced approach to land use decisions by incorporating the best available traditional, ecological, cultural and economic knowledge. It is consistent with all land claim, treaty entitlement and self-government agreements.

Responsibility for implementing this Strategy will be shared by the federal and territorial governments working in partnerships with communities, regional organizations and land claims bodies.

Congratulations to the members of the PAS Advisory Committee who developed this Strategy.

The framework they developed will benefit future generations in the Northwest Territories."

The Honourable Robert Nault
Minister of Indian Affairs and Northern Development
Government of Canada

The Honourable Stephen Kakfwi
Minister of Resources, Wildlife and Economic Development
Government of the Northwest Territories

27 September 1999
Copy of Release Announcement of NWT-PAS

Wood Buffalo National Park was established in 1922, and then expanded in 1926 to its current size. The Park was inscribed as a World Heritage Site in 1983, under Criteria N (ii) (iii) (iv), where (iv) signifies that the park "contains the most important and significant natural habitats for in-situ conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation."

The park is home to the endangered Whooping Crane, the threatened Wood Bison, and many other species of special concern. In 1982, the Whooping Crane Summer Range was recognised as a ***RAMSAR Wetland of International Importance.***

Find more:
www.wetlands.org/RDB/Ramsar_Dir/Canada_.htm

Wood Buffalo National Park – salt plains and wetlands
Photo: Courtesy of Leslie Leong

As the proposed Mackenzie Valley pipeline moves closer to becoming a reality, the NWT-PAS Secretariat and the communities of the Mackenzie Valley have increasingly been focussing on taking a precautionary approach to potential development in the region. Released in October 2003, the ***Mackenzie Valley Five-year Action Plan (2004-2009)*** is a strategic direction for the enhancement of NWT protected areas in the Mackenzie Valley. The goal of the Action Plan is to establish a network of culturally significant and ecologically representative protected areas prior to, or concurrently with, the development of the pipeline, while improving information requirements and enhancing communications with communities, stakeholders, government, industry and the scientific community on the goals of the NWT-PAS.

Federal Action

Most protected areas in the Northwest Territories today continue under the purview of federal legislation. As listed in the table above, this includes designations by Parks Canada Agency, the Department of Fisheries and Oceans, and the Canadian Wildlife Service.

Completing a ***system of National Parks*** is a priority for Parks Canada. Thirty-nine natural regions have been identified across Canada. Twenty-five natural regions are now represented by 39 National Parks, with 14 National Parks remaining to be established. In October 2002, the Prime Minister of Canada announced an action plan to create 10 new National Parks and five new marine conservation areas, and add ecologically significant lands to three existing National Parks. Areas for inclusion or consideration for National Park status in the NWT include the completion of Tuktut Nogait in the Sahtu and Nunavut, the completion of Nahanni, and the proposal on the East Arm of Great Slave Lake.

In 1961, five ***Migratory Bird Sanctuaries (MBS)*** were established by the Canadian Wildlife Service (CWS) in what is now the Inuvialuit Settlement Region. These Sanctuaries represent the first conservation areas in the North established strictly for wildlife, to conserve the diversity of migratory birds by protecting and managing important areas such as breeding and staging areas. They range in size from two square kilometres at Cape Parry MBS established to protect the only breeding colony of thick-billed Murres in the Western Arctic to the 20,000 square kilometres Banks Island No. 1 MBS established to protect the large colony of Lesser Snow Geese along the Egg River on Banks Island. The Kendall Island and Anderson River MBSs were established to protect the Lesser Snow Goose colonies in those areas. The Banks Island MBS protects waterfowl habitat along the Thomsen River on Banks Island. These Sanctuaries also protect habitat for a range of migratory birds including shorebirds and waterbirds.

In 1997 the federal government passed the *Oceans Act*. Under this legislation, ***Marine Protected Areas (MPAs)*** can be established for special protection of sensitive areas and/or resources. The area(s) can be designated to support the conservation of:

- fishery resources, including marine mammals and their habitats;
- endangered or threatened marine species and their habitats;
- unique habitats;
- marine areas of high biodiversity or biological productivity; and
- any other marine resource or habitat as deemed necessary by the Minister of Fisheries and Oceans.

Matrix of Actions – Planning and Implementation

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6b 8ab	1.2 1.13 1.14 1.19 1.20	Continue implementation of the ***NWT Protected Areas Strategy (NWT-PAS)*** to accomplish both cultural and ecological goals.	GC, GNWT, and members of the NWT-PAS IAC	W1
6b 8ab	1.14	Continue to support the ***NWT-PAS Implementation Advisory Committee (NWT-PAS IAC).***	IAC: GC, GNWT, IRC/IGC, GTC, SSI, DCFN, TFN, Akaitcho Treaty 8, NTMN, COM-NWT/ NU, CAPP, WWF and CPAWS-NWT	W1
6b 8ab	1.2 1.13 1.14 1.16 1.19 1.20	Continue to support the protection of the Mackenzie Valley through the establishment of a ***Mackenzie Valley Five-year Action Plan*** as part of a process established under the NWT-PAS.	NWT-PAS, Secretariat, communities of the Mackenzie Valley, and ENGOs (CPAWS-NWT, DUC, WWF)	W1
6b 8ab	1.2 1.13 1.14 1.16 1.17	Continue to support the implementation of a ***system of National Parks***.	PCA	W6
6b 8ab	1.2 1.12 1.13 1.18	Continue to promote the establishment of ***Migratory Bird Sanctuaries***	CWS	W9
6b 8ab	1.2 1.12 1.13 1.18 1.56	Continue to promote and work toward the establishment of ***Marine Protected Areas*** in the Beaufort Sea.	DFO with partners	W2 W3

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Hornaday River Slot Canyon

Photo: Courtesy of Parks Canada/ Christian Bucher

Consultations and Community-based Selection of Candidate Protected Areas

The NWT-PAS states that candidate protected areas will largely be brought forward through ***community-led initiatives***, as envisaged under the first goal of the PAS. Since its inception, the NWT-PAS has worked with interested communities to identify potential protected areas (see feature box in this section).

With increasing industrial development in the NWT, the identification and protection of areas representative of its natural ecoregions, as envisaged under the second goal of the NWT-PAS, is receiving more attention and effort by the IAC.

Selection of marine protected areas is also under way. Assessment of the Beaufort Sea Beluga Management Plan – Zone 1a, as a potential Marine Protected Area (MPA) began in 2000, when DFO, the Canadian Association of Petroleum Producers and key Inuvialuit organizations agreed to establish a Senior Management Committee. The Committee, with Indian and Northern Affairs, has established the ***Beaufort Sea Integrated Management Planning Initiative (BSIMPI) Working Group***, whose duties include community engagement on planning issues, including the identification and assessment of a potential Marine Protected Area in the Beaufort Sea.

Matrix of Actions – Consultations and Community-based Selection of Candidate Protected Areas

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6b 8abj	1.14 1.16 1.19	Continue to encourage and support the selection of ***community-led candidate protected areas***, including *Edéhzhíe, Sahyoue-Edacho, Nahanni Headwaters, Pehdzeh Ki Deh* and *Tsodehniline Tuyatah* and *Fee-Yee*.	NWT-PAS partners and others	W1
8abj	1.14 1.16 1.55 1.56 7.1	Through the ***BSIMPI Working Group***, continue community engagement on planning for a potential Marine Protected Area in the Beaufort Sea.	DFO, FJMC, IGC, IRC, CAPP	W2 W3

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Landscape unit representation in NWT is based on a ***National Ecological Framework*** *for Canada*, where landscape units are grouped soil polygons that are used as a measure of biodiversity within the 42 NWT ecoregions.

Find more:
🖱 *sis.agr.gc.ca/cansis*

Criteria for Determining Ecologically Representative Core Areas in the NWT

Conservation of biodiversity via protecting representative core areas requires that the ecoregion's full range of biodiversity is represented in areas slated for protection, and that each area is capable of maintaining population, community, and ecosystem processes over ecological and evolutionary time. Simply protecting representative core areas in each ecoregion may not guarantee that all species native to the region will survive, or be able to migrate elsewhere when conditions change. Nor do core areas necessarily ensure that large-scale ecological processes such as fire and burn cycles, required for productive wildlife habitat, will be maintained.

The NWT-PAS outlines a series of eight steps for the planning and establishment of protected areas. As part of this process, site proposals originating from communities and regional organizations are submitted to government for additional information input, including ***landscape unit/ ecoregion representation analysis***.

A provisional NWT-PAS document outlining procedures to identify ecologically representative areas in the NWT was completed in January 2001 (see box inset on next page). As required by the NWT-PAS, the document provides procedures to assess the contribution of currently protected and candidate areas to landscape unit representation in each ecoregion, and presents preliminary design ***criteria*** for representative core areas. These requirements for landscape unit representation and core area design in NWT ecoregions are meant to ensure that areas of the right size and in the right location will conserve the biodiversity of ecoregions in an efficient and comprehensive manner.

In determining final location and in setting boundaries for ecologically representative protected areas, additional information to maintain biological relationships is required to complement representation.

Selection of a candidate protected area may not be based entirely on landscape unit representation, because biological features may not always coincide with underlying physiographic features, and many rare species and communities could be overlooked. Additional "fine filter" information, such as occurrences of endangered plant and animal species or communities, areas of high species diversity, habitats that are particularly susceptible to disturbance, and unique geological and physical features that affect biological diversity, need also be considered.

Tools for Identification and Design

In 2002, with support from government and industry, World Wildlife Fund Canada (WWF) produced a ***NWT Digital Atlas*** as a tool to help in the identification of protected areas in the NWT. The GIS-based Atlas includes thematic maps based on public digital resource data covering the entire NWT. The Atlas is already helping in other resource management initiatives and is used by government agencies, First Nations, industry, environmental organizations, and educators.

The GNWT represents the Northwest Territories as a participant in the ***Canadian National Vegetation Classification (C-NVC)*** working group, consisting of federal, provincial, territorial governments and environmental organizations. The C-NVC group is working on a standardized Canadian vegetation classification system similar to the International Classification of Ecological Communities (ICEC), and supported by The Nature Conservancy (TNC) and Association for Biodiversity.

NWT-PAS Implementation – Getting the Job Done

Step 1 – Identify Priority Areas of Interest

Step 2 – Prepare and Review Protected Area Proposal at Regional Level

Step 3 – Review and Submission of Proposal for Consideration as Candidate Protected Area

Step 4 – Consider/Apply Interim Protection to Candidate Area

Step 5 – Evaluate Candidate Area

Step 6 – Seek Formal Establishment of Protected Area

Step 7 – Approve and Designate Protected Area Establishment

Step 8 – Implementation, Monitoring and Review of Protected Area

From NWT Protected Areas Strategy 1999

Proposed NWT Criteria for Ecologically Representative Areas

Criterion 1: Proportional Representation

Representation should consider differences in prominent versus less prominent landscape units such that smaller, less prominent landscape units are represented proportionately more than larger landscape units.

- ✔ This criterion helps to protect smaller and less common landscape units, which are more easily destroyed by human disturbance.

Criterion 2: Replication and Integrity

Representation should consider the location and diversity of landscape units, in order to:

a) accommodate geographic variation of landscape units within ecoregions;
b) reduce the impact of potential catastrophic loss of individual sites;
c) maintain wildlife population stability; and
d) minimize negative edge effects and habitat isolation of small landscape units.

- ✔ This criterion helps to protect viable wildlife populations in a mosaic of landscapes, with landscape units varying in size and frequency.

Criterion 3: Core Area Size

Representation should design at least one large core area in each ecoregion to efficiently capture representative portions of a wide variety of landscape units. In cases where establishing large core reserves to achieve these objectives is not possible, landscape units can be represented by a number of smaller protected areas throughout the ecoregion. The habitat requirements of many, but not all species may be met by such a system of smaller, and preferably linked, protected areas.

- ✔ This criterion helps biodiversity conservation as it allows genes, species, populations, communities and ecosystems to persist over time. It accommodates normal disturbance influences, and helps maintain ecological processes over reasonably long periods of time. For example, for the sub-arctic large areas (500,000 hectares or more) may be required to encompass all the habitat mosaic associated with long-term fire frequency. Also, maintaining viable population sizes for carnivores and ungulates with large home ranges would require large areas.

Criterion 4: Optimal Boundary

Boundary selection should be identified through GIS-based landscape analyses, and refined using available additional ecological information on, among others:

a) watersheds, headwaters, wetlands and estuaries;
b) concentrated occurrences of rare species, or rare or unusual plant or animal communities;
c) areas of unusually high productivity or species diversity;
d) delineated home ranges of focal species;
e) locations of animal concentration areas or important phases of their life cycle; and
f) diverse topographical and land cover features and their associated plant and animal communities.

- ✔ This criterion helps protect portions of NWT ecoregions that most efficiently capture whole working ecosystems, highly productive or rare biodiversity, and a representation of the diversity of landscape units. It helps by identifying the optimal locations and boundaries of large core areas.

Thelon River

Photo: Courtesy of Leslie Leong

The NWT Digital Atlas by WWF

Data Layers at a Glance

- Annual Mean Precipitation
- Annual Mean Snow Days
- Annual Mean Temperature
- Archaeological Sites
- Bedrock Geology
- Conservation Plans
- Gwich'in Land Use Plan
- Ecologically Significant Areas
- Ecoregions
- Elevation Surficial Geology
- Fire History
- Fish Resources (Northern Land Use Information Series)
- Historical Notes (Northern Land Use Information Series)
- International Biological Program Sites
- Land Use Permits and Surface Dispositions
- LANDSATTM Vegetation Inventory
- Mineral Activities
- NWT Landscape Units
- Oil and Gas Activities
- Oil and Gas Resource Potential
- Pipeline Corridors
- Place Names
- Private fee simple claimant lands
- Recreation and Tourism Capability (Northern Land Use Information Series)
- Report of the Sahtu Heritage Places and Sites Working Group
- Significant Features and Locations
- Soil Landscapes
- Timber Productive Forest
- Tourism Sites and Locations
- Traditional Land Use and Occupancy Density Analysis
- Values at Risk (Fire Management)
- Vegetation and Landcover
- Watersheds
- Wildlife Units (Northern Land Use Information Series)

To obtain a copy contact:
Bill Carpenter, NWT Regional Conservation Director, WWF-Canada,
tel: (867) 997-6335, wwfnwt@mailmarinenet.net, www.wwfcanada.org

Muskox in the Thelon Game Sanctuary – a protected area shared with Nunavut.
Photo: Courtesy of Leslie Leong

Matrix of Actions – Criteria for determining Ecologically Representative Core Areas in the NWT

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8b	1.2 1.16	Continue the development and implementation of ***landscape unit/ ecoregion representation analysis***.	NWT-PAS and partners	W1
8b	1.2 1.16	Continue the development and begin the implementation of ***criteria*** for selecting representative areas for protection.	NWT-PAS partners and others	W1
8b	1.16 1.17 2.11 2.12	Continue the development of resource classification tools, taking for example the ***NWT Digital Atlas***, to help select representative areas for protection.	WWF with many partners	W4
8b	1.17 2.4a	Continue participation in the ***Canadian National Vegetation Classification*** Working Group.	Many partners, including in the NWT: GNWT	W10

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Improving the Identification and Design of Protected Areas in the NWT

The NWT PAS has subdivided NWT ecoregions of the National Ecological Framework for Canada into smaller biophysical units called **"landscape units"**, which are based on the 1998 Soil Carbon Digital Database, a discrete layer of soil landscape polygons within the Canadian Soil Information System (CanSIS). This reflects the broad landscapes within NWT ecoregions.

The representation of landscape units can be used as a **"coarse filter"** approximation for selecting core areas; by representing portions of landscape units in protected areas, a significant portion of the biological elements of each ecoregion will also be protected.

Since 1999, NWT-PAS partners and others have organized workshops to share information and evaluate progress on the establishment of protected areas in the NWT.

In September 2003, the Canadian Council on Ecological Areas (CCEA) and NWT-PAS partners organized a workshop to explore protected area needs for wildlife conservation in Canada's northern regions, with a view to offer advice for the design of ecological areas so that northern wildlife and landscapes are effectively protected ahead of large-scale development.

Find more:
www.ccea.org

Interim Protection Measures

Under the NWT-PAS Process

The NWT-PAS requires interim protection to maintain the values of proposed candidate areas while detailed evaluation studies are in progress. ***Guidelines for interim protection*** have been developed through the NWT-PAS that stipulate the conditions and timeframes for interim protection.

Interim protection is normally sought after a commitment has been made by a sponsoring agency (e.g. a federal or territorial government agency with the appropriate legislation for establishing protected areas) to work with a community or regional organization to advance the site through steps four through eight of the NWT-PAS process. Protection by means of an interim land withdrawal may be applied for a period of up to five years.

Under Land Claim Settlement, Self-government, and Land Use Planning Processes

Future protected areas are also proposed and selected as part of land claim settlement negotiations and land use planning initiatives. These two processes complement the framework established by the NWT-PAS; they follow similar procedures, and are consistent in approach. The selection of potential protected areas follows extensive consultation by First Nations in the settlement region with any parties who have interests in the region, including industry and environmental groups.

For example in 2001, the Deh Cho Process (negotiations towards the settlement of land claims in the Deh Cho Region) has resulted in interim land withdrawals by a federal Order-in-Council for five years. The purpose of the withdrawals is to provide interim protection to lands which are critical for harvesting, cultural or ecological reasons while a land use plan is being developed.

Land Use Plans are developed in areas with settled land claims. Land use planning outlines what types of activities should occur, where they should take place, and the terms and conditions necessary to guide land use decisions over time.

See ➔Goal II for more information on land use planning initiatives.

Land use planning can result in the selection and interim protection of an area. For example, the *Gwich'in Land Use Plan* was given final approval in 2003. The Plan provides for the conservation, development and utilization of land, water, and resources within the Gwich'in Settlement Area (GSA) through the establishment of Conservation Zones. Using zoning, land use plans can designate areas of development and non-development and provide interim protection through a five-year land withdrawal. This helps reduce negative ecological impact by controlling both the rate and the location of development. Zoning takes into consideration the cultural and scientific criteria of an area, as well as its development potential.

If long-term protection for an area selected using land-use planning processes is desirable, a community can forward the candidate area for inclusion in the NWT-PAS process.

Matrix of Actions – Interim Protection Measures

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6b 8ab	1.15	Continue support and development of ***guidelines for interim protection*** for future protected areas.	NWT-PAS partners and others	W1 W5 W6 W7
6b 8a	1.15	Continue to support ***land settlement and land use planning efforts***, and their implementation as a mechanism for designating protected areas.	Many partners	W5 W11

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

"A management plan is a strategic guide for future management of a national park. It is required by legislation, guided by public consultation, approved by the Minister responsible for Parks Canada, and tabled in Parliament. It is the primary public accountability document for each national park."

Parks Canada Agency 2003

Ecosystem-based Co-management of Protected Areas

Within National Parks, National Historic Sites and National Park Preserves, Parks Canada has a mandate to conserve biodiversity. Planning and management for each park in the NWT are done at an ecosystem/landscape level, taking into account factors influencing biodiversity inside and outside park boundaries, and using an adaptive approach.

Many National Parks in the NWT have established ***management boards***, involving both park personnel and Aboriginal organizations in the management of each park. These boards draft and review management plans and share expertise in the conservation of biodiversity in and around each park. Co-management boards such as the NWT Wildlife Management Advisory Council (WMAC-NWT) also review these management plans, and participate in park management.

Park Management Plans guide all aspects of park management. They are written for a 15-year planning period but are subject to review every five years. Plan reviews incorporate direction, as well as ecological indicators and targets from the park's Ecological Integrity Statements (see below).

So far, the management planning process has resulted in:
- Aulavik National Park of Canada Management Plan;
- Draft Tuktut Nogait National Park of Canada Management Plan;
- Nahanni National Park Management Plan; and
- Wood Buffalo National Park Management Plan.

All National Parks, including those in the NWT, are required to develop an *Ecological Integrity Statement* (EIS), which provides an understanding of the functioning of the ecosystems, valued ecosystem components, and the park's relationship with the greater park ecosystem. In the future, parks will be required to develop ***State of the Park Reports*** every five years.

So far, approved Ecological Integrity Statements exist for:
- Nahanni National Park Reserve – approved in 2001;
- Wood Buffalo National Park – approved in 2000; and
- Aulavik and Tuktut Nogait National Parks (EIS are within the management plans for these parks).

Pillar Canyon,
Tuktut Nogait National Park
Photo: Courtesy of Leslie Leong

Matrix of Actions – Ecosystem-based Co-management of Protected Areas

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8c	1.1 1.17 1.18 7.1b	Continue work by ***management boards*** to co-manage National Parks in the NWT, using an ecosystem/landscape approach.	Aboriginal governments, PCA	W8
8c	1.18	Continue to review and update ***Park Management Plans*** for National Parks in the NWT.	Aboriginal governments, PCA.	W8
8c	2.28	Continue to measure success in reaching stated goals in **State of the Park reports.**	Aboriginal governments, PCA and other partners	W8

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Education and Awareness of Protected Areas

The NWT's four National Parks feature ***educational outreach programs***, guided hikes, interpretive programs, and knowledgeable park staff. Wood Buffalo National Park also has two visitor reception centres with exhibits, video presentations, and park information. In addition, visitor reception centres are being developed in Sachs Harbour, Paulatuk and Inuvik.

Biodiversity education is part of Parks Canada's ***Environmental Stewardship Program***. This initiative establishes educational programs in schools in NWT communities near National Parks and provides training to staff in delivering environmental education and interpretive programs.

Several newsletters and update reports on the progress of protected areas in the NWT are published, including:

- *New Parks North* provides progress reports on natural and cultural heritage initiatives in northern Canada. It is a collaborative initiative of the Government of Canada, GNWT, GYK, GNU, the NWT-PAS Secretariat and CPAWS-NWT.
- *Special Places – News and Views on the NWT Protected Areas Strategy* provides updates on the implementation of the NWT-PAS and increases awareness on the creation of new protected areas in the NWT.
- The Canadian Council on Ecological Areas (CCEA) produces ***ECO***, a newsletter that reports on ecological area issues, including northern ones, and publishes occasional papers. The NWT reports annually to the CCEA on jurisdictional activities on protected areas and the GNWT contributes to the cost of publishing these materials.
- The World Wildlife Fund International Arctic Program publishes ***Arctic Bulletin***, which features updates on conservation activities throughout the Arctic, including protected area efforts in the NWT.

NWT National Parks – World's Outstanding Places

Nahanni National Park Reserve was established in 1972 and was designated among the first **World Heritage Sites** in 1978. The Park was selected for the World Heritage list as an "outstanding example of… on-going ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals" and its "exceptional natural beauty and aesthetic importance".

Find more:
W *whc.unesco.org*

In 1987, a section of the South Nahanni River was designated a **Canadian Heritage River** by the Canadian Heritage Rivers.

Find more:
W *www.chrs.ca*

Mackenzie Mountains and Nahanni River
Photo: Courtesy of Tessa Macintosh

- The Northwest Territories Chapter of the Canadian Parks and Wilderness Society publishes a ***bi-annual newsletter***, which provides regular updates on NWT conservation legislation, policies, programs, and candidate and existing protected areas.
- The Sahtu Land Use Planning Board publishes a monthly ***Land Use Planning Update*** and the Deh Cho Land Use Planning Committee publishes an ***annual report***.

See ➔ Goal III for more education and awareness actions on biodiversity issues.

Matrix of Actions – Education and Awareness of Protected Areas

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8e	3.1bcd 3.2 3.3 3.4	Continue implementation of ***educational outreach programs*** and ***Environmental Stewardship Programs*** in National Parks in the NWT.	PCA	W8 ➔ Goal III
8de	1.14 3.1d 3.3 3.4	Continue publication of ***newsletters*** *and* ***updates*** on the status of protected areas in the NWT.	NWT-PAS, CPAWS-NWT, WWF, CCEA, GC, GNWT, GYK, GNU, SLUPB, and other partners	W1 W6 ➔ Goal III

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[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

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References Cited in Text

- NWT Protected Areas Strategy Advisory Committee (PAS-AC). 1999. NWT Protected Areas Strategy. A Balanced Approach to Establishing Protected Areas in the Northwest Territories. 103 pp. (Available at www.gov.nt.ca/rwed/pas/index.htm)
- Ecological Stratification Working Group (ESWG 1995). 1995. National Ecological Framework for Canada. 1996 Ottawa, ON. (Available at sis.agr.gc.ca/cansis/nsdb/ecostrat/intro.html)

Web Pages Cited in Matrices

🖱 W1: www.gov.nt.ca/RWED/pas/index.htm

🖱 W2: www.dfo-mpo.gc.ca/

🖱 W3: www.dfo-mpo.gc.ca/canwaters-eauxcan/oceans/mpa-zpm/index_e.asp

🖱 W4: www.wwfcanada.org

🖱 W5: www.dehcholands.org/about_interim_land_wit

🖱 W6: www.parcscanada.gc.ca/docs/pn-np/nation/nation11_e.asp

🖱 W7: www.newparksnorth.org/index.htm

🖱 W8: www.parkscanada.gc.ca

🖱 W9: www.pnr-rpn.ec.gc.ca/nature/whp/sanctuaries/dc01s00.en.html

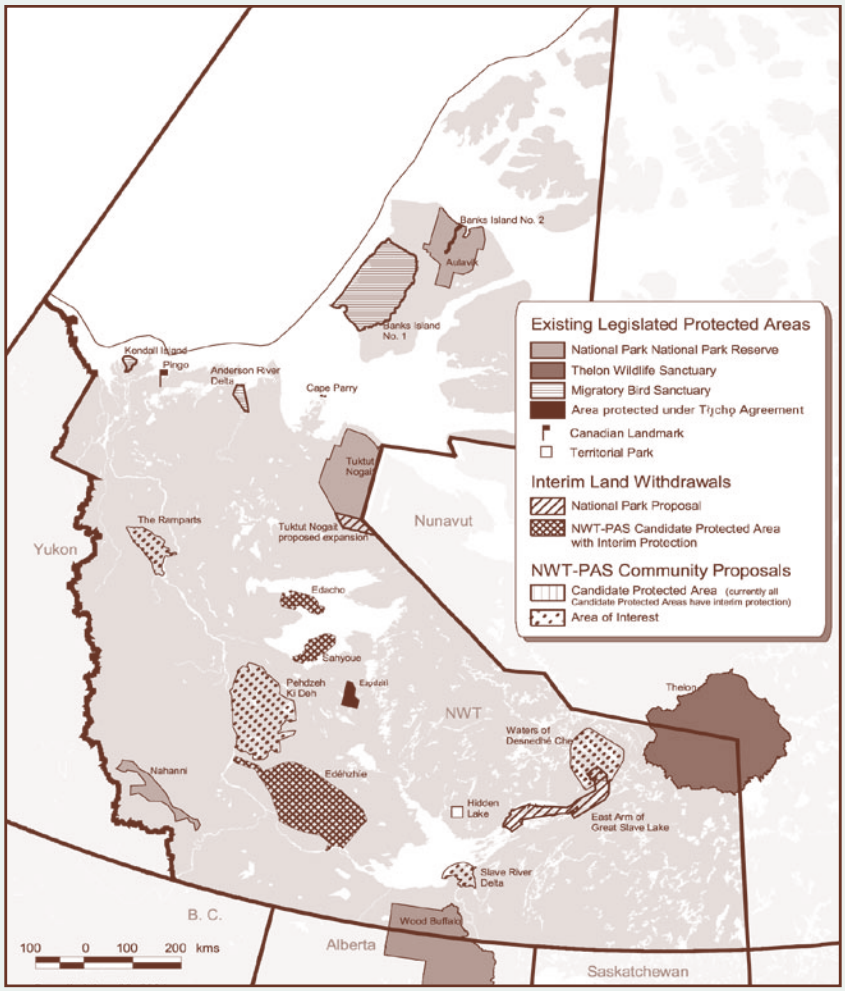
🖱 W10: www.glfc.cfs.nrcan.gc.ca/cfec/cnvc/portal_cnvc_e.html

🖱 W11: www.gwichinplanning.nt.ca

Box 1 – NWT's Network of Protected Areas – Efforts from PAS to Future

Throughout spring and summer of 2000, the community of Déline worked with the NWT-PAS secretariat, WWF and CPAWS to develop a detailed proposal for protecting the cultural and ecological values of two peninsulas in Great Bear Lake, *Sahyoue-Edacho* (Grizzly Bear Mountain and Scented Grass Hills), as a National Historic Park.

Find more:
Special Places
www.gov.nt.ca/rwed/pas/index.htm



In January 2001, the Deh Cho First Nations, with support from WWF Canada and the NWT Chapter of CPAWS, collectively requested that the Canadian Wildlife Service sponsor the 25,000 square kilometres Horn Plateau/Mills Lake, or *Edehzhie*, candidate protected area. The plateau and adjacent lakes and streams provide important source waters, waterfowl staging areas and woodland caribou habitat, and are an area of cultural significance.

In 2003, the community of Fort Good Hope, Ducks Unlimited Canada, the PAS Secretariat and others worked towards the protection of the candidate area of *Tsodehniline Tuyatah* and *Fee-Yee* (4,500 square kilometres), using the Canadian Wildlife Service as the most likely sponsoring agency. This site is significant for both cultural (i.e. training hunters and trappers, burial sites, sacred sites) and ecological values including critical waterbird breeding habitat.

Forest Initiatives

Forest Agreements and Strategies

In 1992, the Minister of RWED, representing the NWT, signed the ***First Canada Forest Accord***. As a signatory, the GNWT agreed to work towards the goal of achieving sustainable forests (see side bar). The details on how this goal can be attained are described in strategic documents; the most recent Accord for 2003-2008 was released in May 2003.

The public custodian of the Accord is the ***Canadian Council of Forest Ministers*** (CCFM). The Minister of RWED represents the NWT at the Council, making the NWT an active participant in all working groups, projects and initiatives set up under the CCFM. RWED is also an active member of the ***National Forest Strategy Coalition*** that is responsible for the cooperative implementation of the Accord. The Coalition includes groups and stakeholders such as governments, Aboriginal peoples, academic institutions, community organizations, industry, and environmental organizations.

On December 1, 2003, the Canadian Boreal Initiative (CBI) released the ***Boreal Forest Conservation Framework***. Developed by conservation groups, First Nations, and industry representatives in the NWT and throughout Canada, this document outlines a new and balanced approach to conservation and development in one of the largest remaining intact ecosystems in the world. Following the release of the Framework, the CBI has been working to expand support in other sectors, generate on-the-ground examples of the Framework principles in action, and create opportunities for governments to become engaged and active participants.

Legislation related to forests and forest management in the NWT dates from the late 1980s, when responsibility for forest management was transferred from the federal government to the GNWT. ***Forest legislation*** is being reviewed and new policy and legislation developed, to provide better tools to meet today's challenges.

See ➔ Goal IV for more on forest legislation in the NWT.

NWT Forest Legislation

Responsibilities	Legislation
RWED has management and administration responsibilities with respect to research, management and use of forests.	*Forest Management Act*, R.S.N.W.T. 1988 *Forest Management Regulations*, R.R.N.W.T. 1990, c.F-14
RWED has management and administration responsibilities with respect to forest fire management.	*Forest Protection Act*, R.S.N.W.T. 1988

Sustainable Forests

"Our goal is to maintain and enhance the long-term health of our forest ecosystems, for the benefit of all living things both nationally and globally, while providing environmental, economic, social and cultural opportunities for the benefit of present and future generations."

Canada Forest Accord 1998

Wild roses – a forest resource.
Photo: Courtesy of Leslie Leong

Forest

"Plant communities consisting of trees, bushes, shrubs and other woody vegetation, either growing or dead."

Management of forests in the Northwest Territories Designation Order of the Governor in Council made under the Northwest Territories Act (Canada) P.C. 1987-7/466

Matrix of Actions – Forest Agreements and Strategies

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6a 8i	1.4 1.32 1.65	Continue our commitment to develop forest resources in a sustainable manner under the ***Canada Forest Accord.***	In the NWT: RWED FM	W1
8i 10ae	1.65	Help review and draft strategies to implement the Accord and achieve the goal of sustainable forests through participation in the ***Canadian Council of Forest Ministers*** and the ***National Forest Strategy Coalition***.	In the NWT: RWED FM	W2
6a 8i 10e	1.1 1.11 1.68 1.79 1.92	Continue to implement cross-sectoral frameworks and strategies for the conservation and sustainable use of biological resources in the NWT, including the ***Boreal Forest Conservation Framework***.	CBI, CPAWS-NWT, DCFN, DUC, WWF-Canada, and other First Nations, conservation and industry representatives	W3
6b 10b	1.37 1.65	Continue to review and update ***forest legislation*** in the NWT.	GNWT, in consultation with Aboriginal, conservation and industry organizations	➔ Goal IV

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Forest Monitoring and Research

In 1995, a ***Criteria and Indicators (C&I) Framework*** was developed under the auspices of the CCFM to provide a common context for describing and measuring the state of our forests and our progress toward sustainable use of forest resources. This framework outlines 83 criteria that represent indicators of forest health against which our forest management practices and the state of our forests are measured. In 1999, RWED Forest Management Division provided NWT C&I data/information for inclusion in the report on Criteria and Indicators of Sustainable Forest Management released in April 2000. The next C&I update report is due in 2005.

A task force made up of officials and scientists from federal, provincial and territorial governments, as well as experts from the academic community, industry, non-government organizations, Aboriginal community and various other interest groups publishes an annual report on the ***State of Canada's Forests*** (CCFM 2003). The Canadian Forest Service (CFS) and Natural Resources Canada coordinate the program.

The ***National Forest Inventory*** is a long-term monitoring program based on the periodic measurement of selected permanent forest plots randomly located in all forested ecozones of Canada. This initiative will help document forest level changes at the national scale and over the long term. Natural Resources Canada is the lead on this initiative, with RWED Forest Management as the active participant for the NWT.

See ➔ Goal V for more cooperative actions on biodiversity.

Data and information about NWT forest and management activities are submitted by RWED Forest Management to the ***National Forestry Database Program*** on an annual basis. RWED Forest Management also shares data from ***monitoring programs*** on forest insects, disease, and forest fires with the CFS Northern Forestry Centre for inclusion in this national database administered by the CCFM.

See ➔ *Appendix 3* for a complete list of all biodiversity-related monitoring programs in the NWT.

Matrix of Actions – Forest Monitoring and Research

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7bc	1.9 1.67 2.28	Continue to participate in and provide data to the ***Criteria and Indicators (C&I) Framework and Report***.	In the NWT: RWED FM	W2 ➔ Goal II
7bd	1.67	Continue to report on the ***State of Canada's Forests*** and participate in the multi-stakeholder task force.	In the NWT: RWED FM	W2
7bcd	1.66 2.4 2.29	Continue to contribute data to the ***National Forest Inventory – Permanent Monitoring Plots***.	RWED FM, RWED-Deh Cho Region, CFS	W2 ➔ Goal II
7bcd	1.66 1.71 2.13 2.25 2.27	Continue to contribute data and information on NWT ***monitoring programs*** to the ***National Forest Database Program***.	In the NWT: RWED FM	W4 ➔ Goal II ➔ App. 3

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Forest Inventories and Land Classification

Several types of forest and vegetation inventories are being conducted in the NWT. These include:

- *NWT Forest Vegetation Classification*: A satellite-image based vegetation classification for the forested area in the NWT. RWED Forest Management leads this inventory. Its primary aim is to identify all current vegetation cover south of the tree line. The classification also includes shrub lands, wetlands and other non-forest components. The inventory is used for many resource management applications, including wildlife habitat studies and fuel typing for fire management.
- *Forest Inventory in the Gwich'in Settlement Area*: The GRRB, in co-operation with RWED, began work in 1996 to create a detailed management inventory of several productive and high forest use areas in the GSA, including the Mackenzie Delta and Arctic Red River areas. First, aerial photographs were taken, then trained foresters viewed these photographs and marked out the boundaries of forest stands, identified tree species in the stands, and measured stand heights (photo interpretation). The next step was to send people to a sample of the forest stands identified to verify the interpretation of the aerial photographs (timber cruising). Gwich'in beneficiaries were trained to collect forest data and hired to do the timber cruising. For each stand visited, the timber cruising crew identified the tree species present, measured the height and diameter of the trees, and took tree core samples to determine tree age. This information was used to create forest inventory maps of the areas.

Natural regeneration after a fire.
Photo: Courtesy of Leslie Leong

- ***Forest Vegetation Inventory:*** A series of detailed inventories based on air photo interpretation and ground measurements. Inventories are planned using three priority criteria: 1) areas identified by communities and governments as those most likely to be used for sustainable forest operations; 2) areas with potential to be impacted from land uses of all types, including oil and gas exploration and development; and 3) areas that are of importance in building foundational datasets to complete regional databases important for decision-making. RWED Forest Management Division leads these inventories.

See ➔ Goal II *Inventories, Monitoring and Research* for a summary of all inventory initiatives in the NWT.
See ➔ *Appendix 5* on Land Cover Inventories in the NWT for more information.

Standards and Procedures Manuals have been developed for forest vegetation inventories and long-term forest monitoring. These include the:

- Northwest Territories Vegetation Inventory Photo Interpretation, Transfer and Database Standards;
- Northwest Territories Inventory and Field Sampling manual;
- Field Guide for Permanent Sample Plot Establishment and Measurement; and
- Northwest Territories Stem Analysis Manual.

All of these activities will be useful in monitoring landscape-level changes in the forest cover of the NWT over the long-term.

Ecological Land Classification

Currently, a hierarchical ***Ecological Land Classification*** (ELC) system, modelled on the national ecological framework for Canada (ESWG 1996), exists for the NWT. This ELC was first drafted in 1996 and will be revised and updated in the near future. Initial steps include examining ELC requirements (Marshall and Schut 1999) and approaches that are appropriate for the NWT to meet the needs for future renewable resource management and environmental monitoring. Priority will be to assess and update the existing ELC system and determine future requirements for more detailed ELC information. At this smaller scale, Forest Ecosite Classification Guides have not yet been developed for the NWT. However, guides produced for neighbouring jurisdictions are currently used successfully to assess sites within the NWT prior to timber harvest or other land and vegetation impacts.

See ➔ Goal I *Protected Areas* for more on ELC use and update in the NWT.

Forest stand – Trembling Aspen
Photo: Courtesy of Leslie Leong

Matrix of Actions – Forest Inventories and Land Classification

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7a	1.66 2.4	Continue to maintain and upgrade the ***NWT Forest Vegetation Classification*** inventory.	RWED FM	W6 ➔ Goal II
7a	1.66 2.4	Continue to collect ***Forest Inventory Information*** within the Gwich'in Settlement Area.	GRRB, RWED	W5 ➔ Goal II
7a	1.66	Continue to maintain and upgrade the ***Forest Vegetation Inventory***.	RWED FM	W6
7a	1.66 2.25	Continue to develop and update existing ***Standards and Procedures Manuals***.	RWED FM	W6
7a	1.66 2.4	Continue to develop an ***Ecological Land Classification*** system.	RWED	W6 ➔ Goal I Goal II

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Ecosystem-based Management and Sustainable Use of Forest Resources

In the NWT, an objective of all forestry-related programs and activities is to integrate ecological, economic, social and/or cultural objectives as appropriate into the programs and/or activities.

Planning

Consultative and co-management approaches are the norm in developing community-based forest management plans in the NWT. Communities, Aboriginal governments, and regional boards share their knowledge and experience related to local forests and draft forest management plans that integrate economic, ecological, and social/cultural values.

So far, two regions have started developing ***Forest Management Plans*** using an integrated forest management approach:

- Deh Cho Forest Management Plan; and
- Gwich'in Regional Forest Management Plan.

In addition, all communities in the Inuvialuit Settlement Region (ISR) have developed Community Conservation Plans, many of which integrate aspects of forest management planning where the community is situated in the forested part of the region and where forest use is culturally and economically important. ***ISR Community Conservation Plans*** with forest management items include:

- Aklavik Community Conservation Plan;
- Inuvik Community Conservation Plan; and
- Tuktoyaktuk Community Conservation Plan.

See ➔ Goal II for more information on ISR Community Conservation Plans.

Birchbark baskets and other crafts.
Photo: Courtesy of Leslie Leong

Fire Management

Fire is recognized as a significant and natural phenomenon in the forests of the NWT. As such, not all forest fires in the NWT are suppressed. Each fire is evaluated and a response plan developed based on criteria contained in the ***NWT Forest Fire Management Policy***. These criteria include the protection of human life and property, and other factors such as the protection of important wildlife habitat (e.g., barrenground caribou wintering range within the traditional hunting areas of communities), forest management interests (e.g., plantations and permanent sample plot locations, etc.) and cultural resources.

See ➔ Goal IV for more information on policies related to biodiversity.

Forest Management

Timber Supply Analyses are used to determine sustainable levels of forest harvesting, based on management options. These analyses take an ecological and landscape-level approach. This is done by incorporating constraints into a wood supply model. For example, riparian buffers, maintenance of minimum levels of age classes within the landscape at all times, adjacency restrictions, green-up requirements, and merchantability standards are included. NWT wood supply modeling takes into account the challenges of renewal of northern forests. Typically small and locally developed forest industrial initiatives are found to be more successful and sustainable.

Local sustainable forest-based economies remain important in today's NWT society. In 1996, Natural Resources Canada (NRCAN) and INAC created the ***First Nations Forestry Program*** (FNFP) to increase First Nations cooperation and partnerships and to enhance capacity of First Nations to manage sustainable reserve forests.

See ➔ Goal III for more information on training programs in sustainable resource use.

All forestry activities covered under the authority of a ***Timber Cutting Licence or Permit*** are monitored to ensure compliance with the terms and conditions imposed on the operation to minimize adverse environmental impacts.

The basis for any terms or conditions would be the ***standard operating procedures and requirements*** for forest renewal developed to guide operators and forest management staff in conducting and monitoring of timber harvest operations in the NWT. These procedures include guidelines for incorporating wildlife, biodiversity, other ***non-timber values*** and watershed protection into timber harvest.

Aspen leaf

Photo: Courtesy of Leslie Leong

Matrix of Actions – Ecosystem-based Management and Sustainable Use of Forest Resources

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6ab 8i	1.69 1.76 2.15	Continue to support and help implement ***regional forest management plans***, such as the Deh Cho Forest Management plan and the Gwich'in Regional Forest Management Plan	RWED FM, RWED Deh Cho Region; GRRB, RWED, GTC, RRCs	W5 W6 ➔ Goal II
6ab 8i	1.69 1.76 2.15	Continue to implement ***ISR Community Conservation Plans*** for Aklavik, Inuvik, and Tuktoyaktuk.	Communities of Aklavik, Inuvik, and Tuktoyaktuk	W8 ➔ Goal II
6ab 8i	1.69 1.75	Continue to implement the ***NWT Forest Fire Management Policy***.	RWED FM	W10
6a 8c	1.75 1.79 2.15	Continue to perform ***Timber Supply Analyses*** using a landscape-level approach.	RWED FM	W6
10e 12a	1.70 1.76 3.2 7.3	Continue to support and promote the ***First Nations Forestry Program***.	INAC, NRCAN	W9 ➔ Goal III
6a 8c	1.79	Continue to monitor harvesting activities through the use of ***Timber Cutting Licences and Permits***.	RWED FM	W6
6a 8c	1.79	Continue to incorporate non-timber values into planning through the ***use of standard operating procedures*** for harvest planning and operations.	RWED FM and RWED Regions	W6

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Forest Renewal

An active ***Reforestation Program*** has been in place since 1990. Reforestation efforts have not been confined to harvested sites but have also included restoration of firebreak buffers and reforestation in burned areas. RWED Forest Management Division has collected seeds from local white spruce, jackpine and aspen for use in its ongoing Reforestation Program. These seed lots are registered and stored at the Alberta Tree Improvement and Seed Centre, an Alberta provincial government facility located in Smoky Lake, Alberta. These ***seed collections*** ensure the genetic conservation of tree species that could have special adaptations for life in the North.

Many land use activities can have an impact on forest resources. For example, oil and gas exploration can have a significant impact on forest vegetation at the landscape level. RWED FM is actively collecting baseline data to support the development and ***implementation of mitigation measures to reduce impacts of land use activities***.

See ➔ Goal II for more actions on ecological management.
See ➔ Goal IV for more information on policies related to biodiversity.

Forest Renewal

The regeneration or restoration of forest vegetation by nature or artificial means, following natural or human-caused disturbances.

Matrix of Actions – Forest Renewal

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8f	1.77	Continue to support and implement the ***Reforestation Program***.	RWED FM	W6
9a	1.11 1.74	Continue to develop an ex-situ ***seed collection*** for reforestation programs.	RWED FM, Alberta Tree Improvement and Seed Centre	W6
6a	1.79	Continue to collect baseline data to help in the ***implementation of mitigation measures to reduce impacts of land use activities***.	RWED FM	W6 ➔ Goal II

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Training and Awareness Programs

The RWED Forest Management ***Extension Program*** has been designed to actively promote sustainable forest management in the NWT. Maintenance of biodiversity is a key component to sustainable forest management.

A ***diploma program in Renewable Resource Management*** is offered by Aurora College. In the NWT, many renewable resources personnel working in forest management today are graduates of this program.

See ➔ Goal III for more actions on education, awareness and training initiatives.

Matrix of Actions – Training and Awareness Programs

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
12a 13a	1.70 2.25 2.26 3.2 3.3	Continue to promote the ***Extension Program***.	RWED FM	W6 ➔ Goal III
12a 13a	1.70 2.25 2.26 3.2 3.3	Continue to support the diploma program in ***Renewable Resource Management***.	Aurora College	W7 ➔ Goal III

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

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- CCFM Canadian Council of Forest Ministers. 2003. State of Canada's Forests 2002-2003 CCFM and Natural Resources Canada, Ottawa, 95 pp.
- Ecological Stratification Working Group. 1996. A National Ecological Framework for Canada. Agriculture and Agri-Food Canada, Research Branch, Centre for Land and Biological Resources Research and Environment Canada, State of Environment Directorate, Ottawa/Hull. 125pp. And Map at scale 1:7.5 million. http://www.ec.gc.ca/soer-ree/English/Framework/framework.cfm. Pdf copy available from http://sis.agr.gc.ca/cansis/publications/ecostrat/intro.html
- Government of the Northwest Territories. 1995-1999. Diversity of forest use at the community level: A case study on Fort Providence. Department of Resources, Wildlife and Economic Development.
- Marshall, I. B., and P. H. Schut. 1999. A National Ecological Framework for Canada - Overview, Ecosystems Science Directorate, Environment Canada, Research Branch, Agriculture and Agri-Food Canada. Ottawa Copy available from http://sis.agr.gc.ca/cansis/nsdb/ecostrat/intro.html#overview

Web pages Cited in Matrices

- W1: nfsc.forest.ca/accord.html
- W2: www.ccfm.org/
- W3: www.borealcanada.ca/
- W4: nfdp.ccfm.org/
- W5: www.grrb.nt.ca/forest.html
- W6: forestmanagement.rwed.gov.nt.ca/
- W7: www.auroracollege.nt.ca/
- W8: www.bmmda.nt.ca/downloads.htm
- W9: www.fnfp.gc.ca/
- W10: www.gov.nt.ca/RWED/plc/pdf/5207.pdf

Box 2 – Forest Management in the Northwest Territories: A Northern View of a Renewable Resource

Forest Resources

Forested lands in the NWT are used for hunting and trapping, recreation, and harvesting of fuelwood, as well as for small scale commercial and private harvesting of timber.

The Government of the Northwest Territories has the mandate and responsibility to ensure that forest resources within the NWT are used and managed on a long-term sustainable basis for the benefit of present and future generations.

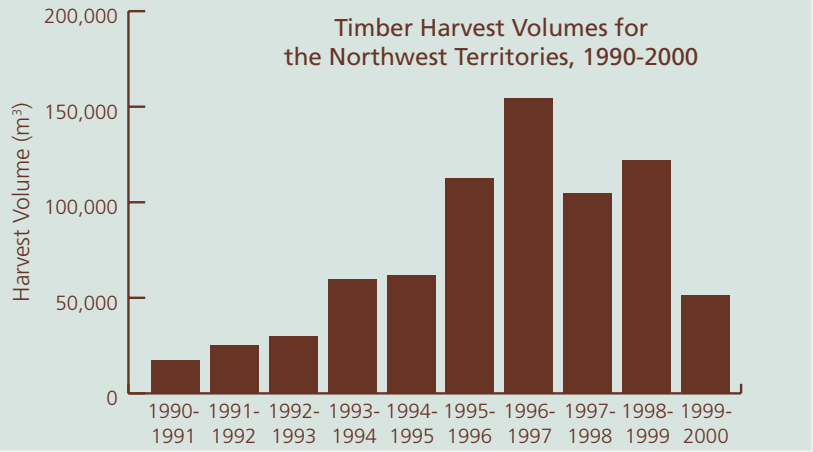
Sustainable management requires that information on forest resources be available for effective forest and fire management planning, for cumulative effects assessments, and for wildlife habitat evaluation. Information on forest is used for state of forest reporting, and provides a mechanism for long-term monitoring.

Forest Inventory

The NWT covers an area of 1.17 million square kilometres, or 11% of Canada's land mass. Forests cover about 52% of that area[1]. Forest vegetation inventories have been conducted on forest areas identified as having commercially viable forest and where communities have shown an interest in gathering more information. These inventories assist in long-term sustainable management of NWT forest resources. Inventories incorporate on-the-ground fieldwork, aerial photography and interpretation, and the transfer of information to GIS.

Using satellite imagery, the GNWT also maintains a broader landscape level inventory for all forested areas in the NWT. Information collected by the forest inventory program is used for forest and fire management and is shared with others to facilitate integrated resource management of northern forests.

See ➔ *Appendix 5* for more information on inventories.



Cut blocks with tree retention for biodiversity conservation.

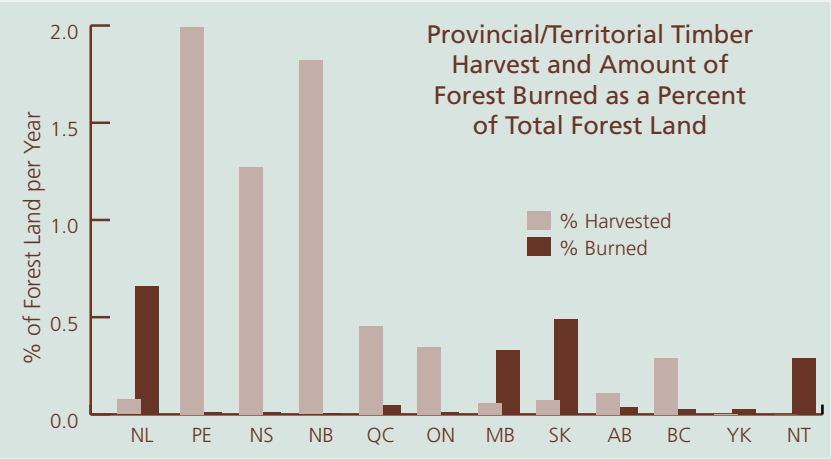
Photo: Courtesy of Forest Management RWED, GNWT

Timber Harvesting

Most of the commercial harvesting of forest in the NWT has been limited to the Liard Valley, the Cameron Hills, and the Slave River Lowlands. These areas support commercially viable stands of white spruce and trembling aspen. Small-scale forest operations that accommodate local demand are found near many NWT communities [3].

In the NWT, timber harvesting for lumber and similar products peaked in 1996-97 at an annual volume of 164,000 cubic metres and then declined significantly. In comparison, this peak harvest volume represented 0.6% of Alberta's and 0.2% of British Columbia's annual harvest levels in recent years [2].

From 2000-01 to 2002-03, the annual volume of sawtimber harvested in the NWT was less than 1,000 cubic metres. This increased to about 4,000 cubic metres in 2003-04. All but two commercial processing mills that operated in the Deh Cho and South Slave regions in the 1990s have ceased operations. With low lumber prices and an increased interest and emphasis on non-renewable developments such as oil and gas, it is expected that sawtimber harvesting and processing in the NWT will remain at relatively low levels for the foreseeable future.



Source: Natural Resources Canada. 2002. The State of Canada's Forests 2001-2002, CFS, Ottawa, ON.

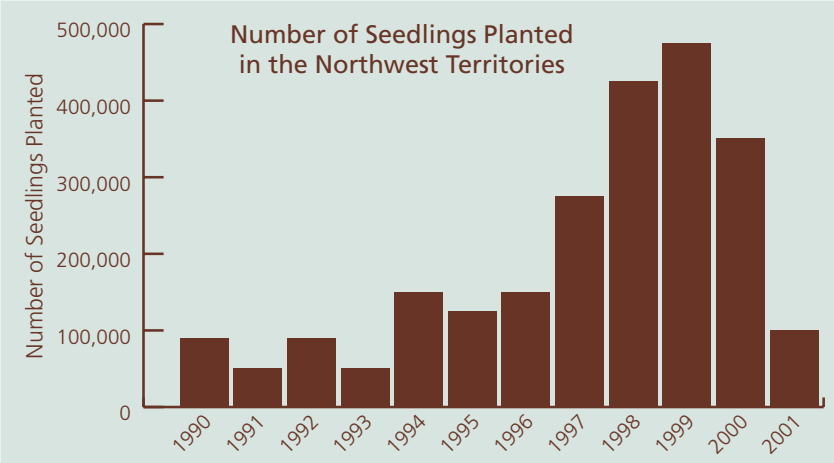
Fuel Wood Harvesting

Currently, the highest demand for forest products is for fuel wood. Fuel wood harvesting continues to be an important activity in many NWT communities. According to the Free Timber Cutting Permits and Commercial Fuelwood Permits issued by RWED, fuel wood harvesting has remained fairly constant since 1998 at approximately 5,243 cords (19,000 cubic metres) per year. However, with rising fuel costs affecting many households in the NWT, it is expected that the number of people who heat their homes with fire wood will increase. Some communities are exploring the idea of establishing community woodlots for fuel wood harvesting. Woodlots for commercial operators and Free Timber Cutting Permit holders are already established in some communities.

Reforestation in the NWT

Ensuring that forests regenerate in an adequate and timely manner following harvest is an important element of sustainable forest management. Reforestation activities in support of sustainable forestry practices in the NWT have focused mainly on the replanting of forest stands commercially harvested for white spruce. The first planting project was carried out in 1990. Since then, approximately one third of all area commercially harvested for timber has been replanted, using a total of 2.7 million seedlings.

Even with a decrease in timber harvesting in the NWT tree planting projects have continued. Since 2002, the reforestation focus has been on planting backlog harvest areas.



Source: Forest Management Division, Department of Resources, Wildlife and Economic Development, Government of the Northwest Territories.

Forest fire

Photo: Courtesy of Forest Management RWED, GNWT

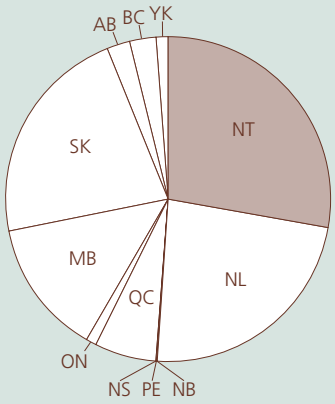
Natural Disturbances

In recent years over 5,000 square kilometres of forested land have annually shown moderate to severe defoliation by insects.

The most serious insect pest currently impacting NWT forests is the spruce budworm *(Choristoneura fumiferana)*. The larval (caterpillar) stage of this moth feeds on the needles of white spruce trees. Their abundance is cyclic in nature with current outbreaks lasting several or more years. Tree vigour can be reduced after three or more years of defoliation. The reduction in vigour can reduce the trees' ability to fight off other insect pests and diseases. Generally, white spruce can withstand several years of successive severe attacks by spruce budworm before tree mortality may occur[4].

Mature larval stage of *Choristoneura fumiferana.*
Photo: Modified from CFS-CFL

Forest Area Burned in Canada (2000) – 0.6 Million Hectares



Source: Natural Resources Canada, 2002. The State of Canada's Forests 2001-2002, CFS, Ottawa, ON.

Other important tree defoliators in NWT forests include the large aspen tortrix *(Choristoneura conflictana)*, a moth that feeds on aspen leaves, and larch sawfly *(Pristiphora erichsonii)*, whose larvae attacks tamarack. Other forest insect pests and diseases are also impacting northern forests but to a lesser degree. Some mortality in mature forest stands which may be linked to climate change factors, has also been observed in scattered locations in the NWT.

The intensity, severity and size of forest fires depend on forest fuels, weather cycles and topography. In the NWT, on average, about 6,300 square kilometres of forest land burn every year. The fire cycle is extremely variable, but every 100 years, about 30% of our forests have burned at least once. Every year, about one quarter of all forested areas that burn in Canada is in the NWT. Fire is an important natural agent of change in northern forest ecosystems.

Drafted by Bob Decker and Lisa Smith,
Forest Management Division, RWED, GNWT

Find More

[1] Natural Resources Canada. 1997. Forests of the Northwest Territories, Can. For. Serv., North Fore. Cent., Edmonton, AB.

[2] Natural Resources Canada. 2002. The State of Canada's Forests 2000-2002, Can. For. Serv.,Ottawa, ON.

[3] GNWT. 2000. Wildlife, Forest and Fish Values in the Northwest Territories, RWED, GNWT, unpublished.

[4] Hiratsuka, Y., Langor, D.W., & Crane, P.E. 1995. Forest Insects and Diseases of the Prairie Provinces, UBC press, Vancouver, BC.

Sustainable Use of Wildlife Initiatives

Hunting, fishing, and trapping are important activities for many northerners (see Box 3). For the Dene, Métis and Inuvialuit, these activities are regarded as an essential part of cultural identity, forming a link to the artistic, spiritual, and social fabric of daily life. In the North, sustainable use of wildlife is seen as a personal responsibility, as a form of respect owing to the entire community and to future generations.

Policy and Legislation on the Sustainable Use of Wildlife

In 1997, the GNWT adopted a government-wide ***Sustainable Development Policy*** that officially recognises the interdependence between conservation and development. This policy specifically states that the GNWT will promote conservation and resource development to meet three ecological goals:

- maintain essential ecological processes;
- maintain or enhance natural diversity; and
- maintain harvestable resources at sustainable levels, along with other economic, social and cultural goals.

Sustainable use of wildlife is an important part of all land claim agreements (INAC 1984, INAC 1992, INAC 1993, INAC 2003), in the NWT. ***Principles of sustainable harvesting*** are detailed in each agreement:

- protection of future rights to harvest;
- conservation and protection of wildlife and wildlife habitat;
- respect for traditional customs and practices;
- involvement of settlement beneficiaries in all decisions related to wildlife;
- integration of planning and management for all land and water use; and
- fair dealing between beneficiaries and non-beneficiaries.

Each land claim agreement is enshrined in federal legislation that defines the legal responsibilities of each signatory. As a result, wildlife management responsibilities in the NWT are shared between federal, territorial and Aboriginal governments. Legislated resource co-management bodies exist in all regions with settled land claims. In these regions ***wildlife co-management boards*** are the primary tools of wildlife management.

See ➔ Goal II for more information on the co-management system.

Definitions of Wildlife

Different people have defined wildlife differently:

- Until 20 years ago, most governments limited wildlife to fish, birds and mammals.
- During the past 20 years, the definition of wildlife has broadened to include more species.

Wildlife Policy for Canada (1982): "All wild organisms and their habitats – including wild plants, invertebrates, microorganisms, fishes, amphibians, reptiles, and the birds and mammals."

Species at Risk Act **(Canada - 2003):** "Animal, plant, or other organism, other than a bacterium or virus…"

Definitions in Land Claim Agreements

- ***Inuvialuit (1984):*** "All fauna* in a wild state other than reindeer."
- ***Gwich'in (1992), Sahtu (1993), Tlicho (2003):*** "All ferae naturae" in a wild state including fish, mammals and birds."

* Fauna = animals; *ferae naturae* = "of a wild nature"

Proposed Definition for New *NWT Wildlife Act* (2003)

"All vertebrates and invertebrates found wild anywhere in nature, including in captivity, except fish as defined in the Fisheries Act (Canada) and migratory birds under the *Migratory Birds Convention Act*."

Definitions determine the boundaries of responsibilities for management and for decisions on activities related to wildlife.

A broader definition means broader responsibilities.

The Gap – fishing Little Doctor Lake.
Photo: Courtesy of Leslie Leong

Sustainable use of specific types of wildlife is regulated by at least three pieces of legislation. The *Migratory Bird Convention Act* (federal), administered by the CWS, sets hunting regulations for migratory birds in the NWT. The *Fisheries Act* (federal) sets regulations for the sustainable fishing of freshwater and marine fishes, and hunting of marine mammals in NWT waters. The *Wildlife Act* (territorial) sets hunting and trapping regulations for terrestrial mammals. This Act is under review, in part to bring it into compliance with land claim legislation. Consultation precedes any change in hunting, fishing or trapping regulations under any legislation related to wildlife in the NWT.

See ➔ Goal IV for more information on legislation.

Matrix of Actions – Policy and Legislation on the Sustainable Use of Wildlife

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6a 6b 10a 11	1.6 1.32 4.1	Continue to implement the ***Sustainable Development Policy*** in all actions and decisions related to natural and heritage resources in the Northwest Territories.	GNWT	W1 ➔ Goal IV
6a 6b 8j 10a 11	1.32 4.1 6.8 7.1	Continue to work under ***principles of sustainable harvesting of wildlife*** in the Gwich'in Settlement Area and continue participation in the ***Gwich'in Renewable Resource Board***.	GRRB; Participation: RRCs, RWED, CWS, DFO	W2 ➔ Goal II Goal IV
6a 6b 8j 10a 11	1.32 4.1 6.8 7.1	Continue to work under ***principles of sustainable harvesting of wildlife*** in the Sahtu Settlement Area and continue participation in the ***Sahtu Renewable Resources Board***.	SRRB; Participation: RRCs, RWED, CWS, DFO	W3 ➔ Goal II Goal IV
6a 6b 8j 10a 11	1.32 4.1 6.8 7.1	Continue to work under ***principles of sustainable harvesting of wildlife*** in Wek'èezhìi and begin participation in the ***Wek'èezhìi Renewable Resources Board***.	Many partners	➔ Goal II Goal IV
6a 6b 8j 10a 11	1.32 1.51 4.1 6.8 7.1	Continue to work under ***adopted principles of sustainable harvesting of wildlife*** in the Inuvialuit Settlement Area and continue participation in ***Wildlife Management Advisory Council (NWT)*** and the ***Fisheries Joint Management Committee***.	WMAC-NWT; Participation: HTCs, RWED, CWS; FJMC, Inuvialuit communities, DFO	W4 W5 ➔ Goal II Goal IV

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (🕮), in web pages (🖱) or follow up on another Goal in this report (➔).

Aboriginal Programs on the Sustainable Use of Wildlife

Decision making on sustainable use of wildlife in the NWT follows a local-to-regional approach.

See ➔ Goal II for a description of this approach in renewable resource management.

Throughout the NWT, community harvester committees have been established to encourage local involvement in conservation, harvesting studies, research and wildlife management in the local community. One of the purposes of these organizations is to implement the principles of sustainable harvesting at the community level. In areas with settled land claims, the land claim agreements clearly define the role of these community organizations and set out a formal process for community input into wildlife management decisions.

Outside areas with settled land claims, decision-making on sustainable use of wildlife also follows a local-to-regional approach, but the organizations involved differ from area to area. Aboriginal people have established local associations and systems to manage the local traditional use of wildlife. The purpose of these associations follows similar principles to those described for areas with settled land claims. As land claims are settled in the southern NWT, some of these local organizations and programs may be legally established.

Drying fish

Photo: Courtesy of Tessa Macintosh

Management Planning for Harvested Species

User groups and management boards have been established to consult and make recommendations on the management of harvested species in specific areas of the NWT.

The ***Great Bear Lake Watershed Working Group*** and the ***Great Slave Lake Advisory Committee*** assess fishing activities on each lake and make recommendations to DFO on total allowable harvest and allocation to users.

DFO is also developing management plans for some fish stocks in the NWT. The GRRB, DFO and local Renewable Resource Councils (RRCs) have drafted a ***Rat River Char Fishing Plan*** to help manage the harvest of Dolly Varden in the Rat River.

Local and regional management organizations are drafting a ***Moose Management Plan*** and a ***Grizzly Bear Management Plan*** for the GSA to help manage these species, protect their habitat, and protect Gwich'in harvesting rights.

The ***Co-management Plan for Peary Caribou (endangered), Muskox, Arctic Grey Wolf (data deficient), Lesser Snow Geese, and Small Herbivores on Banks Island*** includes essential components for the sustainable use of all the harvested species it covers.

Arctic Grayling
Photo: Courtesy of D. Heard

Matrix of Actions – Management Planning for Harvested Species

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6b 8c 8j 10c 10e	1.36 1.37 1.51 1.59 1.63 2.3 2.15 2.16 7.1	Continue work with the ***Great Bear Lake Watershed Working Group*** to manage fisheries in Great Bear Lake.	Sahtu communities with SRRB, DFO, RWED, INAC, EC, CPAWS-NWT	W6 ➔ App. 3 ➔ Goal II
6b 8c 8j 10c 10e	1.36 1.37 1.51 1.59 1.63 2.3 2.15 2.16 7.1	Continue work with the ***Great Slave Lake Advisory Committee*** to manage fisheries in Great Slave Lake.	Aboriginal governments, DFO, RWED with communities and lodges	➔ App. 3 ➔ Goal II
8j 10c	1.36 1.37 2.3 7.1	Continue implementing the ***Rat River Char Fishing Plan*** (1997), (GRRB, DFO)	GRRB, RRCs, and DFO	W7 ➔ Goal II
8j 10c	1.36 1.37 2.3 7.1	Continue drafting and work towards the implementation of the ***Moose Management Plan*** in the GSA.	GRRB, RRCs, and RWED	W8 ➔ Goal II
8j 9c 10c	1.36 1.37 2.3 7.1	Continue drafting and work towards the implementation of the ***Grizzly Bear Management Plan*** in the GSA under the ***Management Agreement for Grizzly Bears in the Gwich'in Settlement Area***.	GRRB, RRCs, and RWED	W8 ➔ Goal II
8f 8j 9c 10c	1.1 1.36 2.3 2.15 7.1	Continue implementation of the draft multi-species ***Co-management Plan for Peary Caribou (Endangered) Muskox, Arctic Grey Wolf (Data Deficient), Lesser Snow Geese, and small herbivores on Banks Island***.	Inuvialuit Final Agreement Implementation Coordinating Committee	D1 ➔ Goal II

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Sustainable Use of Trans-boundary Wildlife

There have also been management boards established to oversee the management planning of wildlife species that are shared with other jurisdictions.

The *Beverly and Qamanirjuaq Caribou Management Board* makes recommendations on the management of the Beverly and Qamanirjuaq herds, whose migratory routes straddle the NWT, Nunavut, Manitoba, and Saskatchewan. The Board includes government representatives and community members from each of the jurisdictions. The Board helps develop awareness programs on the culture, conservation, and sustainable use of these caribou herds. Every 10 years, the Board initiates consultations and publishes a revised ***Beverly and Qamanirjuaq Caribou Management Plan***. The 1996 plan was followed by an ***Agreement*** signed by all jurisdictions responsible for wildlife in the range of the Beverly and Qamanirjuaq Caribou herds.

The ***Porcupine Caribou Management Board*** cooperatively manages the Porcupine Caribou herd and its habitat in Canada. The goal is to ensure continuance of the herd for subsistence use by Aboriginal users while recognizing that other users may also share the harvest. As the Porcupine Caribou herd straddles the Canadian-US border during its migration, the board was created in 1987 under an ***International Agreement*** signed by the governments of the United States, Canada, Northwest Territories and Yukon as well as Yukon First Nations, Inuvialuit and Gwich'in organizations. The board prepares ***Porcupine Caribou Management Plans*** that act as guidelines for management of the herd. It also makes recommendations on herd management to the GYK and GNWT.

Male Common Eider
Photo: Courtesy of Grant Gilchrist

The ***Bathurst Caribou Management Planning Committee*** was established in 2000 by an ***Agreement*** between the governments of Canada, Nunavut, and the NWT, Aboriginal governments and organizations to draft a ***Management Plan*** for the Bathurst Caribou herd. The plan will assist in the conservation of the herd and its habitat, and help maintain traditional and other uses over the long term.

See ➔ Goal II for more information on the co-management system.

In 1986, Canada and the US signed the ***North American Waterfowl Management Plan*** (NAWMP). In 1996, Mexico joined them in implementing this international plan to conserve migratory birds throughout North America. The major goals of the plan are to restore waterfowl populations to their 1970s levels, and to conserve wetland and upland habitat for waterfowl.

The Plan is updated every five years. Partners analyze waterfowl population and habitat trends at the continental level and publish their findings regularly. A number of initiatives have been undertaken under NAWMP.

- ***Flyway Councils*** make decisions and recommendations on waterfowl population management and hunting restrictions in consultation with the three countries. A flyway is a corridor that is typically used by populations of birds to migrate north and south every year. The NWT is part of the Central Flyway and the Pacific Flyway. As part of the plan, US Fish and Wildlife flies *Waterfowl Breeding Population and Production Surveys* along permanent aerial transects in Canada, including in the NWT (see Appendix 2 on *Wildlife-related Monitoring*). Results of these surveys provide valuable information to predict waterfowl population levels each fall, and to adapt management decisions before each hunting season.

Specific information gaps and complex sustainability or management issues are studied using a series of ***joint ventures***, in which governments, non-governmental organizations, corporations, and individuals pool funds and join their efforts to study a specific group of species or a specific habitat.

Two joint ventures are active presently in the NWT:

- ***Sea Duck Joint Venture:*** This program promotes conservation of North American sea ducks by providing funding, through partnerships, to research projects that will increase our understanding of the decline in some sea duck populations and help in management decisions. In 2001,

Definitions of Harvesters

- **Aboriginal Harvesters:** Aboriginal people who have treaty rights or traditional rights to harvest in the NWT. Aboriginal harvest quotas and closed seasons only apply on specific species in specific areas.
- **Resident Hunters:** Non-Aboriginal people who have resided in the NWT for a specified period and who wish to hunt in the NWT. Resident hunters may hunt specific species during a specific season after they acquire a seasonal hunting licence and appropriate tags.
- **Non-Resident Hunters:** People who are not NWT residents but are Canadian citizen, or landed immigrants, or non-Canadian and who wish to hunt in the NWT. All non-resident hunters require the service of outfitters to hunt big game species in the NWT; they must acquire a seasonal licence, tags, and trophy fees.
- **Trappers:** Only Aboriginal and non-Aboriginal harvesters with harvesting rights within the NWT can trap in the NWT.

a technical team developed a strategic plan for 2001-2006 to prioritize information needs for sea duck studies. Current studies in the Beaufort Sea will help manage sustainable hunting of sea ducks in the NWT and further south along their migration route. Partners for the NWT include the US Fish and Wildlife Service, Ducks Unlimited Canada, Canadian Wildlife Service, and RWED.

- *Arctic Goose Joint Venture:* This program was initiated in 1989 to increase our understanding of Arctic-nesting geese in North America. Recent research and management projects in the NWT have focused on studies of declines in Brant populations and on the effect of increasing populations of lesser snow geese on other wildlife and on Arctic habitat. Monitoring nesting geese in the Arctic provides valuable information used to set goose hunting regulations across the continent. Partners for the NWT include USFWS, CWS and RWED.

In 1998, the ***North American Bird Conservation Initiative*** was initiated by expanding the partnership concept of NAWMP to all bird species. The main goal of the initiative is to conserve birds and their habitats in North America.

Launched in 2001, DU Canada's ***Western Boreal Forest Initiative*** will increase our understanding of why some boreal-nesting waterfowl have been declining in recent decades. Two project areas are in the NWT:

- Sahtu; and
- Lower Mackenzie.

The information collected under this initiative will be valuable in determining levels of sustainable use of boreal forest waterfowl in western North America.

The ***Inuvialuit – Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea*** and the ***Co-management Plan for Grizzly Bears in the Inuvialuit Settlement Region, Yukon Territories and Northwest Territories*** include essential components for the sustainable use of the harvested species they cover.

See ➔ Goal II for more information on the ecological management aspects of these initiatives.
See ➔ Goal V for more information on international cooperation on transboundary species and issues.

Matrix of Actions – Sustainable Use of Trans-boundary Wildlife

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6b 8c 8i 8j 10b 12b	1.1 1.4 1.12 1.37 2.1 2.3 2.15 5.1 6.3 7.3	Continue work with the ***Beverly and Qamanirjuaq Caribou Management Board*** and continue implementation of the ***Beverly and Qamanirjuaq Caribou Management Agreement and Plan***.	In NWT: RWED, INAC, NWT communities; In other jurisdictions: MB, SK and communities	W9 ➔ Goal II

Matrix of Actions – Sustainable Use of Trans-boundary Wildlife (continued)

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
5 6b 8c 8i 8j 10b 12b 14c	1.1 1.4 1.12 1.37 2.1 2.3 2.18 2.19 5.1 6.3 7.3	Continue work with the ***Porcupine Caribou Management Board*** and continue implementation of the ***Porcupine Caribou Management Agreement and Plan***.	In NWT: GNWT, GC with GTC, IGC; In Canada: with GYK, Council of Yukon First Nations; In US: USFWS	W10 W11 ➔ Goal II Goal V
6b 8c 8i 8j 10b 12b	1.1 1.4 1.12 1.37 2.1 2.3 2.15 6.3 7.3	Continue work with the ***Bathurst Herd Management Planning Committee*** and continue drafting the ***Bathurst Herd Management Plan***.	In the NWT: RWED, INAC, with Tlicho Council, YDFN, NSMA, LDFN; In NU: GNU, KIA, KHTA, NWMB, and NTI	D2 ➔ Goal II
5 6b 8c 8i 10b 12b 14c	1.1 1.4 1.12 1.38 2.1 2.2 2.15 2.18 2.19 5.1 6.3	Continue to participate in ***Flyway Councils*** and work under the ***North American Waterfowl Management Plan***, including the ***Sea Duck Joint Venture*** and the ***Arctic Goose Joint Venture***.	In Canada (including the NWT): CWS, RWED, DUC, others; In NA: US, Mexico, others;	W12 W13 ➔ Goal II Goal V
5 6b 8i 10b 14c	1.1 1.4 1.12 1.37 2.2 2.4 2.18 2.19 5.1 6.3	Continue the planning work as part of the ***North American Bird Conservation Initiative***.	In NWT: CWS	W15 ➔ Goal II Goal V
5 6b 8i 10b 10e 12b 14c	1.1 1.4 1.12 1.33 2.1 2.2 2.3 2.4 2.18 2.19 5.1 6.3	Continue to participate in and contribute to the NWT portion of the ***Western Boreal Forest Initiative***.	Lead in NWT: DU Inc., DUC with RWED, USDA Forest Service, OIP; In Sahtu: Déline RRC, Norman Wells RRC, SRRB, Tulita RRC; In the lower Mackenzie: Aklavik HTC, Ehdiitat RRC, RWED, GRRB, GTC, Gwichya GRRC, IGC, Inuvik HTC, Inuvik RRC, Nihtat GRRC, Norman Wells RRC, Pew Charitable Trusts, Tetlit GRRC, Tsiigehtchic RRC, WMAC-NWT	W14 ➔ Goal II Goal V

Net fishing for Inconnu in the Mackenzie River.
Photo: Courtesy of S. Stephenson

Matrix of Actions – Sustainable Use of Trans-boundary Wildlife (continued)

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
5 6b 8c 8i 8j 10b 14c	1.1 1.4 1.12 1.23 1.28 1.37 2.3 2.15 2.18 2.19 5.1 7.1 7.3	Continue work under the ***Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea***, including Inuvialuit community management plans in the NWT.	In Canada: IGC; In US: North Slope Inupiat, Fish and Game Management Committee and Department of Wildlife Management	🕮 D3 🖱 W16 ➔ Goal II Goal V
6b 8c 8i 8j 10b	1.1 1.4 1.12 1.23 1.28 1.37 2.3 2.15 7.3	Continue implementation of the ***Co-management Plan for Grizzly Bears in the Inuvialuit Settlement Region, Yukon Territories and Northwest Territories***.	GNWT, GYK, Inuvik HTC, Paulatuk HTC, Tuktoyaktuk HTC, IGC, WMAC-NS, WMAC-NWT, and PCA	🖱 W17 ➔ Goal II

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (🕮), in web pages (🖱) or follow up on another Goal in this report (➔).

Harvest Studies

Each of the land claim agreements in the NWT sets out the requirements for a harvest study (INAC 1984, INAC 1992, INAC 1993, INAC 2003). These studies are designed to provide harvest information necessary to protect future rights of harvest, and to ensure the sustainable use, conservation, and protection of wildlife (Usher and Wenzel 1987).

Each study provides annual estimates of the number of mammals, fish, and birds harvested by Inuvialuit, Sahtu Dene and Métis, and Gwich'in Dene and Métis, respectively, during a five-year period. The Tlicho harvest study will be conducted by the Wek'èezhìi Renewable Resources Board.

All data collected are entered into ***Harvest Study Databases***, used as tools by the wildlife co-management boards to:

- make effective management decisions regarding the land and natural resources in the settlement area;
- determine the Basic Needs Level – the number of animals required to feed all beneficiary households;
- ensure harvest levels are sustainable; and
- make recommendations on allocation and legislated or voluntary quotas.

Some Aboriginal governments outside areas with settled land claims have also been conducting hunting surveys, collecting information on traditional hunting locations and on traditional knowledge of harvested wildlife. Recently, the Deh Cho First Nations completed harvest studies in their traditional hunting area. The Tlicho Council have also completed a series of studies on traditional knowledge related to harvesting of the Bathurst

caribou herd as part of the West Kitikmeot Slave Study (WKSS 2001). These studies provide valuable information to Aboriginal governments for decisions regarding sustainability and land-use issues.

See ➔ Goal II for more information on ecological management.

Harvest data for non-Aboriginal NWT hunters is collected annually across the NWT through the ***NWT Resident Hunter Survey***.

Hunters not residing in the NWT are required to use the services of an outfitter to harvest big game in the NWT. Three areas are open for outfitted hunts: the Mackenzie Mountains, the barrengrounds (Taiga Shield ecozone), and the Inuvialuit Settlement Region. Data on harvest by non-resident hunters is collected annually from ***Outfitters Reports*** and export permit information.

Mary Cazon preparing wild duck.

Photo: Courtesy of Leslie Leong

Matrix of Actions – Harvest Studies

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8i 8j 10b	1.4 7.1	Continue the ***Inuvialuit Harvest Study*** (1987-current) and use results in management decisions leading to sustainable use of wildlife.	WMAC-NWT, RWED (Inuvik Region), DFO, JFMC, CWS and local hunters	🕮 D4
8i 8j 10b	1.4 7.1	Continue the ***Sahtu Settlement Harvest Study*** (1998-2003) and use results in management decisions leading to sustainable use of wildlife.	SRRB and local hunters	🖱 W18
8i 8j 10b	1.4 7.1	Continue the ***Gwich'in Harvest Study*** (1995-2003), and use results in management decisions leading to sustainable use of wildlife.	GRRB and local hunters	🖱 W2
17.1	2.11 2.13	Continue to contribute to ***Harvest Study Databases*** for information sharing purposes.	WMAC-NWT, RWED (Inuvik Region), DFO, JFMC, CWS, SRRB, GRRB, and local hunters	
8i 10b	1.4	Continue the ***NWT Resident Hunter Survey***, and use results in management decisions leading to sustainable use of wildlife.	RWED	🕮 D5
8i 10b	1.4	Facilitate integration of results from ***Outfitters Reports*** into management decisions leading to sustainable use of wildlife.	RWED	

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (🕮), in web pages (🖱) or follow up on another Goal in this report (➔).

Monitoring Harvested Wildlife

All governments and many organizations have established ***Monitoring Programs*** and ***Population Surveys*** for harvested species in the NWT. Most programs are performed through partnerships in which different NWT groups share resources, expertise and information to successfully complete a survey or inventory on schedule (see Appendix 2).

See ➔ Goal II for more information on ecological management.

Many of these programs involve volunteers. Most involve community participation and are done in partnership with Aboriginal governments and wildlife co-management boards. This partnership approach helps streamline data sharing and the integration of results into regional management plans.

Tanning a caribou hide.
Photo: Courtesy of Leslie Leong

As part of the ***NWT Biophysical Study***, a gap analysis is underway to determine needs in the NWT for cooperation and increased effort in baseline monitoring programs for harvested species, among others. In addition, a gap analysis of monitoring programs will help develop a coordinated approach to cumulative effects assessment and management, as part of the NWT-wide program ***NWT CEAM Strategy and Framework***.

See ➔Goal II for more information on the ecological management component of these programs.

Harvested fish populations are monitored with cooperation from wildlife co-management boards as part of systematic ***Stock Assessments and Stock Status Reports***. Information is summarized and made available by the Canadian Science Advisory Secretariat and used to develop management plans and quotas as required.

See ➔Goal II for more information on ecological management.

Matrix of Actions – Monitoring Harvested Wildlife

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7a 7b 8i 8j 10b	1.4 1.35 2.4 2.30 2.32 7.1	Continue ***Population Surveys*** of harvested wildlife and work on ***Wildlife Monitoring Programs.***	Many partners	➔ Goal II
7a 7b 8i 8j 10b	1.32 1.35 1.37 2.4 2.27 7.3	Finalize gap analyses on wildlife monitoring in the NWT as part of the ***NWT Biophysical Study*** and the ***NWT CEAM Strategy and Framework***.	RWED with many partners; INAC, with CEAM Steering Committee members	W19 W20 ➔ Goal II
7a 7b 8i 8j 10b 13a	1.4 1.35 1.36 1.53 2.30 3.4 7.1	Continue work on ***Stock Assessments and Stock Status Reports***.	In NWT: DFO, SRRB, GRRB, FJMC; In Canada: CSAS	W21 ➔ Goal II Goal III

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Promotion, Education and Training in the Sustainable Use of Wildlife

In the North, teaching respect for the land has been part of the social education of Aboriginal youth for many generations. Today, many school and community activities provide opportunities for education and training in sustainable harvesting practices.

See ➔ Goal III for more information on education and awareness initiatives.

Harvesting plays an important economic, cultural, and spiritual role within today's northern society. In the NWT, specific programs have been initiated to promote, educate, and teach young northerners humane fur harvesting skills and the sustainable use of wildlife resources. Trapper training programs such as the ***Turton Lake Trapper Training School***, the ***Bliss Lake Trapper Training Program***, and the ***Inuvik Trapper Training Program*** help harvesters learn responsible trapping practices and general skills to live on the land. With GNWT support, communities update local instructors on new

techniques to ensure harvesters are in compliance with international humane trap standards.

The GNWT supports and promotes ***barbless fishing and catch and release*** through the NWT Sport Fishing Guide. Barbless hooks ease the removal of the hook, minimizing fish damage and reducing handling time, which increases the chance of fish survival (RWED 2002). Catch-and-release fishing allows a fish to be returned to the water to spawn, which helps maintain future NWT fish stocks (RWED 2002).

Violators of renewable resource legislation, such as poachers, deplete wildlife populations and destroy natural habitat. The GNWT sponsors a ***Report-a-Poacher*** program and a toll-free hotline, which encourages anyone witnessing a suspected violation to report it.

In the NWT, non-residents require an outfitter to hunt big game. Outfitters in the NWT have adopted a ***Code of Ethical Conduct***, which extends beyond established legislation to encourage responsible hunting practices and respect for other hunters and hunting regulations. The Code emphasizes standards for hunting activities including the treatment of wildlife, the minimization of waste from harvested animals, and the disposal of litter and wildlife parts measures, in order to reduce impacts on ecosystems and biological resources.

The World Wildlife Fund has also produced standards for sustainable wildlife harvesting and use. The report on the ***Guidelines for the Consumptive Use of Wild Species in the Arctic: Wild Species Use by the Inuvialuit of Inuvik and Paulatuk*** uses these two Inuvialuit communities as case studies for evaluating the relevance of 15 established guidelines for sustainable use within the context of the consumptive use of wild species in the Arctic.

Matrix of Actions – Promotion, Education and Training in the Sustainable Use of Wildlife

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
12a	1.34 2.26	Continue to support and promote the ***Turton Lake Trapper Training School***, ***Bliss Lake Trapper Training Program***, and ***Inuvik Trapper Training Program***.	SRRB, GRRB	➔ Goal III
8il 10b 13a	1.33 1.34 3.3	Continue to support sustainable harvesting practices through the promotion of the use of ***barbless hooks and catch and release*** for sport fishing.	RWED	W22
8il 10b 13a	1.34 3.3	Continue to support the sustainable use of wildlife through the promotion of the ***Report-a-Poacher*** program.	RWED	W22
8i 10be 13a	1.33 1.36 3.3	Continue the promotion of sustainable hunting and trapping practices through the application of the ***Code of Ethical Conduct*** for hunters in the NWT.	BCOA, AMMO	W23
8i 10be 13a	1.33 1.36 3.3	Continue to produce works such as WWF's ***Guidelines for the Consumptive Use of Wild Species in the Arctic***.	WWF and others	W24

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Berry picking
Photo: Courtesy of Tessa Macintosh

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Documents Cited in Matrices

- D1: Inuvialuit Final Agreement Implementation Coordinating Committee, 2000. Annual Report. Inuvik, NT. 33 p.
- D2: Bathurst herd Management Planning Committee. GNWT. 2000. Bathurst Barrenground Caribou Management Planning Agreement, Yellowknife, NT. 8 p.
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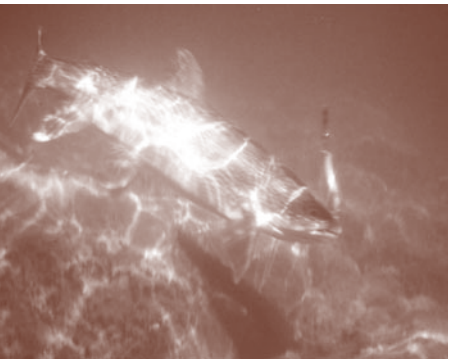
Web Pages Cited in Matrices

- W1: www.gov.nt.ca/publications/policies/rwed/sustainable%20development%20(52.05).pdf
- W2: www.grrb.nt.ca
- W3: www.srrb.nt.ca/
- W4: www.bmmda.nt.ca/
- W5: www.fjmc.ca
- W6: www.srrb.nt.ca/committees.html
- W7: www.grrb.nt.ca/wksp.html
- W8: www.grrb.nt.ca/wild.html
- W9: www.arctic-caribou.com/
- W10: www.yfwmb.yk.ca/comanagement/mgmtplans/pcmbplan/caribou.pdf
- W11: www.pcmb.yk.ca/pcmb.html
- W12: www.nawmp.ca/
- W13: www.seaduckjv.org/
- W14: www.ducks.ca/conserv/wbf/
- W15: www.bsc-eoc.org/nabci.html
- W16: pbsg.npolar.no/convagree/inuvi-inup.htm
- W17: www.taiga.net/wmac/consandmanagementplan_volume3/grizzly.html
- W18: www.srrb.nt.ca/harstudy.html
- W19: www.nwtwildlife.rwed.gov.nt.ca/
- W20: www.ceamf.ca/
- W21: www.dfo-mpo.gc.ca/csas/csas/english/status/complete.htm
- W22: www.nwtwildlife.rwed.gov.nt.ca/hunting/huntingguide/huntingtoc.htm
- W23: www.nwttravel.nt.ca/04_activities/hunting/regulations.html#huntingethics
- W24: www.wwf.ca/newsandfacts/supplemental/consumptiveuseofwildspecies.pdf

Drying meat in a teepee rack.
Photo: Courtesy of Leslie Leong



Fishing for a Lake Trout in Great Bear Lake, NWT.
Photo: Courtesy of B. Ashley

Box 3 – Hunting, Trapping and Fishing in the NWT: The Past 20 Years

For many northerners, hunting*, fishing and trapping provide a significant portion of a household's food and income[1]. Many communities organize annual group hunts to provide meat to households whose members are not able to hunt. Hunting and fishing also provide revenues through the outfitting industry and commercial harvests. Fishing provides food for dog teams as well as people. Trapping provides income when furs are sold at auction. Trapping and hunting also provide essential materials for local use in traditional clothing as well as for modern clothing industry[1].

A short description of how these activities have changed over the past 10 to 20 years provides useful background information on current actions related to the sustainable use of wildlife in the NWT.

Hunting and Fishing – According to the 1999 NWT Labour Survey, an estimated 44% of NWT adults interviewed responded that they hunted or fished in 1998. This is higher than Canadian averages, where 18% of surveyed Canadians went fishing recreationally and 5% went hunting in 1996[2]. In the same NWT survey, 58% of Inuvialuit and 42% of Dene and Métis adults reported that they spent time on the land hunting or fishing during 1998. These percentages have not changed for the past 20 years.

More detailed information on hunting activities for non-native NWT residents is available from the hunting license permitting system. The number of hunting licenses sold to non-native residents of the NWT has decreased by about 3% per year over the past 10 years[3]. The NWT Labour Survey showed that of the non-native adults who responded, 38% had gone hunting or fishing in 1998.

Commercial Hunting – The only large-scale commercial meat harvest in the NWT occurs on Banks Island for muskoxen. In the 1980s, the annual harvest during this hunt ranged between 50 to 350 animals[1]. During the same decade, the Banks Island muskox population was estimated at about 30,000 adults[4]. In 1991 the harvest peaked at 2,031 animals when Banks Island muskox population was estimated at 65,000 adults. There was no harvest between 1995-1997. It resumed in 1998, 2000, and 2002. In 1998 this muskox population was estimated at about 45,000 adults.

Commercial harvests of caribou meat have occurred in the NWT in the past, but these were small-scale and not repeated[1].

The only large-scale commercial fishery in the NWT has occurred on Great Slave Lake, year round, since the late 1940s[1]. Species harvested are mostly whitefish, lake trout, and northern pike. Fish are sold both locally and to the US market. Harvests have been below total allowable catch. Other small-scale commercial fisheries occur on Kakisa Lake with

* Hunting includes whaling and sealing.

an annual harvest of five to 30 tonnes for the past 10 years. In the Mackenzie Delta, fish are taken in a small-scale local commercial fishery (DFO, pers, comm.).

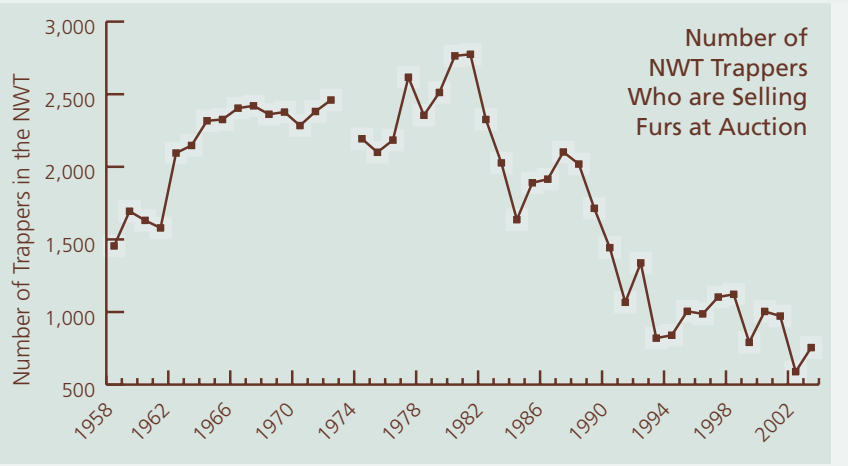
Outfitting – Three areas are open for big game outfitting in the NWT: the Mackenzie Mountains, the Taiga Shield (also called the Barrenground) and the Inuvialuit Settlement Region. For the past 10 years, 320 to 380 hunters have visited outfitting camps annually in the Mackenzie Mountains[5]. The number of outfitted hunters has been stable for these years. On the Barrenground, outfitted caribou hunts have increased 15% annually in the past five years.

Trapping – Trapping and hunting provide material for traditional arts and crafts[6]. These activities are to this day central to cultural and spiritual activities of all native people in the NWT.

Trapping became an important source of income for northerners with the construction of the first trading posts in the 1700 to 1800s[7].

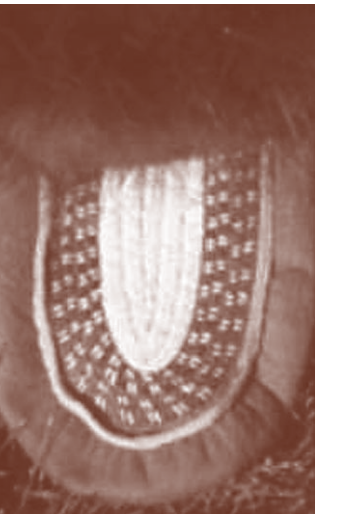
During the past 20 years, the number of NWT trappers who sold pelts to auction houses has decreased. In 1981, 2,775 NWT trappers had sold furs, by 2003, only 755 had done the same. Prices for pelts are highly influenced by fashion trends, which in turn have been influenced by campaigns against trapping methods and the fur industry in the 1980s. The recent decline in the numbers of trappers in the NWT is mostly related to pelt price, but may also be related to an aging trapper population and the attractiveness to younger northerners of other income sources such as mining, oil/gas exploration, civil service, and tourism. As well, some trappers may be active, but may not sell pelts at auction.

Trapping continues to be very important in NWT's smaller communities. Almost 75% of harvesting activities (including hunting, fishing, and trapping) occur in communities with populations less than 1,000 people[8].



Sources: Archived Game Licencing System (Fur Returns) and Active NWT Fur Harvest Database, RWED, GNWT

Drafted by S. Carrière and B. Ashley, RWED



Moose-hide moccasin with beaver trim and porcupine quill decoration.

Photo: Courtesy of RWED collection

Find More

[1] GNWT. 2002. Renewable Resource Values, Wildlife and Fisheries, RWED, GNWT, Yellowknife, 14 pp.

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Climate Change Initiatives

A natural system known as the "greenhouse effect" regulates temperature and sustains life on Earth. Greenhouse gases in the Earth's atmosphere act as a blanket, trapping heat inside and warming the Earth. Human activities, in particular the burning of fossil fuels, have the potential to increase atmospheric concentrations of these gases and disrupt the balance of this system. It is the enhanced warming capability of this human-induced greenhouse effect that causes environmental concern (Maxwell 1997).

Recent research suggests that the arctic environment may be particularly sensitive to global changes in climate, and model simulations suggest that northern latitudes, in particular the Mackenzie Valley, will experience more warming than anywhere else in the World (Lavoie and Payette 1994; Maxwell 1997). These changes could have devastating impacts on northern biodiversity.

The objectives of biodiversity conservation and climate change programs are complementary. The *Canadian Biodiversity Strategy* links conservation and climate change through:

- the implementation of measures to eliminate or reduce human-caused atmospheric changes that adversely affect biodiversity; and
- coordinated research efforts and monitoring programs to determine the linkages between climate change and biodiversity changes in the past, present and future.

We have only recently started to address, in a coordinated manner, the issue of climate change within the NWT. No formal legislation yet exists within the NWT to address the issues relating to climate change and its effects on wildlife and biodiversity.

Strategies to Reduce the Impacts of Climate Change

Northerners recognize their responsibility to contribute to Canada's efforts to reduce emissions of greenhouse gases, and are committed to working with governments and organizations to develop an equitable approach to Canada's international commitment under the Kyoto Protocol.

A ***Greenhouse Gas Strategy*** to help control greenhouse gas emissions has been developed for the NWT in consultation with government agencies, municipalities, industry and the public. The Strategy aims to identify and coordinate northern actions to begin to control greenhouse gas emissions, and assist in developing a northern perspective as part of Canada's national climate change implementation strategy.

Resource centres can provide invaluable information to communities, schools and individuals about climate change and what can be done to reduce its effects. In the NWT, the ***Arctic Energy Alliance*** and the ***NWT Climate Change Centre*** coordinate the available climate change information in the NWT and deliver education and action programs to the territory's residents.

It is increasingly evident that Arctic wildlife will be greatly affected by climate change.
Photo: Courtesy of Tracy Hillis

Climate Change

Climate change is a change in the "average weather" that a given region experiences. Average weather includes all the features we associate with the weather such as temperature, wind patterns and precipitation. The rate and magnitude of global climate changes over the long term have many implications for natural ecosystems.

Anonymous 1995; Maxwell 1997

Gordon Mackenzo, a community monitor in Déline, assessing the snow-pack in caribou wintering grounds.
Photo: Courtesy of Tracy Hillis

Matrix of Actions – Strategies to Reduce the Impacts of Climate Change

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8l 10b	1.7 1.89	Continue to support and promote the ***NWT Greenhouse Gas Strategy*** and other tools to implement reduction in greenhouse gas emissions.	GNWT, in consultation with NWT municipalities, industry, general public	W1
10b 13a	1.89 3.3 3.4	Continue to support and promote wise energy use and greenhouse gas awareness through the ***NWT Climate Change Centre*** and the ***Arctic Energy Alliance***	Core members: MACA, NWTAM, NWT HC, NWT PUB, NWT PC, PWS, and RWED	W2 W3

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Monitoring the Impacts of Climate Change on Biological Diversity

Across the North, bio-climatic monitoring programs are being established to track the effects of atmospheric changes on ecosystems, species and genetic diversity.

The northern *Ecological Monitoring and Assessment Network-North* (EMAN-North) is a network for the coordination of ecological monitoring in northern Canada. Environment Canada is working in the three northern territories and northern Manitoba in close partnership with many agencies and programs to administer this network. 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." Over the next few years, EMAN-North will continue to concentrate primarily on the impacts of industrial development and climate change on northern ecosystems.

Plants are sensitive to environmental factors such as heat, solar radiation, and precipitation. By recording bloom dates of early spring-flowering plants over a long period of time, we can document major trends such as climate change. The *PlantWatch North* program involves students and the general public in this data collection. Participants observe and record flowering times for "key-indicator" plant species and report these dates over the internet or by mail.

Many communities throughout the NWT support a *Community Monitoring Program*. For example, the Déline Uranium Team initiated a climate component to begin to assess climate change within their community.

The *Arctic Borderlands Ecological Knowledge Co-op* was formed in 1994 as an ecological monitoring program for the northern Yukon, and has expanded to include projects in neighbouring Alaska and the NWT. The Co-op monitors and assesses ecosystem changes due to climate change, contaminants and development through the use of both scientific and traditional knowledge sources. It also aims to improve communication and understanding between Aboriginal and non-Aboriginal governments and scientists involved in the study and management of ecological resources, and to foster training opportunities and capacity building in these areas.

Matrix of Actions – Monitoring the Impacts of Climate Change on Biological Diversity

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7bc 12b	1.9 1.86	Continue to participate in the ***Ecological Monitoring and Assessment Network (E-MAN) North.***	EC, GNWT, GNU, GYK, INAC	W4
7bc	1.86 1.88 2.32	Continue to encourage community participation in biological monitoring programs such as ***PlantWatch North.***	Ecology North, EMAN-North	W5
7bc	1.86 1.88 2.26 2.32	Continue to support and promote ***Community Monitoring Programs*** to help determine the impacts of climate change on biodiversity in the NWT.	ECE	
7bc 8j	1.86 2.3 2.26 2.32	Continue to work with ***Arctic Borderlands Cooperative*** to monitor the effects of climate change in the North.	Communities within the range of the Porcupine caribou herd, with support from GC, GNWT, CMBs, Inuvialuit and First Nation Councils, INAC, EC, and the University of Alaska	W6

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Polar Bear – an indicator species for the effects of climate change in the Artic.

Photo: Courtesy of RWED collection/ Paul Nicklen

Research on the Impacts of Climate Change on Biological Diversity

The Canadian North is particularly vulnerable to the effects of climate change and its potentially significant impacts on northern ecosystems, communities, and lifestyles. To date, climate change research has been largely focused on atmospheric and physical processes. Ecosystem impacts and responses are not as well understood. Several research projects have been initiated in the NWT and throughout the North to attempt to fill that knowledge gap and protect northern biodiversity.

The *International Tundra Experiment* (ITEX) is a circumpolar initiative designed to monitor growth, reproductive and phenological responses of plants to climate change. It was established in the late 1990's at a meeting of tundra plant ecologists, as a response to predictions by global circulation models that the human-enhanced "greenhouse" warming will occur first and with greatest intensity at high latitudes. The major objective of ITEX was to determine the effects of global climate change on the major circumpolar plant species. In 1996, an ITEX monitoring site was established in the NWT at Daring Lake, 300 kilometres north of Yellowknife. Eight species of vascular plants are monitored at this research station. The Canadian Tundra and Taiga Experiment (CANTTEX) was subsequently established as a forum for sharing information on ITEX studies in Canada.

The *Canadian Tundra and Taiga Experiment* (CANTTEX) was designed as a forum to monitor impacts of global climate change on tundra and taiga ecosystems in Canada. The goal of CANTTEX is to improve our ability to detect and predict large-scale tundra and taiga ecosystem response to climate change. The network's objectives are to develop partnerships among

researchers in different political jurisdictions and geographical locations, and to build a monitoring network based on common protocols so that data can be exchanged and synthesized across multiple sites.

Part of the Global Energy and Water Cycle Experiment (GEWEX), the ***Mackenzie GEWEX Study*** (MAGS) is a set of studies focused on understanding and modelling the flows of energy and water into and through the atmospheric and hydrological systems of the Mackenzie River basin. The overall goal of MAGS is to describe, understand, model and predict the climatic-hydrological system and to apply the methodology and results to the high latitude environment to address national and international issues, including biodiversity and climate change

GEWEX map

Photo: Courtesy of Mackenzie GEWEX Study

The NWT participates in C-CIARN North, the northern branch of the ***Climate Change Impact and Adaptation Research Network***. C-CIARN is a national network of centres for coordinating climate change impacts and adaptation research and for disseminating information and research results. C-CIARN facilitates research and training, promotes stakeholder involvement, and provides continuity in an effort to develop scholarship and a shared understanding of present-day and future climate impacts, vulnerabilities, risks, and adaptation.

In the fall of 2002, a full-time ***Climate Change Wildlife Biologist*** was hired to spearhead research within the GNWT and provide expertise in assessing the impacts of climate change on biodiversity and the landscape.

Matrix of Actions – Research on the Impacts of Climate Change on Biological Diversity

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
5 7b 12b 18.1	1.86 1.88 2.2b 2.27c	Continue participation in the ***International Tundra Experiment***.	In the NWT: RWED, UBC, INAC	W7
7b 12b	1.11 1.86 1.88 2.2b 2.27c	Continue participation in the ***Canadian Tundra and Taiga Experiment***.	In the NWT: RWED, INAC	W8
12b	1.88 2.1b	Continue participation in the ***Mackenzie GEWEX Study***.	University scientists, with support from NSERC, EC, NRCAN and other government and industrial partners	W9
6a, 7cd 17.1	1.87 2.11	Continue participation as a member of the ***Climate Change Impact and Adaptation Research Network*** through C-CIARN North, including the development of a network and consultation for research on climate change within the NWT.	NRCAN, GYK, GNU, GNWT, ARI, Yukon College, Nunavut Research Institute, Dene Nation, NWT communities, non-government organizations, industry representatives	W10
18.4	2.5b	Continue to support the position of a GNWT ***Climate Change Biologist***.	RWED	

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[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Spring blossoms – *Shepherdia canadensis*
Photo: Courtesy of Leslie Leong

Traditional Knowledge and Information Sharing on Climate Change

There is growing evidence that the impacts of climate change are already being noticed in the polar regions of the world. The International Institute for Sustainable Development (IISD) has initiated several ***climate change partnerships*** with local residents in the Inuvialuit Settlement Region to record their observations. The IISD is studying the effects of a changing climate on arctic ecosystems through a combination of local knowledge and monitoring programs. IISD and the Hunters and Trappers Committee of Sachs Harbour have developed an innovative method for recording and sharing local observations on climate change. The results of this project have been published in a report entitled ***Inuit Observations on Climate Change***.

Over the last two years, the Dene Nation has been working on understanding climate change policy and programs as they impact Denendeh. The Dene have been observing changes in climate for many years, and have recently begun to experience noticeable and unpredictable events and patterns that are of significant concern. At the ***Denendeh Environmental Working Group*** workshop on climate change held in Fort Smith, Elders and technical representatives from all five regions of Denendeh talked about how unpredictable weather had become, and the implications of climate change for subsistence use of biological resources in the NWT.

The C-CIARN network is hosted by the ***Northern Climate ExChange*** (NCE), which is based in the Northern Research Institute of Yukon College. The NCE centre was created in response to growing concern over the impacts of climate change on the land, life, and communities of northern Canada. It aims to "provide a credible independent source of information, develop shared understanding and promote action on climate change in northern Canada". While the focus of the work of the NCE is on activities within the Yukon, the NCE has also received funding to undertake information-sharing projects that are relevant across northern Canada. NCE staff for the NWT are located at the Aurora Research Institute in Inuvik.

See ➔ Goal III for more on research institutes in the NWT.

Matrix of Actions – Traditional Knowledge and Information Sharing on Climate Change

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8j 17.1 17.2	1.87 2.3 7.1b	Continue to support ***climate change partnerships*** in the Inuvialuit Settlement Region.	IISD, GNWT, INAC, ITK	W11
8j 17.1 17.2	1.37 1.85 1.87 2.3 3.1a 6.3 6.8	Continue to support initiatives to involve Aboriginal groups in policy development and management, such as the ***Denendeh Environmental Working Group*** workshop on climate change.	Dene Nation, Elders and Youth from communities around the NWT	W17 ➔ Goal II
17.1 17.2	1.87 2.3 2.13	Continue to take part in the ***Northern Climate ExChange***.	GC, GYK, Yukon College, and the ARI	W12

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Education and Awareness on the Effects of Climate Change

To understand, monitor, and prepare for changes in their environment, students need to better understand and be able to compare their own observations with historic information about their environment. Elders and other expert observers can often provide current and historical knowledge and are able to greatly enhance environmental studies in schools.

Climate change education initiatives within the NWT include local school programs, such as the *Weledeh Catholic Climate Change Project*, which are highlighted through the ***Northern Climate Change Schools Pilot Program***. The Northern Climate Change Schools Pilot Program was developed for elementary and secondary schools in the three territories and is specific to the North. The program incorporates local and cultural values and includes experience-based projects (such as collecting climate data or interviewing Elders), a learning resources package for educators, community awareness presentations and a web site to facilitate communication among students across the North.

The development of a pan-northern climate change curriculum through the ***Pan-Northern Climate Change Education Project*** has recently been initiated as a result of increased awareness of climate change and potential implications for future generations of Arctic residents. The project includes an analysis of existing climate change materials, linking climate change materials to curriculum in each territory, and developing curriculum-relevant and informative lesson plans. The project will deliver workshops to elementary and secondary school educators through video or teleconferencing. New learning materials will reflect the cultural and geographic diversity of the North.

See ➔ Goal III for more on education and awareness initiatives in the NWT.

Elders and students at Weledeh Catholic School talking about climate change.

Photo: Courtesy of Weledeh Catholic School

Matrix of Actions – Education and Awareness on the Effects of Climate Change

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
13a	1.88 3.1b 3.3	Continue to support and promote the ***Northern Climate Change Schools Programs***.	NCE, GYK, GNWT, GNU	W13
13ab	1.88 3.1b 3.3	Assist in the development of a climate change component of the educational curriculum through the ***Pan-Northern Climate Change Education Project***.	NRCAN Climate Change Action Fund and others, including the Yukon, Nunavut, and Northwest Territorial Education Boards, Aboriginal groups and government and NGOs	W14

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[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Funding Initiatives

Further resources are available to fund research and monitoring initiatives to advance our knowledge of the magnitude, rate and regional distribution of climate change, and of its impact on biodiversity in the North. The ***Climate Change Action Fund*** (CCAF) was established in 1998 by the federal government to help Canada meet its commitments to reduce greenhouse gas emissions. It is intended to support early actions to reduce greenhouse gas emissions and to increase understanding of the impacts and the benefits of the various implementation options. In the NWT, actions funded by this initiative include regional studies on *Climate Change, Permafrost Degradation and Infrastructure Adaptation, Recent and Future Warming in Northern Peatlands, Inuit Observations on Climate Change*, and the *Pan-Northern Climate Change Education Project*.

The ***Northern Ecosystem Initiative*** (NEI) supports partnership-based efforts to improve our understanding of how northern ecosystems respond to climate change, contaminants and resource use activities. The NEI also supports the development of indicators and a network to monitor ecosystem changes. NEI works, with its partners throughout northern Canada, to develop a capacity to acquire the knowledge, tools, and skills needed to sustain healthy northern ecosystems and communities.

Matrix of Actions – Funding Initiatives

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
12b 20.1	1.85 1.88 2.2a	Continue to support and promote the ***Climate Change Action Fund***.	NRCAN	W15
6b 20.1	1.85 1.88 2.2a	Continue participation in the ***Northern Ecosystem Initiative.***	EC, with leadership and partnerships with Aboriginal organizations, communities, universities, colleges and research institutes, NGOs, and government agencies	W16

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[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

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📖 D1: Anonymous. 1995. Canadian Biodiversity Strategy: Canada – Response to the Convention on Biological Diversity. Environment Canada. Quebec.

📖 D2: Lavoie, C. and Payette, S. 1994. Recent Fluctuations in the Lichen-spruce Forest Limit in Subarctic – Quebec. J. Ecol. 82:725-734.

📖 D3: Maxwell, B. 1997. Responding to Global Climate Change in Canada – Arctic. Canada Country Study: Climate Impacts and Adaptation Vol. II, Downsview, Ontario.

Web Pages Cited in Matrices

W1: www.gov.nt.ca/rwed/eps/climate.htm

W2: www.nwtclimatechangecentre.ca/

W3: www.aea.nt.ca/

W4: www.emannorth.ca/

W5: www.econorth.yk.com/plantwatch2nwt.htm and www.planetwatch.com

W6: www.taiga.net/coop/index1.html

W7: www.itex-science.net/

W8: www.iisd.org/

W9: www.usask.ca/geography/mags/

W10: www.taiga.net/c-ciarn-north/

W11: www.taiga.net/canttex/index.html

W12: www.taiga.net/nce/school/exchange.html

W13: www.taiga.net/nce/schools/

W14: www.ec.gc.ca/press/2003/030603-b_b_e.htm

W15: www.climatechange.gc.ca/

W16: www.mb.ec.gc.ca/nature/ecosystems/nei-iendh00s00.en.html

W17: www.denenation.com/enviro.html

GOAL II

To improve our understanding of ecosystems and increase our resource management capability.

Aboriginal and Local Involvement Initiatives

In the NWT, resource management capabilities – the methods we use to manage land use activities and to assess the impacts of human activities – have changed rapidly in the past few years, and continue to evolve.

Recent changes include the creation of new boards, committees, and processes. Some of these new tools differ between the Inuvialuit Settlement Region (ISR) and the rest of the NWT (often called the Mackenzie Valley). Together, they form the basis for developing effective processes for integrated adaptive ecological management in the entire NWT (see diagram in Box 4).

A summary of these tools is provided below.

See ➔ *Appendix 3* for more on the goals and area of influence of each of the tools available for effective adaptive ecological management in the NWT.

The Co-management System

Ecological management responsibilities in some NWT regions are shared between federal/territorial governments and local Aboriginal people. Legislated ***co-management boards*** exist in the ISR, the Sahtu Settlement Area (SSA) and the Gwichin Settlement Area (GSA). New co-management boards will soon be instated in the Tlicho Lands. Most boards were created as a public body, with representation from the federal government, the GNWT, and Elders or beneficiaries of the settlement area.

Co-management boards that have direct responsibilities in matters of biodiversity use and management are usually called *Wildlife Co-management Boards* (WMBs). The powers and responsibilities of each WMB are detailed in their respective land claim agreement. Each agreement is enshrined in federal legislation and protected by the Canadian Constitution.

The ***co-management system*** sets the stage for many aspects of ecological management in the NWT.

See ➔ Goal I *Sustainable Use of Wildlife* for more information on how each Agreement defines "wildlife", on local and regional participation in ecological management, both within and outside land claim settlement areas and on non-legislated management boards related to some harvested species.

See ➔ Goal IV for more information on land claim settlement legislation and agreements.

See ➔ *Appendix 3* for a list of biodiversity-related co-management organizations set up under land claim agreements.

Ecological management

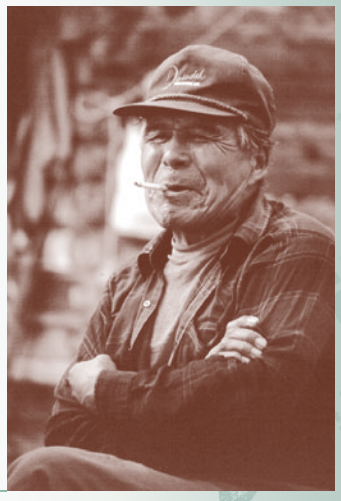
"Management of human activities so that ecosystem… processes continue at appropriate temporal and spatial scales.

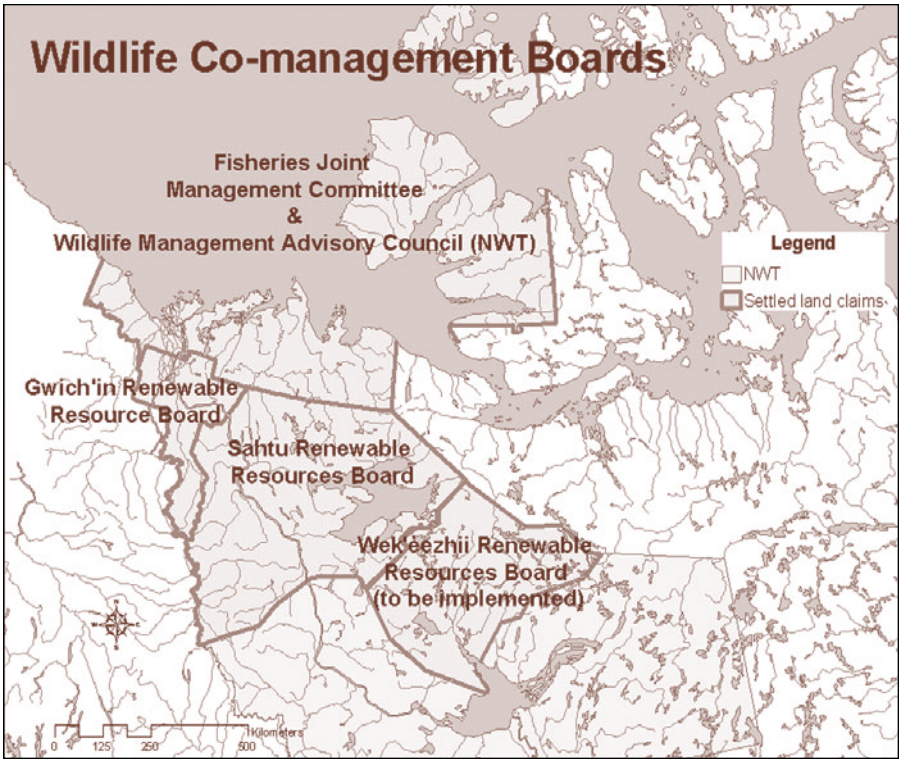
Ecological management is also referred to as ecosystem management."

CBS 1995

Elder from Fort Providence, Fred Sabourin.

Photo: Courtesy of Leslie Leong





Update on Land Claim Agreements in the NWT as of 2003

- Inuvialuit Final Agreement signed in 1984.
- Gwich'in Comprehensive Land Claim Agreement signed in 1992.
- Sahtu Dene and Métis Comprehensive Claim Agreement signed in 1993.
- Dogrib Land Claim and Self-government Agreement-In-Principle signed in 2000.
- Deh Cho First Nations Interim Measure and Framework Agreements signed in 2001.
- Tlicho Agreement signed in 2003.

Find more:

www.ainc-inac.gc.ca/pr/pub/indigen/partn_e.html and

www.ainc-inac.gc.ca/pr/agr/index_e.html

Like all co-management boards, WMBs have a legislated mandate but work independently from governments. Mandates may differ amongst boards, but all relate to renewable resources and apply to each respective settlement area.

WMBs generally have the power to:

- establish policies and propose regulations on wildlife harvest;
- approve plans for the management of protection of wildlife populations and habitats;
- approve the designation of conservation areas and endangered species;
- approve regulations related to renewable resources;
- advise government on draft legislation and new protected areas, land use policies, provincial/territorial or international agreements, cooperative management and wildlife research; and
- advise on plans for training and public education related to renewable resources.

WMBs generally have a responsibility to:

- establish rules and procedures for consultation; and
- advise, participate or lead in harvesting studies and renewable resource research.

Boards have varying capacities; most include GIS abilities, research funding and an increasing expertise in conducting studies and storing traditional knowledge on renewable resources.

See ➔ *Appendix 4* for more information on GIS capacity in the NWT.

WMBs were established and function as the primary tool of renewable resource management in areas where land claims have been settled. For at least a decade, the boards have been gaining valuable experience in elder-youth-community participation, public consultation, northern wildlife research based on community priorities, and the effective integration of traditional knowledge into ecological management.

Some land claim agreements also establish a co-management system for the management of National Parks within the settlement area. The roles and responsibilities of ***National Park management committees*** include providing advice on boundaries, management plans and guidelines, and fieldwork and research in the park. These committees also ensure that harvesting is managed in accordance with existing harvesting rights in the area.

See ➔ Goal I *Protected Areas* for more information.
See ➔ *Appendix 3* for information on boards and committees related to ecological management in the NWT.

Matrix of Actions – The Co-Management System

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8j	1.37 6.3 6.8 7.1 7.3	Continue cooperation with ***co-management boards*** and implementation of a ***co-management system*** in ecological management and the sustainable use of biological resources.	Many partners	W1 W2 W3
8j	1.37 6.3 6.8 7.1 7.3	Continue cooperation with ***National Park management committees***.	PCA and many partners	

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[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (🕮), in web pages (🖱) or follow up on another Goal in this report (➔).

Aboriginal Local-to-Regional Approach in Community Consultation

Many programs on ecological management in the NWT follow a local-to-regional approach.

See ➔ Goal I *Sustainable Use of Wildlife* for more information on the local-to-regional approach.

In land claim settlement areas, ***Hunters and Trappers Committees*** (Inuvialuit) and ***Renewable Resource Councils*** (Gwich'in and Sahtu) from each community forward their members' concerns, issues, and findings to a ***Regional Committee*** (Gwich'in and Sahtu) or ***Game Council*** (Inuvialuit). These regional groups and the WMBs bring all input and make recommendations from these findings to other organizations in and outside the region. This approach greatly facilitates local input and consultation on any biodiversity-related issues.

Outside of areas with settled land claims, regional integration of environmental decisions is greatly facilitated by Aboriginal groups, organizations and governments. Aboriginal governments have established departments responsible for leadership, management and consultation

Elder at Old Cazon Homestead, Trout River.
Photo: Courtesy of Leslie Leong

on land use, environmental and wildlife-related issues in their traditional territories. These departments include:

- Denendeh (Dene traditional territories):
  Dene Nation – Environment and Lands Division
- Akaitcho Territory:
  Akaitcho Territory Government – Lands and Environment
- Deh Cho:
  Deh Cho First Nations
- Tlicho Lands:
  Tlicho Government (formerly known as Dogrib Treaty 11 Council) –
  Land Administration

Outside areas with settled land claims, several ***resource committees*** facilitate communication between local organizations and local groups on issues related to the environment and wildlife. These committees include:

- Aboriginal Wildlife Harvesters Committee (Fort Resolution);
- Wildlife, Land and Environment Committee (Lutsel K'e);
- Denendeh Resource Committee (Fort Simpson);
- Fort Providence Resource Management Board; and
- Dogrib Renewable Resource Committee (soon to be replaced by Wek'èezhii Renewable Resources Board, according to the Tlicho Agreement).

See ➔ Goal I *Sustainable Use of Wildlife* for more information on the co-management approach.

The ***Denendeh Environmental Working Group (DEWG)***, chaired by the Environment and Lands Division of the Dene Nation, organizes a series of ongoing workshops to gather and share information on ecological-social issues of particular interest to all Dene. DEWG's most recent workshops have focused on the impacts of climate change with respect to forests, water, fish, and invasive species in the NWT. Each workshop is community-driven and held in a different NWT region. The workshops are proving to be an effective way for people from all regions to share and exchange ideas and traditional knowledge on complex ecological issues.

See ➔ Goal I *Climate Change* for more information on climate change initiatives.

Aboriginal Elders
Photo: Courtesy of Leslie Leong

Matrix of Actions – Aboriginal Local-to-Regional Approach in Community Consultation

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8j	1.37 2.3 6.3 6.8 7.1	Continue facilitation and work with ***Hunters and Trappers Committees and the Game Council*** using a local-to-regional approach to the co-management system in the ISR.	WMAC-NWT, FJMC, HTCs, IGC	W3 ➔ Goal I
8j	1.37 2.3 6.3 6.8 7.1	Continue facilitation and work with ***Renewable Resources Councils and regional committees*** using a local-to-regional approach to the co-management system in the SSA.	SRRB, RRCs	W1 ➔ Goal I
8j	1.37 2.3 6.3 6.8 7.1	Continue facilitation and work with ***Renewable Resources Councils and regional committees*** using a local-to-regional approach to the co-management system in the GSA.	GRRB, RRCs	W2 ➔ Goal I
8j	1.37 2.3 6.3 6.8 7.1	Continue working with ***Hunters and Trappers Associations, Harvesters Committees, Renewable Resource Committees*** and other local wildlife harvester organizations using a local-to-regional approach in the NWT.	Many partners including: GNWT, EC, DFO, Dene Nation	➔ Goal I
8j	1.37 2.3 6.3 6.8 7.1	Continue working with ***Dene Nation – Environment and Lands Division*** using a co-management approach to wildlife programs occurring in the Dene traditional territories.	Many partners including: GNWT, EC, DFO	W4 ➔ Goal I
8j	1.37 2.3 6.3 6.8 7.1	Continue working with the ***Akaitcho Territory Government – Lands and Environment*** using a co-management approach to wildlife programs occurring in the Akaitcho Territory.	Many partners including: GNWT, EC, DFO, Dene Nation	W5 ➔ Goal I
8j	1.37 2.3 6.3 6.8 7.1	Continue working with the ***Deh Cho First Nations*** using a co-management approach to wildlife programs occurring in the Deh Cho.	Many partners including: GNWT, EC, DFO, Dene Nation	W6 ➔ Goal I
8j	1.37 2.3 6.3 6.8 7.1	Continue working with the ***Tlicho Government – Land Administration*** using a co-management approach to wildlife programs occurring in the Dogrib Territory.	Many partners including: GNWT, EC, DFO, Dene Nation	W7 ➔ Goal I
8j 17.1 17.2	1.37 1.85 1.87 2.3 3.1a 6.3 6.8 7.1	Continue to promote and support the ***Denendeh Environmental Working Group*** and community workshops on ecological-social issues of importance to the Dene.	Dene Nation, Elders and Youth from communities around the NWT	W4 ➔ Goal I

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
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[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

"…The Aboriginal peoples of the Northwest Territories have acquired a vast store of traditional knowledge through their experience of centuries of living in close harmony with the land.

Aboriginal traditional knowledge is a valid and essential source of information about the natural environment and its resources, the use of natural resources, and the relationship of people to the land and to each other, and (the Government of the Northwest Territories) will incorporate traditional knowledge into government decisions and actions where appropriate."

GNWT Traditional Knowledge Policy

Traditional and Local Knowledge

Aboriginal traditional knowledge (TK) and local knowledge are an integral part of monitoring and research programs in the NWT.

In 1997, the GNWT adopted a government-wide ***Traditional Knowledge Policy***. The Policy describes how GWNT will incorporate TK into planning and resource use decisions and actions using the following principles:

- The primary responsibility for the preservation and promotion of traditional knowledge lies with Aboriginal people;
- Government programs and services should be administered in a manner consistent with the beliefs, customs, knowledge, values and languages of the people being served;
- Traditional knowledge should be considered in the design and delivery of government programs and services;
- The primary focus of traditional knowledge research should be the Aboriginal community;
- Traditional knowledge is best preserved through continued use and practical application; and
- Oral tradition is a reliable source of information about traditional knowledge.

Many studies are designed specifically to gather information from a TK perspective. These studies use specialized techniques to gather and share information that is essential to our understanding of northern ecosystems.

Inventories of works and stories help in the sharing and transfer of TK and local knowledge by transferring oral concepts to the printed form or the interactive internet form. For example, in 1997 the GRRB published *Nành' Kak Geenjit Gwich'in Ginjik* (Gwich'in words about the land) and in 2001, *Gwìndòo Nành' Kak Geenjit Gwich'in Ginjik* (More Gwich'in words about the land) using this technique.

The Dene and Inuvialuit have named many landmarks based on the habitat they provide or on ecological characteristics. ***Works on place names*** in the NWT is providing rich and useful information on ecosystems, species and on people's traditional interactions with these places. For example, see *Lessons from the Land – Idaa Trail* on traditional Dogrib trails and places, and the Inuvialuit Place names virtual exhibit.

Interview techniques are one of the most efficient and accepted ways to ***study TK and local knowledge*** on very specific issues, questions or subjects. Interviews have provided valuable information on changes in wildlife and their habitat, and on how these changes are reflected in social life and in people's activities on the land.

An example of TK studies based on interview techniques includes:

- The Dogrib's *Whahedoo Naowoo* program, which focused on caribou, the ecological significance of place names, and ecosystems in the Tlicho area. The Dogrib continue to gather TK and record findings in searchable databases.

Interview techniques are often used to design ***monitoring programs*** that incorporate TK and community observations and concerns into to the process for detecting changes in northern ecosystems and societies. Monitoring programs that have been designed with a TK approach include:

- The *Traditional Ecological Knowledge Research in the Kache Tue Study Region*, which focused on TK to help develop an environmental monitoring program; and
- *Arctic Borderland Ecological Knowledge Co-op* has designed a program to record species and ecosystem changes and human adaptations to them.

Many ***studies on harvest and land use*** collect TK to form a more complete picture of the traditional link between people and the land. This information is used to help determine sustainable harvest levels and in land use planning. For example, the Deh Cho First Nation has been collecting TK on traditional hunting, fishing, and trapping areas and on species in their territory. The information is classified and summarized in a searchable database and in GIS.

GIS is increasingly used to record TK and local knowledge related to traditional land use, wildlife behaviour and habitat, and on gathering, hunting, and trapping activities. Searchable databases of TK and local knowledge provide a permanent repository of information and data that can be further researched and compared with other findings.

Many Aboriginal governments and organizations are increasing their ability to collect and study TK by investing in ***GIS and database capacity***. Partnerships are formed to rapidly increase capacity. For example, the Sahtu GIS Project has developed as a successful partnership between SRRB, SLUPB, SLWB, and RWED, organizations with responsibility for resource management in the SSA, to share GIS expertise, equipment and data.

See ➔ *Appendix 4* for more information on GIS capacity in the NWT.
See ➔ Goal III for more information on the educational aspects of TK and local knowledge initiatives.

Traditional Knowledge

Knowledge and values, which have been acquired through experience, observation, from the land or from spiritual teachings, and handed down from one generation to another.

Traditional Knowledge Policy – GNWT 56.02

Local Ecological Knowledge

Knowledge of a specific area, and its ecosystems, that has been accumulated and tested over a lifetime.

Dogrib Elder Helen Tobie teaches TK on the land at High School Camp 2002.

Photo: Courtesy of Stephen Cumming

Matrix of Actions – Traditional and Local Knowledge

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8j 10c	2.3	Continue to support and apply the ***Traditional Knowledge Policy*** for the NWT.	GNWT	W8
8j	1.63 2.3 2.4 7.3	Continue to conduct ***inventories of works and stories*** to help in the sharing and transfer of TK and local knowledge between and within generations.	Many partners	W9
8j	1.63 2.3 2.4 7.3	Continue to conduct ***works on place names*** to expand knowledge about humans, ecosystems and species, and the traditional interactions between them.	Many partners	W10
8j	1.63 2.3 2.4 7.3	Continue to conduct ***studies of TK and local knowledge*** in order to expand recorded ecological knowledge.	Many partners	W11
8j	1.63 2.3 2.4 7.3	Continue to integrate TK and local knowledge in the design and implementation of ***monitoring programs***	Many partners	W11
8j	1.59 1.63 2.3 2.4 7.3	Continue to integrate TK and local knowledge in the design and implementation of ***studies on harvest and land use*** such as work done by the Deh Cho Land Use Planning Committee and other land use planning initiatives.	Many partners	W12
8j	7.1 7.2 7.3	Continue to invest in ***GIS and database capacity initiatives***, such as the Sahtu GIS Project, to facilitate the collection, study, and appropriate storing of geo-referenced information from TK and local knowledge.	Many partners	W13

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Drying fish
Photo: Courtesy of Leslie Leong

References

Web Pages Cited in Matrices

- W1: www.srrb.nt.ca
- W2: www.grrb.nt.ca
- W3: www.fjmc.ca
- W4: www.denenation.com/enviro.html
- W5: www.akaitchoterritory.com/
- W6: www.cancom.net/~dehchofn/government.htm
- W7: www.dogrib.ca/
- W8: www.gov.nt.ca/publications/policies/rwed/traditional%20knowledge%20(52.06).pdf
- W9: pwnhc.learnnet.nt.ca/inuvialuit/
- W10: www.lessonsfromtheland.ca/ and www.wkss.nt.ca/html/08_projectsreports/pdf/placenamefinal.pdf
- W11: www.ceamf.ca/03_reference/reference_traditional_knowledge.htm
- W12: www.dehcholands.org/docs/tk_policy.pdf
- W13: www.sahtugisproject.org/

Inventory, Monitoring and Research Initiatives

Biodiversity Monitoring Programs in the NWT

Number of Programs or surveys per taxa		
	Annual	Regular[1]
Ungulates	18	16
Carnivores	8	2
Furbearers	1	1
Small mammals	3	0
Birds	19	8
Fishes	2	0
Marine mammals	2	0
Amphibians	1	0
Invertebrates	4	0
Vegetation	4	5
Multi-species[2]	6	1

[1] *At more than one-year interval.*
[2] *Where more than one group of species are surveyed or monitored. Details in Appendix 2.*

Inventories

High-resolution inventories of land cover have been initiated by more than one agency in the NWT. These inventories are being completed for the first time. They are providing data essential for delineation of ecological units, wildlife habitat studies, land use planning, resource inventories, and cumulative effects assessment at local to regional scales.

See ➔ *Appendix 5* for more information on land inventories, technical details and contacts.

Summaries of these initiatives are provided below:

- ***NWT Forest Land Cover Classification:*** A satellite-image based vegetation classification for the forested portion of the NWT. This inventory is led by RWED Forest Management. Its primary aim is to map all current vegetation cover south of the tree line. The classification also includes shrub lands, wetlands and other non-forest components that are important for wildlife habitat studies.

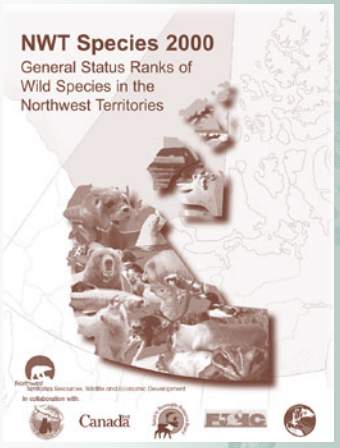
  See ➔ Goal I *Forest Initiatives* for a summary of forest-specific inventory initiatives.
- ***Ducks Unlimited Canada – NWT Earth Cover Classification:*** A series of detailed inventories based on satellite scenes in NWT regions with high potential for harbouring important waterfowl habitats for breeding and migration. The inventories will also be used as a predictive tool to determine key habitats for other wildlife. This inventory is led by DU Canada.
- ***Slave Geological Province Land Cover Classification:*** Detailed inventory based on satellite images of the Slave geological province, north of Yellowknife, in Nunavut and the NWT. This classification was performed to inventory wildlife habitat availability in a region with increasing mining development and exploration. Remote Sensing, RWED and WKSS led this inventory.

Species are the building blocks of ecosystems. In many countries and in most jurisdictions in North America, species are inventoried and the status of rare species is tracked using a set of criteria developed by the Nature Conservancy (US and Canada).

In Canada, this task is performed by NatureServe Canada, a non-profit organization with members in six provinces, one territory and in Atlantic Canada. These member organizations tally information on rare species and natural communities and provide advice to governments, industries, researchers, NGOs, and individuals. There is no NatureServe organization in the Northwest Territories or Nunavut. In Yukon, a new organization called NatureServe Yukon, is taking on the task of tracking rare species in that territory.

In the NWT, the ***NWT Species InfoBase*** was designed to track the status of species using a set of criteria compatible with the Nature Conservancy/ NatureServe systems. The NWT Species InfoBase is also fully compatible with similar systems used in Nunavut and in all other Canadian jurisdictions. As required under the *Accord for the Protection of Species at Risk*, the NWT

Species InfoBase stores all the information used to rank species every five years as part of the program ***General Status Ranks of Wild Species in the Northwest Territories***. The NWT Species InfoBase provides official lists of species present in each of the NWT's ecozones, and builds on both scientific information and TK gathered from monitoring programs across the NWT.



Matrix of Actions – Inventories

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7a	1.66 2.4	Continue to implement the ***NWT Forest Land Cover Classification***.	RWED FM and partners	W1
7a	2.4	Continue to implement the ***DU Canada – NWT Earth Cover Classification***.	DUC and partners	W2
7a	2.4 2.5	Investigate further opportunities for government and industry partnerships to complete the high-resolution inventory of the NWT, using the ***Slave Geological Province Land Cover Classification*** and others as examples.	GNWT, INAC and others partners	
7a 7b	1.41 2.4c 2.5 2.6 2.9	Continue to update the ***NWT Species InfoBase***.	GNWT, CWS, DFO, SRRB, GRRB with WMAC-NWT, JFMC	W3
7a 7b 18.4	1.9 1.41 2.4c 2.5 2.6 2.9	Continue to implement the ***General Status Ranks of Wild Species in the Northwest Territories*** in collaboration with other jurisdictions in Canada.	GNWT, CWS, DFO, SRRB, GRRB with WMAC-NWT, JFMC	W3

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Monitoring Programs

Effective baseline monitoring programs are necessary to track the natural forces shaping northern ecosystems and to track how current human activities impact on them. Recent monitoring programs use a broad definition of "environment", including social and cultural with biological and physical indicators.

A diverse array of biodiversity-related monitoring programs is conducted in the NWT. Many are integrated into established government programs. Others are part of comprehensive monitoring programs involving collaborating agencies. In addition, some programs are coordinated and implemented by community-based organizations and volunteers. A detailed list of ***monitoring programs related to biodiversity in the NWT*** is available through Appendix 2.

Ecosystems are complex and the mandates of organizations conducting monitoring programs are usually related to a small portion of essential ecosystem components. Consequently, the implementation of ecosystem monitoring programs requires that many organizations and groups work in partnership and share data and information. Quality information on long-term and large-scale changes in northern ecosystems exist in northern communities where generations have gathered ecological knowledge essential to their survival and well-being.

See ➔ Goal IV for more information on mandates and responsibilities.

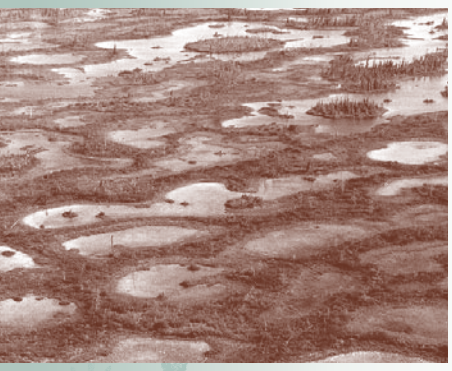
NWT Species

Lists of NWT species in the Infobase:

- 73 Mammals
- 248 Birds
- 49 Freshwater Fishes
- 6 Amphibians
- 2 Reptiles
- 153 Molluscs
- 1216 Vascular Plants
- 439 Lichens
- 443 Mosses
- 89 Butterflies
- 35 Dragonflies

Estimated:

- More than 200 Marine Fishes
- More than 11,000 Arthropods
- Thousands of Algae, Fungi, Simple Invertebrates
- Hundreds of Marine Echinoderms



Taiga Plains in the NWT.
Photo: Courtesy of Leslie Leong

Cooperative ecosystem monitoring has a long history in the North. The most successful programs are based on partnerships, and involve northern communities from the design phase through to implementation.

The ***NWT Cumulative Impact Monitoring Program*** (NWT CIMP) is being developed to implement specific sections of legislation in the NWT.

See ➔ Goal IV for more information on recent legislative changes related to resource development and land claim settlement that affect biodiversity issues.

A working group is developing NWT CIMP with the help of representatives and observers from INAC, RWED, Aboriginal governments, DFO, EC, and the MVEIRB. When the program is in place, a committee, with participation from federal, territorial, and Aboriginal governments, will likely be legally created to provide guidance.

NWT CIMP is a land claim obligation and a legislated program that is being designed to:

- monitor cumulative impacts, water uses and waste deposits in the NWT;
- fund and support projects to fill key gaps in monitoring;
- report to decision-makers and the public on the state of the NWT environment;
- build community capacity in environmental monitoring; and
- provide information to an independent audit.

See ➔ Goal II *Environmental Accountability* for more information on the Audit.

NWT CIMP is an umbrella program that will build on existing monitoring capabilities and foster new capacity where required.

See ➔ *Appendix 2* for a description of current NWT monitoring capacity.
See ➔ Goal II *Environmental Accountability* for more information on monitoring programs developed to track the environmental impacts of specific development projects and to measure the effectiveness of their mitigation measures.

Since 1998, the ***Northern Ecosystem Initiative*** (NEI), led by Environment Canada, has been providing tools and funding to enhance innovative approaches and foster partnerships on key aspects of sustainable development in the North. These include:

- impacts of development;
- climate change;
- toxics/contaminants; and
- biodiversity.

River ecosystem in the South Slave Region, NWT.
Photo: Courtesy of F. Lepine, Flying Colours Design

The NEI has helped enhance existing northern monitoring programs, including some programs in the NWT, and has identified the need for a pan-Arctic ecosystem monitoring network to track changes in critical northern ecosystems. Starting in 2003, NEI will support projects that "develop and test appropriate ecosystem status and trend indicators for the Canadian North and that contribute to the development and implementation of a monitoring system that can report on the status and ongoing trends in Canadian Arctic ecosystems." (EC 2001)

The Tariuq (Ocean) Monitoring Program, led by DFO, is the Beaufort Sea component of the Ocean monitoring programs initiated across the country. Established in 2001, this initiative builds on monitoring pilot projects designed with community input. This program is developing and testing ocean health indicators and will be providing information and expertise to NWT CIMP. The Program is initiating a project to complement ***local-knowledge interview protocols*** developed by the *Arctic Borderland Ecological Knowledge Co-op* to gather information on changes in ocean resources important to Beaufort Sea communities.

National Parks Ecological Integrity Monitoring programs are also being developed to track changes within national protected areas, coordinating them among Parks sharing the same "bioregion". Each program is also compared with the "Greater Park Ecosystems" outside National Parks. These programs are based on Parks Ecological Integrity Statements and have been designed to provide information for monitoring reports every five years. The first report is due in 2008.

See ➔ Goal I *Protected Areas* for more information on Ecological Integrity Statements.

Special agreements and programs are usually required to help monitor species that cross political jurisdictions. A complete picture of a species or population's status can be ascertained only by sharing protocols and data among agencies working in each habitat necessary for the species' survival.

The NWT is one of the world's most productive regions for many migratory birds. The information collected on breeding grounds in the NWT is essential to the development of effective management decisions further south, including in the United States.

Monitoring programs for migratory species that involve northern and cross-border partnerships include:

- Program for Regional and International Shorebird Monitoring (PRISM);
- North American Bird Conservation Initiative;
- Cooperative Bird Banding Programs;
- Canadian Land Bird Monitoring Strategy;
- Christmas Bird Counts; and
- Breeding Bird Surveys.

See ➔ Goal V for more information on international initiatives.
See ➔ *Appendix 2* for a detailed list of current NWT monitoring efforts.
See ➔ Goal I *Sustainable Use of Wildlife* for more information on some of these programs.

Beluga
Photo: Courtesy of RWED collection

- **Tariuq =** ocean in Inuvialuktun

Private Environmental Expertise in the NWT

Number of Firms with an Office in NWT Communities 2003[1]	
Fort Simpson	1
Fort Liard	1
Fort Providence	1
Hay River	1
Fort Smith	2
Norman Wells	2
Inuvik	5
Yellowknife	19
	31

[1] *Estimates from the white pages of 2003-2004 phone book. Detailed data available.*

Matrix of Actions – Monitoring Programs

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7a 7b	2.10 2.27 2.30	Continue implementation of ***monitoring programs related to biodiversity in the NWT*** as appropriate.	Many partners	➔ App. 2
7b	2.4 2.6 2.27 2.30	Continue development and implementation of the ***NWT CIMP***.	Partners include INAC, GNWT,DFO, EC, with Aboriginal governments, MVEIRB	W4
7b	2.4 2.6 2.27 2.30	Continue implementation of the ***Northern Ecosystem Initiative***.	EC	W5
7a 7b	1.63 1.64 2.4 2.6 2.27 2.30	Continue implementation of the ***Tariuq (Ocean) Monitoring Program***.	DFO	W6
7a 7b 8j	1.63 2.4 2.6 2.27 2.30	Continue implementation of ***Local Knowledge Interview Protocols***.	Arctic Borderlands Cooperative	W7
7b	2.4 2.6 2.27 2.30	Continue implementation of ***National Park Ecological Monitoring Programs***.	PCA	W8
7a 7b	2.4 2.6 2.27 2.10 2.30	Continue implementation of the ***monitoring programs for migratory species*** in the NWT as appropriate.	Many partners	➔ App. 2 ➔ Goal I

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Integrated Research Initiatives

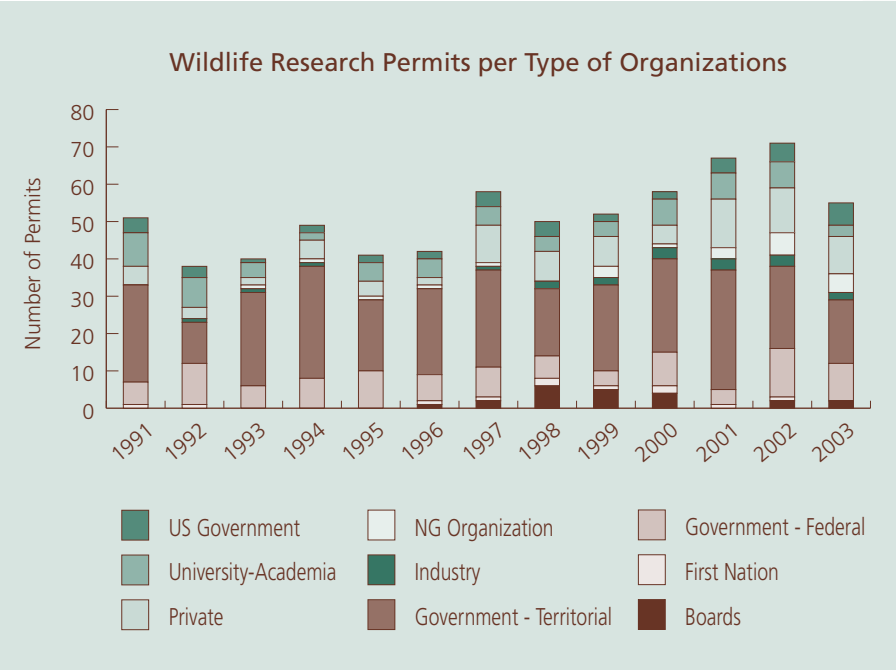
Ecological research is notoriously expensive in the North. With an increase in land use and resource development in the NWT during the past few years, a series of workshops and programs have attempted to coordinate and prioritize research activities related to development proposals at territorial and regional scales. Recent efforts involve a renewed impetus to implement community-based research priorities, and to facilitate the use and integration of traditional knowledge in biodiversity research.

General Coordination and Consultation

Many agencies and groups participate in research on biodiversity in the NWT. The coordination of research projects in any given region and the consultation on priorities and goals is facilitated in the NWT by ***legislated permitting systems***:

- Aurora Research Institute issues licences for various types of research done under the *NWT Scientists Act;*
- RWED issues *Wildlife Research Permits* under the *Wildlife Act*, for research on terrestrial wildlife;
- DFO issues *Fisheries Research Permits* for research on fish;

- CWS issues *Migratory Bird Sanctuary* and *National Wildlife Area Permits, Scientific and Aviculture Permits*;
- National Wildlife Research Centre issues *Bird Banding Permits*;
- The Prince of Wales Northern Heritage Centre issues *Archaeology Permits*; and
- Parks Canada issues permits for all research within National Parks.



Source: Wildlife Research Permit database – RWED.

These permitting processes involve community consultations in which organizations with both legislated and non-legislated mandates have the opportunity to review research proposals. Research projects that have the potential to impact the traditional use of an area, or disrupt the ecological integrity of an area, are required to submit to modifications.

Researchers are provided with some tools to coordinate projects. These ***publications on conducting northern research*** include:

- a booklet on *Doing Research in the Northwest Territories – A Guide for Researchers* by Aurora Research Institute;
- an *Annual compendium* of all research projects performed in the NWT, also produced by the Aurora Research Institute;
- a guide on *Ethical Principles for the Conduct of Research in the North* by the Association of Canadian Universities for Northern Studies (ACUNS); and
- a *Researcher's Toolbox* provided by the Canadian Polar Commission.

Priority Setting and Funding

Biodiversity research can be prioritized using different sets of criteria depending on the mandate and goals of the organization doing the research. In the NWT, many organizations conducting research on biodiversity or wildlife have developed a ***formal process to assess internal research projects*** against the organization's mandate and priorities. Organizations with a formal review process include PCA, DFO, RWED, GRRB, SRRB, WMAC-NWT, FJMC, and EC.

Wildlife Studies – Then and Now[1]

On average, 46 wildlife research permits were issued annually in the 1990s; whereas 63 were issued annually since year 2000.

The Territorial government applied for 61% of all NWT wildlife research permits issued in 1993; they were the applicants for 31% of research permits in 2003.

Private firms and Industry applied for 7% of all NWT wildlife research permits issued in 1993; they were the applicants for 22% of research permits in 2003.

[1] *Data excluding Nunavut*

Biological Researchers in the NWT

Researchers in Government	2003
Terrestrial Mammals	
General	6
Bison	1
Ungulates	1
Carnivores	1
Furbearers	1
Animal health	1
Marine Mammals	
General	2
Freshwater Fishes	
Population	3
Habitat	3
Marine Fishes	
General	1
Birds	
Waterbirds	2
Forest birds	1
Raptors	0
Upland birds	1
Invertebrates	
Terrestrial	0
Freshwater	0
Marine	0
Plants	
Forest	1
Botany	0
Ecosystems	
Terrestrial	3
Marine	0
Traditional knowledge	0
Biodiversity	1
Climate change	1
Cumulative effects	1
Protected areas	1
	31

Setting priorities for research that involves many organizations requires coordination and a clear goal statement. No *single* set of priorities for research in the NWT can be developed because many goals can be of highest priority at any one time. Different sets of priorities for ecological research co-exist in the NWT, and programs usually cooperate on shared priorities.

Agencies and programs that actively finance research always develop criteria to prioritize research proposals to attain their own goals in the most efficient manner. Because they actively finance research, the priorities set by programs that are fully funded may drive the priorities of agencies and programs that do not have funding capabilities. Programs that will fund research are marked with a dollar sign ($) in the list below.

So far, research priority setting has been initiated and coordinated by programs related to:

Impacts of Resource Development

- ***Western NWT Biophysical Impacts Study***. The goal is to provide baseline information required for an impact assessment of the Mackenzie Valley pipeline. Initial priorities were determined using a series of regional workshops ($ to be determined).
- ***Mackenzie Valley Biophysical Gap Analysis***. The goal is to provide information required for mitigating ecological impacts in areas of the Mackenzie Valley pipeline and hydrocarbon development in the NWT. Recommendations and priorities were determined using workshops ($ to be determined).
- The ***West Kitikmeot Slave Study*** (WKSS) was a "large partnership of Aboriginal and environmental organizations, government and industry that wished to make sure the effects of development on the environment, wildlife and people of the WKSS area are minimal and that northern people get the maximum benefits." WKSS was created to collect some of the environmental and social information necessary for assessing and mitigating cumulative effects of ongoing large-scale development in the Slave Geological Province. This area harbours two producing diamond mines, other diamond mining projects, a port proposal, and potential hydroelectric development. WKSS published its findings in 2001, and included a gap analysis and recommendations on how to proceed with follow-up projects.

Community Issues

- ***NWT Research Agenda Surveys***. The goal is to summarize data and information to NWT communities on issues of high concern to them. The Agendas are drafted using questionnaires.

Ecosystem Management

- ***Northern Ecosystem Initiative*** (NEI). The goal is to test and implement innovative methods to track the impacts of development, climate change and contaminants on biodiversity. Priority recommendations were published in a series of ***NEI Scoping Reports*** ($).
- ***Oceans Management National Research Network – Integrated Management Node***. The goal is to "create knowledge for the application of critical thinking and best practice to oceans management in Canada"

(University of Manitoba 2003). Recommendations on priority research agendas are tallied using a series of workshops. The Network assists DFO with an ecosystem approach to ocean resource management. The Network includes any groups or organizations interested in ocean and coastal management. The Integrated Management Node includes northern members with interests in community-based monitoring. The Network includes two other Nodes where northern members have not yet participated – ***Science and Local Knowledge Node***, where the goal is to "increase our capacity in using scientific knowledge with local knowledge to improve oceans and coastal management" (Simon Fraser University 2003); and – ***Sustainability Node***, where the goal is to help create tools that promote sustainable use of oceans and coasts (Memorial U. 2003).

Species Management

- ***North American Bird Conservation Initiative*** (NABCI). The goal is to maintain the diversity and abundance of all North American birds. Recommendations on priority research are tallied using expert advice and consultation within ecoregion-based Bird Conservation Regions (BCRs).

In Canada, the overall goal of the NABCI will be attained through four planning initiatives:

- ***Canadian Landbird Conservation Program*** – NWT component of this program is being developed to monitor Boreal Forest Birds;
- ***Canadian Shorebird Conservation Plan*** – In response to the need for improved shorebird monitoring identified in this Plan, the Program for Regional and International Shorebird Monitoring is being developed in cooperation with the United States. An NWT component called Taiga and Boreal Shorebird Monitoring Program is being developed under this program;
- ***Canada's Conservation Plan for Seabirds and Colonial Waterbirds*** – surveys of Thick-billed Murres at Cape Parry, NWT were initiated under this Plan; and
- ***North American Waterfowl Management Plan*** (NAWMP).

See ➔ Goal I *Sustainable Use of Wildlife* for more information on the NAWMP and on its joint-venture partnerships.

Funding for each of the four planning initiative of NABCI will be obtained by a series of joint-venture partnerships in each BCR; these partnerships will be similar to those undertaken through the NAWMP ($ to be determined).

See ➔ Goal V for more information on initiatives involving other countries, and including northern involvement.

Species at Risk

- ***Endangered Species Research Fund*** and ***Habitat Stewardship Program for Species at Risk***. The goal is to help individual Canadians and organizations to conserve wildlife habitat and to contribute to the recovery of species listed as endangered, threatened, or of special concern in Canada, including in the NWT ($).
- ***Recovery strategies and action plans*** for NWT species-at-risk, where the goal is to recover species. All plans include a prioritized list of actions needed to recover species. Recommendations on priority research are drafted by Recovery Teams, using expert advice and public consultation.

Biological Researchers in the NWT (continued)

Number of Research Biologists[1]	1990	2003
DFO	2	7
EC	1	3
FJMC	0	1
GRRB	0	2
SRRB	0	0
Parks	0	3
GNWT	16	15
	19	31

[1] *Full-term employees only. Detailed data available.*

Banding a Palm Warbler on the Taiga – with a long history, coordinated bird banding has proved an efficient program to study migrant birds.

Photo: Courtesy of Stephen Cumming

Analytical Laboratories in the NWT

Number of labs in 2003 = 1

Taiga Environmental Laboratory – INAC, Yellowknife, accredited under the Standards Council of Canada / Canadian Association For Environmental Analytical Laboratories Partnership Agreement.

Find more:
www.taigalab.ca

Post-secondary Institutions in the NWT

Number of institutions in 2003 = 1

Aurora College with three locations: Inuvik's Aurora Campus, Forth Smith's Thebacha Campus and Yellowknife Campus.

Natural History Museum Collections in the NWT

Number of collections in 2003 = 0

Prince of Wales Northern Heritage Centre, Yellowknife has wildlife specimen for education purposes.

Conservation Data Centre in the NWT

None as of 2003

Climate Change

- *Climate Change Action Fund - Science, Impacts and Adaptation component*. The goal is to help us understand the magnitude, rate and regional distribution of climate change and its impact on our capacity to adapt ($). The Program also facilitates interaction between researchers through the *Canadian Climate Impacts and Adaptation Research Network* (C-CIARN).

Northern Research Capacity

Funding northern research is a challenging task. New technologies, like remote sensing, and partnerships with northern communities have proven to be cost efficient, but research in northern ecosystems remains expensive. This is mostly due to high logistical costs and limited on-site capacity.

- Since 1958, the *Polar Continental Shelf Project* (PCSP) has provided coordinated logistical support to researchers working in the Canadian Arctic. PCSP helps cover some of the high costs related to northern transportation, communications, accommodation, equipment, and other logistical services for governments in Canada and university research teams ($).

The decline in baseline research in northern issues, especially studies that are university-based, has been well documented (Johnson, P.G. 1999, NSERC and SSHRC 2000). Recently, university-based research on northern ecosystems has received some help with the implementation of ***new and innovative northern education programs*** and some enhanced funding by agencies:

- The *University of the Arctic* has developed programs to help students *(North2North)* and researchers *(Mobile Faculty Roster)* travel to other northern countries and share knowledge of northern ecosystems. Some NWT students and researchers participate in these initiatives;
- The Natural Sciences and Engineering Research Council of Canada (NSERC) – ***Northern Research Chairs Program*** finances university chairs on northern studies. The ***Northern Research Postgraduate Scholarship*** and the ***Northern Postdoctoral Fellowship Supplements Program*** are also helping finance students involved in northern research ($); and
- The ***Northern Scientific Training Program*** offered by INAC offers financial help to Canadian students involved in research in northern Canada, in addition to students who are interested in undertaking research in other circumpolar countries, such as Greenland, Norway, Sweden, Finland, Russia and the United States (Alaska) ($).

Matrix of Actions – Initiatives on Integrated Research Programs

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
General Coordination and Consultation in Wildlife Research				
9d 12b	1.3 2.31	Continue the coordination of and consultation on research using ***legislated research permitting systems***.	ARI, GNWT, EC, DFO	W9
12a, 12b	1.3 2.26	Continue to support ***publications on conducting northern research***, using as examples such works as those published by ARI, ACUNS, and Canadian Polar Commission.	Many partners	W9 W10 W11 W12
12b	1.3 2.1 2.5 2.6	Continue development and implementation of an ***open and formal process to assess internal research projects***.	Many partners	
Impacts of resource development				
12b	1.3 1.94 2.1 2.5 2.6	Continue development of the ***Western NWT Biophysical Impacts Study***.	GNWT with many partners	W13
Community Issues				
12b	1.3 2.1 2.5 2.6	Continue ***NWT Research Agenda Surveys*** as appropriate.	ARI	W9
Ecosystem Management				
12b	1.3 1.94 2.1 2.5 2.6	Continue ***Northern Ecosystem Initiative*** as appropriate and use ***NEI Scoping Reports*** as sources of information on current ecosystem issues in the NWT.	EC	W14
12b	1.3 1.94 2.1 2.5 2.6	Continue implementation of the ***Oceans Management National Research Network*** (Integrated Management, Science and Local Knowledge, and Sustainability Nodes).	DFO	W15
Species Management				
12b	1.3 2.1 2.2 2.5 2.6	Continue implementation of the ***North American Bird Conservation Initiative***.	In the NWT: CWS	W16
12b	1.3 2.1 2.2 2.5 2.6	Continue implementation of the ***Canadian Landbird Conservation Program, Canadian Shorebird Conservation Program, Canada's Conservation Plan for Seabirds and Colonial Waterbirds***, and the ***North American Waterfowl Management Plan***.	Many partners in NA; In the NWT: CWS	W17
Species at Risk				
9c 12b	1.3 2.1 2.2 2.5 2.6	Continue implementation of the ***Endangered Species Research Fund*** and the ***Habitat Stewardship Program for Species at Risk***.	EC and WWF	W18 W19
9c 12b	1.3 2.1 2.2 2.5 2.6	Continue development and implementation of ***recovery strategies and action plans***.	Many partners	W20

Matrix of Actions – Initiatives on Integrated Research Programs (continued)

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
Climate Change				
12b	1.3 2.1 2.5 2.6	Continue implementation of the ***Climate Change Action Fund*** and continue participation in the ***Canadian Climate Impacts and Adaptation Research Network*** (C-CIARN).	In Canada: many partners; In the NWT: ARI	W21
Northern Research Capacity				
12b 18.1	1.3 2.5 2.6 2.25 3.1d	Continue efforts in research capacity and ***new and innovative northern education programs***, e.g. the Polar Continental Shelf Program, the University of the Arctic, and northern programs in NSERC.	Many partners	W22, W23, W24
12b 18.4	1.3 2.5 2.6 2.25 3.1d	Continue implementation of the ***Northern Scientific Training Program***.	INAC	W25

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

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- W1: forestmanagement.rwed.gov.nt.ca
- W2: www.ducks.ca/conserv/wbf/projects.html
- W3: www.nwtwildlife.rwed.gov.nt.ca/monitoring/monitor.htm
- W4: www.nwtcimp.ca/index.asp
- W5: www.pnr-rpn.ec.gc.ca/nature/ecosystems/nei-ien/dh00s00.en.html
- W6: www.cos-soc.gc.ca/
- W7: www.taiga.net/coop/
- W8: parkscanada.pch.gc.ca/default_flash.html
- W9: www.nwtresearch.com/,
- W10: www.nwtwildlife.com
- W11: www.cyberus.ca/~acuns/
- W12: www.polarcom.gc.ca/
- W13: www.gov.nt.ca/rwed/mog/downloads/july2003_oilgasupdate.pdf
- W14: www.ec.gc.ca/press/2003/031031_b_e.htm
- W15: www.omrn.ca/eng_home.html
- W16: www.nabci.org/
- W17: www.cws-scf.ec.gc.ca/birds/nabci_e.cfm
- W18: www.wwf.ca/
- W19: www.speciesatrisk.gc.ca/
- W20: www.sararegistry.gc.ca/default_e.cfm
- W21: www.c-ciarn.ca/index_e.asp and www.climatechange.gc.ca/english/actions/action_fund/ science.shtml
- W22: polar.nrcan.gc.ca/
- W23: www.uarctic.org/index.html
- W24: www.nserc.ca
- W25: www.ainc-inac.gc.ca/nstp/index_e.html

Landscape and Waterscape Planning Initiatives

In the NWT, ***land use plans*** are being drafted by Planning Boards as part of legislated requirements under land claim settlement agreements:

- *Nành' Geenjit Gwitr'it T'igwaa'in (Working for the Land), Gwich'in Land Use Plan* – approved as of 2003.
- *Sahtu Land Use Plan* – preliminary draft version available as of 2003.
- *Deh Cho Land Use Plan* – under development. The Deh Cho Land Use Planning Committee was established under the Interim Measures Agreement to draft a land use plan for the Deh Cho Territory.

These plans were developed after extensive consultation with governments, industry, co-management boards, and communities in their respective areas. They are implemented after ratification by all governments with mandates and responsibilities related to land use and resource management in the area.

In the ISR, each community has developed a ***Community Conservation Plan*** as part of the Inuvialuit Settlement Agreement. Each plan details conservation goals, sets priorities, and provides guidelines for land use and resource management within their traditional area. The Community Conservation Plans complement each other, and as a group they cover all land and water in the ISR. Each plan is reviewed and revised regularly.

The ***Great Bear Lake Watershed Working Group*** (GBLWWG) was formed to develop a special management regime to protect the Great Bear Lake watershed – its land, lakes, tributaries, and wildlife. The Working Group includes representatives from the community of Déline, Déline organizations, the federal and territorial governments, Sahtu co-management boards and CPAWS-NWT. The GBLWWG started by adopting a vision: "Great Bear Lake must be kept clean and bountiful for all time". The Working Group has completed a management framework to clarify roles and responsibilities, and establish management principles. A technical working group will be using the management framework to draft a first management plan for the Great Bear Lake watershed.

The ***Beaufort Sea Integrated Management Planning Initiative*** (BSIMPI) was established in the IRS to scope and develop a plan for guiding multiple users to make sound resource-use decisions and help conserve a large seascape ecosystem. The initiative is led by the BSIMPI Senior Management Committee and involves the Inuvialuit Game Council, Inuvialuit Regional Corporation, FJMC, DFO, and CAPP. A working group is developing seascape management plans that will integrate economic, ecological and social-cultural perspectives.

Ice road in the NWT.
Photo: Courtesy of Leslie Leong

NWT CEAM Vision

"The vision of the NWT CEAM Strategy and Framework is to make recommendations to decision-makers to facilitate:

- *the protection of ecological integrity;*
- *the building of sustainable communities, including social and cultural dimensions; and*
- *responsible economic development within a sound environmental management framework."*

Blueprint for Implementing the CEAM Framework and Strategy in the NWT and its Regions.

Matrix of Actions – Landscape and Waterscape Planning Initiatives

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6b 8c 8j 10a	1.1 1.76 2.3 2.15 7.1	Continue support and cooperative work in the development, implementation and review of ***Land Use Plans*** in the NWT, such as Gwich'in Land Use Plan, Sahtu Land Use Plan, Deh Cho Land Use Plan, Community Conservation Plans and others.	Many partners	W1 W2 W3
6b 8c 8j 10c 10e	1.37 1.51 1.59 1.63 2.3 2.15 2.16 7.1	Continue work with the ***Great Bear Lake Watershed Working Group*** to monitor and manage activities including fisheries in Great Bear Lake watershed.	Sahtu communities with SRRB, DFO, RWED, INAC, EC, CPAWS-NWT	W4 W5 ➔ Goal I
6b 8c 10a 10e	1.1 1.59 2.15 2.18	Continue work with the ***Beaufort Sea Integrated Management Planning Initiative***.	DFO and partners	W6

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Cumulative Effects Assessment and Management

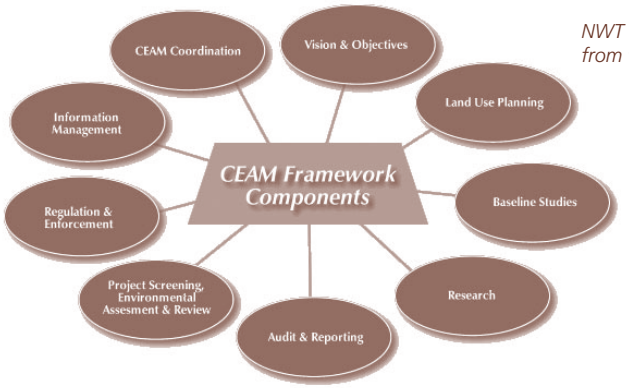
Cumulative Effects Assessment and Management (CEAM) have a pivotal role in formal adaptive ecological management. Many of the activities described under Goal II in the present report are required either to provide information for effective CEAM, or to provide CEAM tools to industry, the public, and governments (see diagram on CEAM framework components and information in Box 4).

See ➔ *Appendix 3* for a list of "tools" to help in adaptive ecological management in the NWT
See ➔ "Summary of Roles/Responsibilities for CEAM Activities on a Regional Basis" in 🖱: www.ceamf.ca/ceam_documents/nwt_ceam_t2&3_app_d_oct_01_final.pdf

In the NWT, cumulative effects assessment and management are mandated through legislation, including the *Mackenzie Valley Resource Management Act*. These requirements are legally inscribed in land claim settlement agreements, and are part of a set of related policies adopted by NWT agencies and boards with resource management responsibilities.

See ➔ Goal IV for more information on CEAM components in legislation and policies.

Given these legal and policy requirements, the public has re-affirmed their expectations that tools would be developed to make the assessment and



NWT CEAM components – from www.ceamf.ca

management of cumulative effects possible and effective in the NWT. The ***CEAM Steering Committee*** has been tasked with developing these tools. The Committee has representation from governments, agencies, Aboriginal groups, industry and environmental organizations with responsibilities or with interests in CEAM in the NWT.

The Committee has developed five steps to help develop and implement CEAM in the NWT:

1. development of an "ideal" CEAM Framework;
2. description of the current situation in the NWT;
3. identification of linkages and gaps;
4. identification of responsible parties; and
5. provision of advice and encouragement regarding a blueprint for filling the gaps, building linkages, and integrating current processes.

CEAM can be implemented at different scales. Many aspects of NWT's environmental assessment capabilities differ among regions in the NWT.

See ➔ Box 4 for more information on adaptive management.

For example, the rate of development activity and the nature of environmental changes tend to vary between regions. Experiences in other areas in Canada have suggested that cumulative effects are most effectively managed at a regional level (Kennett and Donihee 2001, Ogilvie and Johnston 2002, Kennedy 2002). Based on these findings, the ***Blueprint for Implementing the CEAM Framework and Strategy in the NWT and its Regions*** was developed to provide guidelines to develop ***regional plans of action*** within:

- *Slave Geological Province* (NWT and Nunavut) – draft under review;
- *Deh Cho Region* – being developed; and
- *Beaufort Sea* (Mackenzie River Delta Region) – under consideration.

The Blueprint details the Committee's conclusions and recommendations on how CEAM can be used to strengthen ecological and environmental management in the NWT. In particular, the Blueprint makes recommendations on how the NWT's current tools for environmental and resource management could be integrated into CEAM's key components. It also makes recommendations on how to enhance some key components – for example, traditional knowledge initiatives, and community organizational capacity.

The Blueprint also points to a critical limitation in our ability to integrate information so that organizations can be effective and informed, and share harmonized guidelines for future development activities in the NWT. The Blueprint stresses the need for more "research on carrying capacity, thresholds, and limits of acceptable change, and ways to implement these concepts in predictive tools/models and decision-making". Some ***modeling tools*** for CEAM have been investigated in NWT regions.

- ALCES® – see NWT presentations in:
  www.foremtech.com/education/ed_presentations.htm
  www.ceamf.ca/03_reference/reference_infomgmt.htm
- GLOBIO – United Nations Environment Program. See "Fort Liard area cumulative impacts mapping project" (Cizek and McCullum 2001). See www.globio.info

See ➔ Goal II *Data and Information Management* for further information on data integration initiatives.

Cumulative Effects

"Changes to the biophysical, social, economic, and cultural environments caused by the combination of past, present and… foreseeable future actions."

CEA Assessment and Management

Assessment and management "of the incremental effects of an action on the environment when the effects are combined with those from past, existing and future actions."

www.ceamf.ca

Oil camp in Liard Valley.
Photo: Courtesy of Tessa Macintosh

Matrix of Actions – Cumulative Effects Assessment and Management

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6b	1.93 2.22 7.1a 7.3	Continue work within the ***CEAM Steering Committee*** and continue the implementation of the ***Blueprint for Implementing the CEAM Framework and Strategy in the NWT and its Regions***.	Partners in CEAM Steering Committee	W7
6b	1.93 2.22 7.1a 7.3	Continue the development of ***regional plans of action***.	Partners in CEAM Steering Committee	W7
6b	1.93 2.22 7.1a 7.3	Continue the use of ***modeling tools*** to help in integrated management planning.	Many partners	W7

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[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

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- Ogilvie, C. and Johnson. L. 2002. Cumulative Effects Management Framework Project. 177-186 pp. In Cumulative Environmental Effects Management – Tools and Approaches. Kennedy, A. J. (ed.) Alberta Society of Professional Biologists. Calgary, Canada.
- Steven Kennett and John Donihee 2001. A Framework for Environmental and Resource Management in the Northwest Territories, Canadian Institute of Resources Law, (CIRL). Prepared for INAC and the NWT CEAMF. (Available at www.ceamf.ca/03_reference/reference_frameworkresearch.htm)

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W1: www.gwichinplanning.nt.ca/

W2: www.dehcholands.org/home.htm

W3: www.bmmda.nt.ca/downloads.htm

W4: www.srrb.nt.ca/committees.html

W5: www.cpaws.org/grassroots-chapters/nwt-greatbearlake.html

W6: www.cos-soc.gc.ca/doc/cos-soc/appendix_e.asp

W7: www.ceamf.ca/

Environmental Accountability and Emergency Planning Initiatives

Accountability is an important aspect of adaptive ecological management. By following on commitments, all organizations, governments, groups and industry can contribute to biodiversity conservation, effective environmental protection, and information sharing in a context of adaptive management.

Many tools exist to help us apply the principle of environmental accountability. These tools include binding environmental agreements, development of policies and standards, and regular monitoring of performance or "audits". Government, industry, or independent institutions can use these tools.

Tools for Environmental Protection

In the NWT, legally binding environmental agreements have been used to underline the responsibilities of governments and project proponents with respect to the development, review, and follow-up of programs to monitor and mitigate potential effects of specific projects on the environment. Some of these agreements require that an independent environmental advisory institution be established to ensure management plans, monitoring programs, and mitigation measures are efficiently implemented and to provide for community and public input.

Agreements and institutions that apply to the diamond industry include:

- *BHP Environmental Agreement* (1998) – *Independent Environmental Monitoring Agency*;

  Find more: www.monitoringagency.net/
- *Diavik Environmental Agreement* (2000) – *Environmental Monitoring Advisory Board*; and
- *DeBeers Environmental Agreement* (draft 2003) – agency to be determined.

  Find more: Kennett, S. A. 2001.

Agreements and institutions are established within a rapidly evolving regulatory regime for resource management in the NWT (Kennet 2001).

See ➔ Goal IV for more information on resource management legislation.

Project-specific agreements set high standards for the independent and public environmental audit of any new large-scale development in the resource industry in the NWT, especially mining. They are being examined in the context of land claim settlements, increased resource development in the Mackenzie Valley (Kennett 2001), and new legislation such as the *Mackenzie Valley Resource Management Act* (MVRMA).

Part 6 of the MVRMA mandates the establishment of cumulative effects monitoring and independent environmental audits in the Mackenzie Valley.

Accountability

"The obligation to demonstrate and take responsibility for performance in light of agreed-upon commitments."

Canadian Council of Ministers of the Environment

Mitigation

"The elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means."

(CEAA ss.2(1))

Mitigative or Remedial Measures

"Measures for the control, reduction or elimination of an adverse impact of a development on the environment, including a restorative measure."

(MVRMA Part V s111)

Reclamation

"A planned series of activities designed to recreate the biophysical capacity of an ecosystem in such a way that the resulting ecosystem is different from the ecosystem existing before disturbance."

Dunster J. and Dunster, K. 1996

Restoration

"A process of returning ecosystems or habitats to their original structure and species composition. Restoration requires a detailed knowledge of the (original) species, ecosystem functions, and interacting processes involved."

Dunster J. and Dunster, K. 1996

Whitehorse Mining Initiative

The Goals and Principles of the Initiative cover a broad array of themes. These relate to:

- Addressing business needs
- Maintaining healthy environment
- Resolving land use issues
- Ensuring welfare of workers and communities
- Meeting Aboriginal concerns
- Improving decisions.

Find more:

- *www.mining.ca/english/initiatives/whitehor.html*
- *www.nrcan.gc.ca/mms/prod-serv/pubs-rep_e.htm*
- *www.nrcan.gc.ca/mms/pdf/accord.pdf.*

Find more on background and evaluation:

- *idrinfo.idrc.ca/archive/corpdocs/118549/Whitehorse.pdf*

The *Independent Environmental Audit* provides the public with:

- an "evaluation of information… and environmental trends";
- a "review of the effectiveness" of the environmental regulatory regime and monitoring methods; and
- a "review of the response" to previous audit recommendations.

The Audit is the legislated environmental accountability component of the MVRMA.

Regular environmental audits are also useful to evaluate the environmental effects of permanent and long-term developments or habitat alterations, such as communities or transportation systems.

The Department of Transportation (DOT) is implementing ***environmental audits*** of all transportation facilities in the NWT, including airports, pits, quarries and maintenance camps. These audits will help improve efficiency and implement innovations and new techniques that may reduce or eliminate negative environmental effects.

Matrix of Actions – Tools for Environmental Protection

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6b 8l 10e	1.7 2.22	Continue to develop project-specific ***environmental agreements*** for the resource industry.	GC, GNWT and project proponent	➔ Goal IV
7c 14b	2.22 2.27	Continue to perform ***Independent Environmental Audits*** as appropriate under Part 6 of MVRMA.	INAC	W1
7c 14b	2.22 2.27	Continue to perform regular ***environmental audits***, such as those conducted of all NWT transportation facilities.	DOT	W2

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Mitigation, Reclamation and Restoration

During the impact assessment process, developers and regulatory agencies draw lists of measures that can be taken to reduce or eliminate negative effects of a project on the environment and on biodiversity. These mitigation measures are often planned and implemented before and during a project development, with formal public input and participation. In the NWT, the legal framework for this process is detailed in the MVRMA for projects in the NWT south of the Inuvialuit Settlement Region (ISR), and in the *Canadian Environmental Assessment Act* for projects in the ISR. More information can be found in the *Mackenzie Valley Resource Management Act – A Citizen's Guide* at nwt-tno.inac-ainc.gc.ca/la-p_e.htm and from the Canadian Environmental Assessment Agency at www.ceaa-acee.gc.ca/index_e.htm

See ➔ Goal IV for more information on enviromental legislation.

The effectiveness of these measures can be assessed and corrected using a "follow-up program". For large projects, these programs are part of legislated requirements (e.g., in MVRMA) and implemented with opportunities for public input.

Some initiatives have been designed to better apply recommendations from the public and to improve programs using lessons learned from past experience. For example, INAC's ***Mine Site Reclamation Policy*** uses past northern experience to improve and clarify guiding principles related to mine closure and reclamation.

The objectives of the policy are to:

- minimize the impacts on the environment and human health;
- reduce the environmental liabilities that fall to the Government of Canada when mines are abandoned;
- provide industry and the public with a clear description of the federal government's expectations with respect to mine site reclamation; and
- strengthen relationships with the Northern regulatory authorities by establishing clear and consistent standards and processes.

Some principles adopted in the policy are based on the *1994 Whitehorse Mining Initiative*. The Initiative states: "the required standard of reclamation should be returning mine sites and affected areas to viable and, whenever practicable, self-sustaining ecosystems that are compatible with healthy environment and with human activities". The Whitehorse Mining Initiative was launched under an Accord signed by members of a "Leadership Council", which included mining industry members, Aboriginal organizations, governments and non-profit organizations. This Initiative formed the first cooperative framework for addressing issues related to mining and sustainable development in Canada. It re-affirmed the "polluter pays" principle as an important component of future policy development related to restoration and rehabilitation. The Government of Canada (INAC) and the GNWT are signatory members of the Leadership Council for the Initiative.

By 2002, past experience and public input also contributed, at the request of Canadian Mines Ministers, to the establishment of the *National Orphaned/ Abandoned Mines Initiative*. Under this initiative a multi-stakeholder advisory committee studies various issues, including environmental protection, related remediation of abandoned and orphaned mines across Canada. An Advisory Committee was formed for the initiative. The Committee has wide membership including northern and Aboriginal perspectives.

Find more: www.abandoned-mines.org/

Also in 2002, INAC adopted a ***Contaminated Sites Management Policy*** with objectives, among others, to:

- "remediate, based on approved resource levels, all National Classification System Class 1 contaminated sites in the North, and Class 1 and 2 contaminated sites on reserve, on a priority basis, unless it can be demonstrated that for a specific site an alternative form of management is appropriate; and
- promote the federal *polluter pays* principle."

National Classification System

System developed to provide a "rational and scientifically defensible… assessment of contaminated sites across Canada."

Each sites is assigned to either Class I, Class II, or Class III

Canadian Council of Ministers of the Environment

Find more:
www.ccme.ca/initiatives/soil.html?category_id=68

Find more:
nwt-tno.inac-ainc.gc.ca/giant/

Giant Mine near Yellowknife.
Photo: Courtesy of RWED collection

Current legislation and guidelines for conducting environmental assessments and restoration programs related to seismic exploration projects have been summarized in ***public guides***. These documents help both the public and industry understand the evolving regulations and guidelines for mitigation and restoration associated with seismic programs in the NWT:

- MVEIRB. 2003. *Reference Bulletin – Preliminary Screening of Seismic Operations In the Mackenzie Valley* (draft)

  Find more: www.mveirb.nt.ca/mvguides/draft_seismic_reference_bulletin_29-10-03_.pdf
- Lawson Lundell. 2002. Conducting Seismic Exploration: Environmental Challenges and Government Requirements

  Find more: www.lawsonlundell.com/resources/conductingseismicexploration.pdf

Current legislation, requirements, and guidelines for conducting environmental assessments, mitigation and restoration programs related to NWT oil and gas exploration and development, including pipelines, have been summarized in specific sections of ***public guides*** on the industry:

- INAC. 2003. A Citizen's Guide to Oil and Gas in the Northwest Territories.
- Regulatory Roadmaps Project and www.oilandgasguides.com
- *NEB – Protection of the Environment* guides

  Find more: www.neb.gc.ca/safety/protect_e.pdf

Agencies with a regulatory role in the northern gas producer industry have agreed to the *Cooperation Plan for the Environmental Impact Review and Regulatory Review of a Northern Gas Pipeline Project through the Northwest Territories*. The plan describes a coordinated approach to public input, an integrated approach to assessment and mitigation of environmental impacts.

Find more: www.gov.nt.ca/rwed/coop_plan_final.pdf

Mitigation best practice guides that have relevance for the NWT are available from other jurisdictions, for example:

- Boreal Caribou Committee. 2001. Strategic Plan and Industrial Guidelines for Boreal Caribou Ranges in Northern Alberta.

  Find more: www.deer.rr.ualberta.ca/caribou/strategicplanandindustrialguidelinessept2001.pdf

Although our transportation system is not as extensive as in southern Canadian jurisdictions, NWT faces some challenges in managing transportation-related environmental effects that are particular to the North. For example, a northern transportation system must manage effects on permafrost, on fragile slow-growing vegetation, on large migratory or sedentary populations of ungulates such as caribou and bison, and on pristine lakes and rivers. In addition, NWT shares some challenges that are similar to those found further south: increased proliferation of exotic species, fragmentation of local habitats, sedimentation, natural drainage alterations, release of pollutants, and road kills.

Oil and gas drilling rig, Mackenzie Delta, NWT.
Photo: Courtesy of RWED collection

The DOT developed ***strategies to help reduce the impact of NWT all-year highway systems***, winter roads, airports, and ferry landings on biodiversity, wildlife habitat and ecosystems. These include:

- multi-disciplinary studies to mitigate wildlife collisions, especially on wood bison;
- identification of contamination and design of clean-up and rehabilitation programs;
- re-vegetation with indigenous species when feasible and development of techniques to maintain existing vegetation;
- programs to control off-road traffic to newly cleared areas and consequently control of human pressures; and
- studies of "fish-friendly" culvert prototypes and of the effects of linear right-of-way on the natural drainage pattern.

Bison on a NWT Highway.
Photo: Courtesy of Tessa Macintosh

Matrix of Actions – Mitigation, Reclamation and Restoration

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
14a	1.7 1.77 4.1 4.4	Continue implementation of the ***Mine Site Reclamation Policy***.	INAC	W3
14a	1.31 4.1 4.4	Continue implementation of the ***Contaminated Sites Management Policy***.	INAC	W4
14a	1.30 1.52 1.77 2.20 3.4 4.1 4.4	Continue update and publication of ***public guides*** on environmental impact assessment, including mitigation, reclamation and restoration related to industry in the NWT.	Many partners	
14a	1.7 1.31 1.52 1.81 2.20	Continue to develop, update and implement ***strategies to help reduce the impact of the transportation system on biodiversity***.	DOT with partners	

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Contaminants Initiatives

Contaminants released from industrial activities and agricultural practices outside of the North arrive in the NWT through water and air currents. In addition, local pollutants are deposited on land, ice and rivers, and are cycled throughout the Northern physical and biological environments.

The Canadian Biodiversity Strategy (CBS) calls for measures to be strengthened to reduce and eliminate the release of substances, or quantities of substances that are harmful to ecosystem, species and genetic resources. The impacts of human activities on ecosystems and biological resources should be determined, and mitigated where practical.

Three Main Types of Contaminants are Studied Through the Northern Contaminants Program

- **Persistent Organic Pollutants (POPs)**
  POPs are primarily human-made chemicals released from agricultural practices and many industrial processes and products (e.g. PCBs).
- **Heavy Metals**
  Heavy metals, such as mercury, cadmium and lead, are present naturally in rocks and soil. Human activities, such as mining, smelting and coal-burning power generation, may also release these metals to the environment.
- **Radionuclides**
  These contaminants release radiation or energy. They can be naturally occurring (e.g. uranium) or result from human activities, such as atmospheric testing of nuclear weapons and nuclear waste disposal.

Arctic ecosystems show indications of being much more susceptible to biological damage at low levels of pollutants than higher-energy ecosystems in temperate latitudes.

The ***Northern Contaminants Program*** (NCP) was established in 1991 in response to studies in the mid-1980s that showed the presence of contaminants in northern ecosystems. The aim of the program is to work towards reducing and, where possible, eliminating contaminants in traditional/country foods, while providing information that assists individuals and communities in making informed decisions about their food use.

Legislation, such as the *Canadian Environmental Protection Act* (CEPA) and the *Mackenzie Valley Resource Management Act* (MVRMA), provides a tool to regulate and reduce the effects of contaminants released locally in the NWT. CEPA requires that new chemicals be evaluated for their persistence, tendency to bioaccumulate, and toxicity. The MVRMA establishes the Mackenzie Valley Environmental Impact Review Board and the Independent Environmental Audit to evaluate the environmental effects, including contaminant release, of developments or other major habitat alterations.

See ➔ Goal IV for more on legislation and policy on the protection of the environment.

Matrix of Actions – Contaminants Initiatives

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7cd	1.7 1.93 2.22	Continue to implement the ***Northern Contaminants Program***.	INAC with DOH, EC, DFO, GNWT, GYK, GNU, CYFN, Dene Nation, ITK, and ICC	W5

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Environmental Emergency Planning

Environmental Emergency planning is a responsibility shared among many agencies in the NWT. Certain NWT-wide programs facilitate coordination:

- ***Joint Emergency Preparedness Program – NWT partnership*** (Office of Critical Infrastructure Protection and Emergency Preparedness (OCIPEP) – Department of National Defence);
- ***NWT Emergency Plan*** (Emergency Measures Organization – Department of Municipal and Community Affairs); and
- ***Measures for Environmental Disaster Mitigation*** (INAC and DFO).

Plans also are prepared to help coordinate efforts as applied to the Arctic:

- *Emergency Prevention, Preparedness, and Response in the Arctic*, as developed by the Arctic Council.

Find more: W eppr.arctic-council.org

Hazardous waste
Photo: Courtesy of INAC

Quick responses to environmental emergencies greatly reduce their seriousness. In the NWT, ***emergency call lines*** have been established to help the public alert responsible agencies of events that could lead to environmental emergencies:

- Spill line 1-867-920-8130
- Forest fire line 1-800-661-0800

Tracking environmental emergencies and occurrences of natural hazards is an important step in improving response plans and in designing preventive measures.

Some environmental emergencies monitoring programs and tracking systems relevant to the NWT or northern Canada include:

- DOT is implementing a ***Glycol and Biochemical Oxygen Demand Monitoring Program*** at Yellowknife Airport to identify impacts of de-icing products on nearby watershed systems, to limit off-site contamination, and to improve upon existing product application practices;
- ***NWT Hazardous Materials Spill Database*** – administered by RWED (Environmental Protection Division monitors all spills in the NWT); and
- ***Canadian Disaster Database*** – administered by the Office of Critical Infrastructure, Protection and Emergency Preparedness (OCIPEP). The Office provides links to information on emergencies and natural hazards in all regions of Canada, including in the NWT.

Matrix of Actions – Environmental Emergency Planning

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
14e	2.23	Continue coordination efforts such as the ***NWT Emergency Plan*** and participation in the ***Joint Emergency Preparedness Program – NWT Partnership*** and the ***Measures for Environmental Disaster Mitigation*** program.	GNWT, DFO, INAC and others	W6 W7
14de	2.23	Continue to administer ***emergency call lines*** for environmental emergency reporting.	RWED	
14e	2.23	Continue to develop and implement the ***Glycol and Biochemical Oxygen Demand Monitoring Program***.	DOT	
14e	2.23	Continue work with environmental emergency databases such as the ***NWT Hazardous Materials Spill Database*** and provide input to the ***Canadian Disaster Database*** as appropriate.	RWED and others	W8

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

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- Dunster J. and Dunster, K. 1996. Dictionary of Natural Resource Management. UBC Press, Vancouver, BC., 363 pp.

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- W1: www.nwtcimp.ca/audit.html
- W2: www.gov.nt.ca/transportation/index.html
- W3: dsp-psd.communication.gc.ca/collection/r2-208-2002-2E.pdf
- W4: www.ainc-inac.gc.ca/ps/nap/consit/manpol_e.html
- W5: www.ainc-inac.gc.ca/ncp/
- W6: www.ocipep.gc.ca/home/index_e.asp
- W7: www.maca.gov.nt.ca/publications/acrobat/emergency_plan/emergency1.pdf
- W8: www.e-engine.ca/eps_spillreport/

Data and Information Management Initiatives

To be efficient in an adaptive management context, decision makers rely on information that is readily available, in a format that can be easily translated into actions. Information providers need to share data and information across jurisdictions and learn to interpret findings from different perspectives.

Some information management systems have been in place in the NWT for many years. New programs that aim at developing or improving information management mainly build on existing capacity. Currently, the most successful and efficient systems have been designed to be very effective at performing one or few very specific tasks, meeting one goal or fulfilling one vision. The systems and tasks relevant to the NWT include:

Libraries and Publication Databases

The purpose of these databases is to provide printed and audio-visual information for all users.

The *Arctic Science and Technology Information System* (ASTIS) is an internet-searchable database describing publications and research projects about northern Canada. ASTIS is maintained by the Arctic Institute of North America at the University of Calgary. ASTIS covers all subjects, has been in operation since 1978 and contains 52,000 records.

The *Department of RWED Library* and *Parks Canada Library* also provide on-line searchable publications related to northern aspects of the protection and management of the environment, renewable and non-renewable resource management, and the development of economic opportunities.

The *Canadian Science Advisory Secretariat* (CSAS) provides information on scientific publications and stock assessment related to fish, and marine mammals in Canada, including the NWT. The CSAS web site also provides "additional information about assessment processes, methodologies, techniques and vocabulary used in CSAS publications". This agency publishes all stock assessments done for NWT fish species.

Matrix of Actions – Libraries and Publication Databases

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7d	2.11 2.13	Continue to support efforts of the ***Arctic Science and Technology Information System***.	Many partners as part of the Arctic Institute of North America including GC and industry	W1
7d	2.11 2.13	Continue work and support internet access to libraries such as the ***RWED Library*** and ***Parks Canada Library***.	RWED	W2 W12
7d	2.11 2.13	Continue to work with the ***Canadian Science Advisory Secretariat***.	DFO	W3

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Collecting visual information.
Photo: Courtesy of Leslie Leong

Indicators

Biodiversity indicators are information tools, summarizing data on complex environmental issues to indicate the overall status and trends of biodiversity.

Secretariat of the Convention on Biological Diversity www.biodiv.org/programs/cross-cutting/indicators

Indicator Systems

The purpose of these systems is to provide summarized information for decision-makers and the public.

So far there no coordinated systems to track a set of indicators of changes in biodiversity or in sustainable development at the territorial scale. However, ***indicator programs*** have been designed to measure changes at the Canadian scale. Some NWT agencies participate in these Canada-wide systems, which include:

- Atlas of Canada – NRCAN: indicator information on geography, resources, human population, and biodiversity summarized in sets of maps.

  Find more: atlas.gc.ca/site/english/index.html
- National Environmental Indicator Series – National Indicators and Reporting Office of Environment Canada – tracks sustainability indicators and store information in a State of the Environment Infobase.

  Find more: www.ec.gc.ca/soer-ree/
- Environment and Sustainable Development Indicators for Canada – National Round Table on the Environment and the Economy – tracks six indicators on sustainable development in Canada, including the NWT.

  Find more: www.nrtee-trnee.ca/
- Criteria and Indicators (C&I) of Sustainable Forest Management – Canadian Council of Forest Ministers (CCFM) – tracks progress in the sustainable management of forests. The National Forestry Database Program (see below) was initiated to help summarize information into indicators. RWED Forest Management provides data and information to the C&I program for the NWT.

  See ➔ Goal I *Forest Initiatives* for more information on forest indicators.

Matrix of Actions – Indicator Systems

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7a	1.09 1.67 2.22 2.28	Continue participation in ***indicator programs*** as appropriate.	Many partners	W6

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Species Infobase Systems

The purpose of these systems is to provide specialized information on species for technical users.

Internet-based systems have been developed to share information and data on individual species. These systems share a basic goal: to provide species-specific information for determining their biological status, and to share technical standards. These systems contain information relevant to northern biodiversity and their biological status at two scales:

Territorial scale:

- ***NWT Species InfoBase*** – part of the General Status Ranks of Wild Species in the NWT

See ➔ Goal I *Species at Risk* for more information.

Canadian scale:

- *COSEWIC Species Database*

Find more: www.cosewic.gc.ca

Matrix of Actions – Species Infobase Systems

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7d	2.13 2.11 2.14	Continue work on the ***NWT Species InfoBase*** in coordination with other similar programs in Canada and elsewhere.	RWED, CWS, DFO, SRRB, GRRB, WMAC-NWT, FJMC and partners	W11

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Metadatabase and Database Systems

The purpose of these systems is to provide information on databases and specialized data for technical users.

The ***Northern Information Network*** (NIN) hosts metadata on geo-referenced databases, and provides links to documents pertaining to resource management and economic development in the North.

The ***National Forestry Database Program*** was initiated in 1990 by the Canadian Council of Forest Ministers (CCFM) to "develop a public information program, and provide forestry information to the federal, provincial and territorial policy processes."

See ➔ *Criteria and Indicators of Sustainable Forest Management*, above.

EMAN-North's ***Information Centre*** provides a searchable internet-based system for status and trend information related to biodiversity and the environment in northern Canada, "with accompanying descriptions of methods, contacts, links, limitations, interpretations, summaries, etc." Databases related to some studies also are made available.

Matrix of Actions – Metadatabase and Database Systems

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7d	2.13	Continue work on the ***Northern Information Network***.	INAC	W5
7d	2.11 2.13	Continue to provide information and share data for the ***National Forestry Database Program*** as appropriate.	Partners in CCFM, in the NWT: RWED, FM	W4
7d	2.11 2.13 2.14	Continue to provide information and share data for the ***EMAN-North Information Centre*** as appropriate.	EMAN-North members	W7

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Geospatial Data Systems

The purpose of these systems is to provide geospatial and remote sensing data for all users.

GeoBase is a "federal, provincial and territorial government initiative overseen by the Canadian Council on Geomatics (CCOG)" created to enhance access to geospatial databases, tools and services in Canada. The GNWT is a member of the CCOG, and is participating in GeoConnections. GeoConnections helps establish geospatial standards and tools to providers and users across Canada.

GNWT is developing a ***Geospatial Data Warehouse*** that will help provide geospatial data, including data on biodiversity and resource development, to users in government, industry and the general public in the NWT. The warehouse will coordinate efforts with GeoConnections, as part of our efforts to improve access to geospatial information across Canada.

In the NWT some online GIS web sites already provide a visual access to digital maps and spatial datasets:

- *SID-Viewer (Spatial Information for DIAND)* – provides online GIS mapping of land use, land claim parcels, development, permits, leases, as well as geological provinces, national wildlife areas, wildlife sanctuaries, migratory bird sanctuaries, national parks, and federal hydrometric monitoring stations, water quality monitoring stations, and snow survey monitoring stations for the NWT and Nunavut.
  Find more: nwt-tno.inac-ainc.gc.ca/ism-sid/index_e.asp
- *The Deh Cho Atlas* – provides sets of maps developed for land use planning by the Deh Cho Land Use Planning Committee.
  Find more: www.dehcholands.org/atlas/index.html
- *The Fort Liard Resources Directory* – online GIS of geological, ecological and infrastructure information in the Fort Liard area.
  Find more: www.liardresources.nt.ca/gis.htm
- *Beaufort-Mackenzie Mineral Development Area* (BMMDA) – online GIS for the Mackenzie Delta area.
  Find more: www.bmmda.nt.ca/

Matrix of Actions – Geospatial Data Systems

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7d	2.12 2.13	Continue participation in ***GeoBase***.	Many partners in Canada, GNWT	W8
7d	2.12 2.13	Continue development and implementation of a ***NWT Geospatial Data Warehouse***.	GNWT with partners	

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Map and compass on the tundra.
Photo: Courtesy of Leslie Leong

Tracking Systems

The purpose of these systems is to provide information on activities for decision-makers and the public.

Decision-makers and the public can use "tracking" systems to keep track of implementation successes and challenges. Tracking systems can offer complete lists of activities performed to meet specific goals in a program, can provide a tally of related programs in an area, or can provide access to all the documents forming the basis of decisions, as related to specific legislation. Biodiversity-related tracking systems include:

- *NWT Biodiversity Action Plan – Matrix of Actions* will keep a current list of all NWT activities on biodiversity as related to the Canadian Biodiversity Strategy and the United Nations Convention on Biological Diversity. This internet-based activity list is being developed using, as a starting point, the "Matrix of Actions" tables in the present report.
  Find more: www.nwtwildlife.com/biodiversity/biodiversity_action_plan.htm
- *Aurora Research Institute – Compendia of Research in the NWT*
  Find more: www.nwtresearch.com/
- *Species At Risk Act – The Public Registry*
  Find more: www.sararegistry.gc.ca/
- Mackenzie Valley Environmental Review Board – Public Registry
  Find more: www.mveirb.nt.ca/
- *CIMP-Tariuq Inventory* keeps track of monitoring activities in the NWT for the NWT CIMP and the Tariuq (Ocean) Monitoring Program. Its also includes a metadatabase of current and historic data on environmental, social, economic, and community monitoring and research. It is internet-based and updated regularly.
  See ➔ Goal II *Inventory, Monitoring and Research* for more information on NWT CIMP and the Tariuq (Ocean) Monitoring Program.
- Parks Canada is developing a tracking database of all monitoring programs in National Parks.

Matrix of Actions – Tracking Systems

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7d	2.27 3.4	Develop and implement the ***NWT Biodiversity Action Plan – Matrix of Actions***.	RWED with NWT Biodiversity Team	
7d	2.3 2.27 3.4	Continue to produce summaries on research such as the ***Compendia of Research in the NWT***.	ARI	W13
7d 8f	1.21 1.28 2.27 3.4	Continue to implement the ***Species at Risk Act Public Registry***.	EC	W14
7d	1.59 1.63 1.64b 2.15 2.18 2.27 3.4	Continue to develop and implement the ***CIMP-Tariuq Inventory***.	Partners in NWT CIMP and Tariuq programs	W9

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Wolf tracks
Photo: Courtesy of Leslie Leong

Improvements to Information Management Systems

Information Management initiatives usually aim at resolving two types of issues related to data and information sharing: process barriers and technical barriers. Process barriers occur when people do not share the same vision for an Information Management System, and technical barriers occur when people do not share technical standards. The latter barriers are easier to solve after process barriers have been overcome. The following initiatives aim at creating new IMS or improving current processes.

An overview of our needs for a ***NWT Information Management System*** (IMS) was conducted in support of the NWT CEAM Framework and Strategy and the NWT CIMP (see Box 4 in this section). The overview, based on survey results and workshops, provided a snapshot of how some NWT organizations are currently implementing a form of IMS internally or as a component of partnerships. It also provided a list of recommendations on how to implement a NWT-wide IMS that would meet the information needs for the NWT CIMP.

The objective of the ***Canadian Information System for the Environment*** (CISE, under development) is to provide a comprehensive internet-based gateway to environmental information. Once complete, this initiative will provide links to "raw data, interpreted (summarized) information, indicators, reports, standards and more." The main target group for the system is decision-makers on environmental and biodiversity issues. The system relies on the current capacity of partner agencies and jurisdictions in Canada, and uses new internet-based technologies to integrate environmental data from multiple sources. CISE will rely on enhanced federal, regional, provincial, and territorial information management systems to meet its objective at the Canadian level.

Matrix of Actions – Improvements to Information Management Systems

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
7d	2.11 2.12 2.13	Use information and advice gathered during the workshops to develop a ***NWT Information Management System***.	Partners in NWT CEAM and NWT CIMP	W9
7d	2.11 2.13	Provide northern input and develop the ***Canadian Information System for the Environment***.	EC and partners	W10

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Improving knowledge
Photo: Courtesy of Tessa Macintosh

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- W1: www.aina.ucalgary.ca/astis/
- W2: www.gov.nt.ca/rwed/library/
- W3: www.dfo-mpo.gc.ca/csas/
- W4: www.nrcan.gc.ca/cfs-scf/national/what-quoi/sof/latest_e.html
- W5: sdiprod2.inac.gc.ca/nin/
- W6: nfdp.ccfm.org/
- W7: www.emannorth.ca/ic/about.cfm
- W8: www.geobase.ca/
- W9: www.nwtcimp.ca/ and www.ceamf.ca/03_reference/reference_infomgmt.htm
- W10: cise-scie.ca/english/home.cfm
- W11: www.nwtwildlife.rwed.gov.nt.ca/monitoring/speciesmonitoring/default.htm
- W12: collection.nlc-bnc.ca/100/200/301/parkscanada/fire_in-ef/index_e.htm
- W13: www.nwtresearch.com/
- W14: www.sararegistry.gc.ca

"Land means everything natural."

Deh Cho Dene, Deh Cho First Nation
Photo: Courtesy of Chris O'Brien

Box 4 – A "PACT" with the Land: Cumulative Effects Assessment in the Context of Adaptive Ecosystem Management in the NWT

Some Northern Perspectives

***P**eople are part of ecosystems.*

This view explains how the environment has shaped the social fabric of northern cultures, as well as how the actions of northern people affect the environment.

***A**lways, ecosystems will change.*

The daily lives of northern people need to accommodate changes taking place on the land. Northern people's life stories are still strongly influenced by major natural events. In societies where long-term and holistic perspectives are favoured, far-reaching ecosystem changes are regarded as a part of life that all should be aware of and "respect".

***C**ooperation holds societies together.*

Communication, consultation, participation and consensus are well-accepted tools for making decisions in the North. In the NWT, the political system is based on consultation and consensus, making it along with Nunavut, unique in Canada. Sharing knowledge from different sources – scientific and traditional knowledge – is encouraged and acknowledged.

***T**otal understanding is not possible.*

Northern societies have adapted to appreciate and learn from uncertainties and the unexpected. This uncertainty is accepted in decision-making, where unforeseen challenges are viewed as an opportunity to learn more.

Find More: These are similar in some aspects to the *"Malawi"* principles of ecosystem management defined during a conference under the Convention on Biological Diversity (CBD).
See information in www.biodiv.org/programmes/cross-cutting/ecosystem/principles.asp

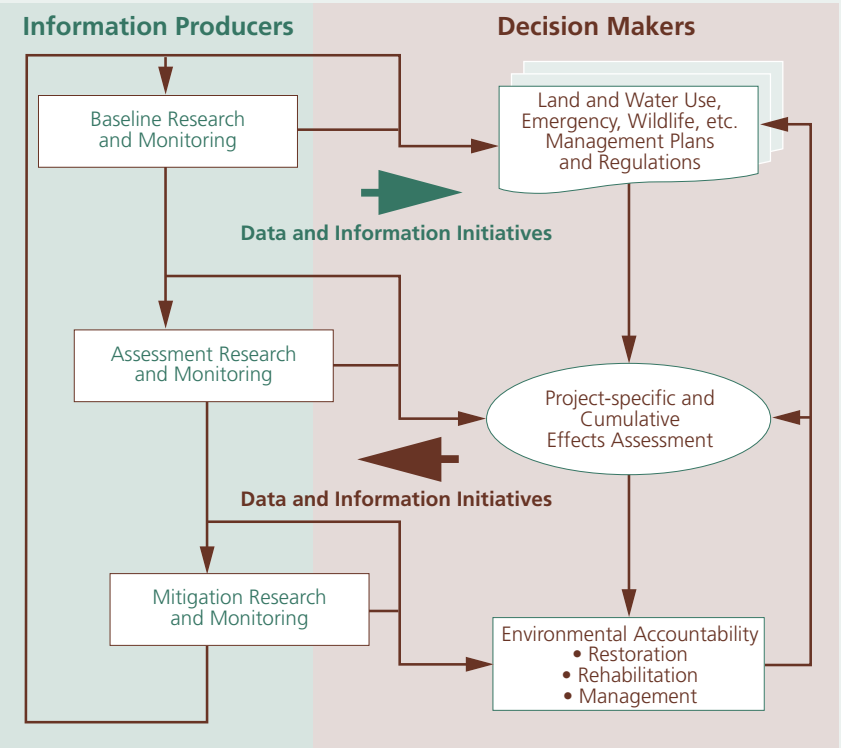
Long-term Perspective with a Recent History

Adaptive ecosystem management and cumulative effects assessment methods are quickly becoming required practice in the NWT. This may be because the principles described above are formally integrated in these methods (Holling 1978, Kennedy 2002).

Adaptive Ecosystem Management – "Learning with the Changes"

The principles described above are part of adaptive management. Formal adaptive management requires consultation, information sharing, and monitoring at all phases of decisions making. Information and data gathering is performed at different phases and shared amongst people. Decision-makers also produce information that can be shared to improve research, monitoring, management planning and future assessment or restoration.

See a simplified diagram on information exchange in adaptive management.



Cumulative Effects Assessment – "A Long and Big Look" and a Pivotal Part of Adaptive Ecosystem Management

Formal Cumulative Effects Assessment (CEA) is part of adaptive management techniques and requires that the effects of both natural and human-made changes be studied. CEA integrates present and past development projects, over a large area, over a long period of time. Looking at the effects of both human activities and natural changes over a large area is often called landscape management. Landscape management is part of a formal CEA process.

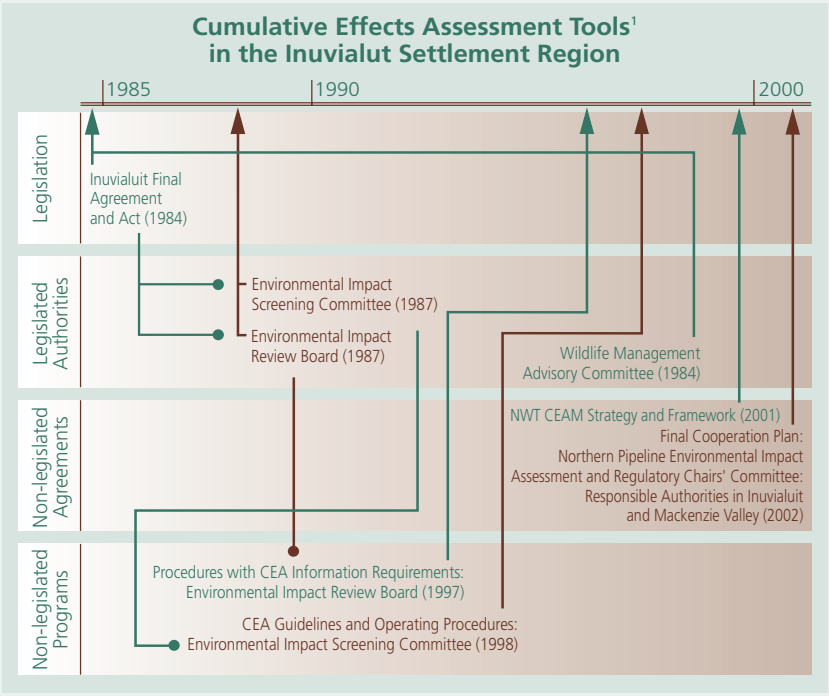
Some aspects of adaptive management and CEA are similar to many traditional perspectives about northern people's relationship with the land. Some northern organizations regard these methods as a welcome return from conventional piece-meal methods of management and assessment to a more holistic and long-term approach to making decisions about the Land.

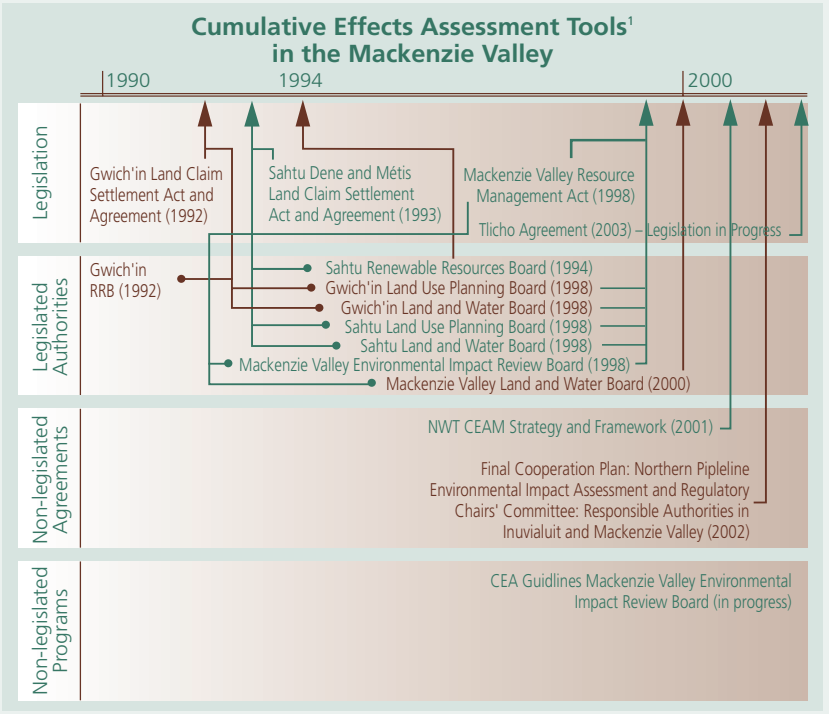
Changing Tools: New Processes, Boards and Committees

The way we manage our activities and the way we assess the effects of projects on regions of the NWT continue to evolve. Recent changes include the creation of new boards, committees, and regulatory processes. These new tools differ between the Inuvialuit Settlement Region and the rest of the NWT (called the Mackenzie Valley). Together, they form the basis for developing a Formal CEA process in the NWT (see timeline diagrams on next page). Formal CEA is an important building block of effective adaptive ecological management for the NWT.

Lists of tools available in the NWT for performing adaptive ecological management and instating formal CEA are provided in Appendix 3.

> *"Scientists like to talk about things apart. We think in holistic terms and cannot think about things separately."*
>
> *Bella T'selie, Liidlii Kue, Denendeh 2003*





[1] *These tools are relevant to many other aspects of Ecological Management in the NWT.*

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Documents Cited

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- Holling, C. S. 1978. Adaptive Environmental Assessment and Management. Wiley International Institute of Applied Systems Analysis. Toronto, ON., 377 pp.

Box 5 – Exotic Species in the NWT: Our Capacity for Action…

Habitat change and invasive exotics have proven elsewhere to be the most damaging threats to wild native species and ultimately to our economy.

Legislations related to exotic species take the approach of listing invasives to prevent their importation and transfer within Canada. This "black list" approach requires prior knowledge that a species is invasive and will cause harm.

Federal legislation relevant to the NWT includes:

- *Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act;* and
- *Plant Protection Act* (1990)
  This legislation lists "pests" that are harmful to the agricultural and forestry industries, restricts importation, exportation, and transport as well as provide mechanisms for control and eradication.
- *Health of Animals Act* (1990)
  This legislation lists diseases that can be carried by exotic animals entering Canada and that may be transmitted to humans; restrict importation of listed diseases.
- *Seeds Act* (1997) lists "noxious weed" to protect crop seed integrity for the agricultural industry; regulates importation.

The *NWT Wildlife Act* (1978) prohibits the importation of any wildlife into the NWT without a permit. This can provide some measures to stop the importation of vertebrate species that could be harmful to our ecosystems.

Mammals and Birds

Our capacity to detect mammal and bird species that are exotic and are capable of reproducing in the wild in the NWT is greater than for any other group of species.

Introduced/exotic mammals that have been found living freely in the wild in the NWT include the European Wild Boar *(Sus scrofa domesticus)* and the Horse *(Equus caballus)*.

These were actively removed from the wild or had very limited reproductive capabilities and subsequently died out.

Mammals have been actively introduced in the NWT in the past. For example, Reindeer *(Rangifer tarandus)* have become naturalized near Inuvik. Although reindeer is the same species as the native Caribou, reindeer stock came from outside the NWT and they, like horses, may carry parasites and disease strain that were exotics. The native wildlife may have little adaptation to combat these strains transmitted from domestic or introduced wild mammals. Western Equine Encephalitis isolated from caribou at Collinson Point near Inuvik in the 1960s may have been transmitted from resident Reindeer or horses present in the Inuvik Region at the time. Plain Bison *(Bos bison bison)* introduced in the Wood Buffalo National Park carried brucelosis and tuberculosis, which were then transmitted to Wood Bison native of the NWT.

Introduced

Organisms that have evolved outside a specific area (e.g., the NWT) and have been actively or indirectly relocated by human activities.

Exotic

Organisms that have evolved elsewhere and have been actively or indirectly relocated thought human activities. "elsewhere" in North America usually means from outside the continent. Synonymous to "non-native", "alien" or "non-indigenous".

Invasive

Species or sub-species that are able to spread and prosper in natural ecosystems where they have not occurred before.

House Sparrow (male)

Photo: Courtesy of museum.gov.ns.ca/ mnh/nature/ winbirds/pics/ hsparrow.jpg

Some mammal and bird species found predominately further south are now present in the NWT and becoming more abundant, for example the Mountain Lion *(Felis concolor)* and the White-tailed Deer *(Odocoileus virginianus)*. Whether or not these species should be tagged as "introduced" depends on our definition of "indirectly relocated by human activities", which could include land use changes and effects of climate change. These "southern" species also carry parasites and diseases, some of them originating from outside North America, that are not found yet in NWT wildlife.

Exotic birds are found near towns in the NWT. They include the House Sparrow *(Passer domesticus)* and the European Starling *(Sturnus vulgaris)*. These birds are Euro-Asian in origin, were introduced to North America at least a century ago, and since then have dispersed with humans. These species stay for the most part near human settlements, and are not known to invade undisturbed ecosystems in the North.

Fishes

Our capacity to detect fish species introduced in the NWT depends on whether or not the introduction was legal. Past legal fish introductions included lake stocking of Rainbow Trout *(Oncorhynchus mykiss)* and Brook Trout *(Salvelinus fontinalis)*; both are native to North America, but not native to the NWT. Fish introduction is no longer done in the NWT.

Plants

Our capacity to detect introduced plant species in the NWT is increasing with the help of researchers from universities, Agriculture Canada and museums including the Canadian Museum of Nature.

So far 95 species of exotic vascular plants have been identified in the NWT. This number is a minimum estimate. In other Canadian jurisdictions, about 20 to 30% of all vascular plant species are exotics. In the North, this proportion is lower at 3% in Nunavut to 10% in Yukon. Eight percent of NWT plants are exotics.

Of the exotic plants found in the NWT, some species like the Common canary grass *(Phalaris canariensis)* are major invasive plants. Leafy spurge *(Europhorbia esula)* has not been found yet in the NWT but was observed in Alberta as far north as High Level.

Invertebrates, Bacteria and Viruses

So far more than 3,000 species of invertebrates have been described in the NWT, of which an unknown number are alien to North America.

Our capacity to detect recently introduced invertebrates in the NWT is relatively poor. The Canadian Forest Service and recently the RWED Forest Management monitor one exotic insect pest in the NWT, the Larch sawfly *(Pristiphora erichsonii)*. This species is widespread, attacking larch as far north as the tree line. Amber-marked Birch leaf miner *(Profenusa thomsoni)*, another exotic insect, has infested birches in both Hay River and Yellowknife. A monitoring and control program using endo-parasitoids has been initiated.

The GNWT monitors the spread of exotic bacteria and viruses that have effects on human health (e.g., West Nile Virus, Hantaviruses), and monitors species or cases that will affect wildlife only.

Management Pathways and Risk analysis

Pathways of entry and spreading avenues of exotics in the NWT are similar to those in other Canadian jurisdictions: pet industry, horticulture garden/tree industry, road/air/ship travel, infested wood packaging, road maintenance, land clearing, land restoration, active importation, and at a very small scale, farming and ranching. We still do not know the relative importance of each of these pathways in the NWT. Ports harbouring ships with international routes, a major pathway of entry, are not present in the NWT.

Blocking pathways of entry is a major step in managing risks related to exotics. Tools to block or control pathways include education, inter-jurisdictional cooperation, monitoring programs, policies and legislations.

Our knowledge of the damage done so far by exotic invasive species in the NWT, or in other countries in similar northern ecosystems, is still limited. This knowledge would contribute to our understanding of risk to native wildlife and ecosystems, and ultimately to the NWT economy. Tools that can help us analyze risk include reviews of past experiences, reviews of analyses done in adjacent jurisdictions and in other northern regions, and ultimately use of adaptive management to study efficiency of control measures.

Find More

- W1: www.cws-scf.ec.gc.ca/publications/inv/cont_e.cfm
- W2: ipmofalaska.homestead.com/files/leafminers.htm
- W3: www.rbg.ca/cbcn/en/invasives/invade1.html
- W4: www3.gov.ab.ca/srd/forests/health/
- W5: www.nature.ca/research/ccb_e.cfm

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In 2003, a previously overlooked exotic, Scentless Chamomile *(Tripleurospermum perforata)* was found along roads in southern NWT.

Photo: Courtesy of GNWT Department of Transportation

GOAL III

To promote an understanding of the need to conserve biodiversity and use biological resources in a sustainable manner.

Biodiversity Education Initiatives

In most indigenous cultures around the world there is an unwritten ethic of respect for the land, animals, and plants that the people depend on for their survival. The Dene, Inuit, Inuvialuit, and Métis people of the Northwest Territories have been taking care of this northern land for many generations, and have been passing this acquired knowledge down through stories, songs, and cultural practices.

Ensuring education and awareness of the need to protect the land and use its resources in a manner that will preserve resources for future generations are inherent in the land use ethic prevalent in aboriginal families, communities, traditions, and culture. This section therefore presents not only initiatives dealing with education and awareness of the science of biodiversity, but also of traditional ecological knowledge and values.

Environmental Education Programs

In 1996, the Department of Resources, Wildlife and Economic Development (RWED) developed ***Focus on Forests*** from a similar program run by the Ontario Ministry of Natural Resources. Focus on Forests attempts to provide students with opportunities to examine trees and forests around them, develop an understanding of the components in a forest community and their interrelationships, observe processes of change in the forest and develop an understanding of the concept of responsible forest management. This educational program includes an activity guide for students and teachers from Kindergarten to Grade 6, as well as tie-ins to formal school curricula. Kits have been distributed to all NWT elementary schools, and workshops on program delivery are offered to educators.

Project WILD, administered in the NWT by RWED, is a program based on the premise that young Canadians have a vital interest in learning about their natural world, how their actions affect the sustainability of life on our planet, and how they can become responsible inhabitants of the earth. Like the NWT's Focus on Forests package, this program is cross-referenced to school curricula, and is designed to be integrated into mandated curriculum subjects such as art, physical education, science, and social studies.

Twenty-six primary and secondary schools in 15 communities throughout the NWT are involved in a worldwide hands-on education and science program called ***GLOBE***. Through this program, students collect scientific data on atmosphere, soils, hydrology, and land cover/phenology, and submit it to an international database.

Bird banding

Photo: Courtesy of Stephen Cumming

Kids on the land.
Photo: Courtesy of Tessa Macintosh

The Gwich'in Renewable Resource Board (GRRB) organizes an annual ***Nature Day***. This environmental education program is being offered to Grade 3 students at elementary schools in the four communities of the Gwich'in Settlement Area (Inuvik, Aklavik, Tsiigehtchic, and Fort McPherson), and gives young people a deeper understanding and respect of the land and its resources.

The World Wildlife Fund Canada (WWF) promotes awareness of conservation issues and the importance of biodiversity in the NWT through its ***school conservation, awareness*** and ***education program and information campaigns*** as a part of its Arctic Conservation Program. This includes the distribution of educational materials for integration with school curricula across Canada.

Matrix of Actions – Environmental Education Programs

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
13a	3.1b 3.3 3.4	Continue to support and promote biodiversity educational programs such as ***Focus on Forests***.	RWED	
13ab	3.1b 3.3 3.4	Continue to support and promote biodiversity educational programs such as ***Project WILD***.	CWF, RWED	W1
13ab 17.1	3.1b	Continue to participate in programs like the the ***GLOBE Program***.	NWT schools, USFIP	W2
13a	3.1b	Continue to promote the ***Nature Day Educational Program***.	GRRB, RWED, PCA, ARI, GTC, GLWB	
13ab	3.1b 3.3 3.4	Continue to support and promote ***WWF's school conservation, awareness and education program***.	WWF	W3

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Biodiversity Education Publications

In 2003, WWF Canada released its first biennial ***Nature Audit***, a report on Canada's efforts to conserve biodiversity. The report's primary objective is to assess how Canada is doing in meeting its major international and domestic commitments to conserve biodiversity in order to help set conservation priorities for the 21st century.

The *General Status Ranks of Wild Species in the Northwest Territories* describes the current state of our knowledge about all wild species in the NWT. This report identifies priorities for research and monitoring of species, and provides a clear evaluation system and status ranks of species to guide conservation and impact assessment decisions. The next version of the report is due in 2005.

Let's Go… Fishing/Hunting/ Trapping Activity Books
Photo: Courtesy of RWED collection

RWED publishes ***Species at Risk Fact Sheets*** on endangered species in the NWT to provide the public with more information on these species. Several other ***biodiversity-related publications*** are also available, some of which are targeted specifically at teaching children about the natural world. These include:

- **Trees and Shrubs of the NWT.** A pamphlet and foldout poster of the trees found in the NWT.
- **Let's Go… Fishing/Hunting/Trapping.** A series of three fun filled activity books for children from Kindergarten to Grade 6. These are also available in French.
- **Guide to Fossils in the Norman Wells Area.** This publication describes past biodiversity and a geological history of the Norman Wells area.
- **Wild and Wacky Plants of the NWT.** 2002. An introduction to 35 NWT plants. Class sets were distributed to all NWT elementary schools.
- **Arctic Animals.** This book deals with a select number of mammals, birds and fish found above the tree line in the NWT.

Several ***newsletters*** are published that provide updates on projects and actions related to biodiversity protection in the NWT. These include *Perspectives* (Canadian Arctic Resources Committee), *EnviroZine* (Environment Canada), *WWF* newsletters, *Special Places* (NWT Protected Areas Strategy), and the newsletters of the Sahtu Renewable Resources Board and the GRRB. Ecology North and the Canadian Parks and Wilderness Society (CPAWS-NWT) also educate and update members on measures that can be taken to prevent or reduce our impacts on biodiversity through their *e-mail distribution lists*.

Outside activities

Photo: Courtesy of Gwich'in Renewable Resource Board

Matrix of Actions – Biodiversity Education Publications

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
13a	3.3 3.4	Continue to promote and distribute WWF's ***Nature Audit***.	WWF	W3
13a	3.4	Continue to publish and promote the ***General Status and Ranks of Wild Species in the NWT***.	RWED	W8
13a	3.4	Continue to publish and promote ***NWT Species at Risk Fact Sheets***.	RWED	
13a	3.1b 3.3 3.4	Continue to produce and promote ***biodiversity-related publications*** to teachers, communities, and individuals.	Many partners	W7
13a	1.95 3.3 3.4	Continue to publish and maintain ***newsletters and distribution lists*** related to biodiversity protection and sustainable use.	Many partners	

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Biodiversity Education Resources

The NWT has many biodiversity resources available to instructors, classes, or individuals who are interested in learning more about biodiversity. RWED has ***Public Education Specialists*** on staff that promote science and conservation education in the NWT.

Sociocultural and research institutes can also provide resources and information about land use ethics and lifestyles that contribute to the sustainable use of biological resources in the NWT. For example:

- The ***Dene Cultural Institute*** coordinates research and educational activities that protect and promote Dene culture, languages, spirituality, heritage, tradition and customs; and
- The Gwich'in founded the ***Gwich'in Social and Cultural Institute*** (GSCI) in 1992 in response to concerns about the erosion of the Gwich'in culture and language. The mandate of the GSCI is to document, preserve, and promote the practice of Gwich'in culture, language, traditional knowledge and values.

The ***Aurora Research Institute***, the Inuvik Research Centre and the South Slave Research Centre administer wildlife research projects across the NWT.

Many parks and communities in the NWT have ***interpretive centres or trails*** that teach visitors about the plant and animal species of local ecosystems. For example, the Northern Forest Interpretive Trail and brochure for Chuk Park have been developed by the GRRB in collaboration with RWED and the Town of Inuvik. The self-guided trail focuses on features that are unique or significant to the ecology of northern forests and cultural elements such as traditional and present day use of forest resources by the Gwich'in.

Matrix of Actions – Biodiversity Education Resources

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
13a 17.1	3.1 abcd 3.3 3.4	Continue to support the position of ***Public Education Specialist***.	RWED	
8j 17.1	2.3 7.1 bcde	Continue to promote Dene knowledge about the NWT and its biodiversity through the ***Dene Cultural Institute***.	Dene Nation	W11
8j 17.1	2.3 7.1 bcde	Continue to promote Gwich'in knowledge about the NWT and its biodiversity through the ***Gwich'in Social and Cultural Institute***.	GTC	W12
12b	2.1 2.2	Continue to administer wildlife research projects through the ***Aurora Research Institute***.	Aurora College, ECE	W13
8j 13a	3.1c	Continue to support park and community ***interpretive centres*** and ***trails***.	NWT communities, RWED, PCA, and others	

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[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Outdoor learning
Photo: Courtesy of Stephen Cumming

Opportunities for Formal Education and Training

Educational institutions offer courses or resources related to biodiversity and sustainable use of biological resources. In the NWT, Aurora College offers a two-year ***diploma program in Natural Resources Technology*** which links opportunities to learn from experience in the field with academic lessons in the classroom and skill training in the laboratory. Many graduates of this program move on to careers as natural resource technicians and officers, and environmental managers in the field of wildlife, forestry, marine and freshwater fisheries, planning, water resources, environmental protection, parks, and land claim resources management.

The University of the Arctic also offers a ***Bachelor of Circumpolar Studies*** through Aurora College, which includes coursework in "Land and the Environment". The courses may be delivered online or in a classroom environment at UNBC in Prince George, BC.

In 1961, the Government of Canada established the Northern Scientific Training Grants Program to encourage Canadian universities to participate in training northern specialists to meet national needs. Today, the program is known as the ***Northern Scientific Training Program*** (NSTP) and is managed by Indian and Northern Affairs Canada (INAC). It is helping create a number of polar experts by funding approximately 300 students annually at over 35 universities across Canada. The program supports scientific training provided by Canadian universities, which gives advanced students professional experience in the North and encourages them to develop a commitment to northern work.

Many communities throughout the NWT support a ***Community Monitoring Program*** that informally trains community members in environmental monitoring. ***Occupational Standards*** have also been developed through ECE, the Building Environmental Aboriginal Human Resources (BEAHR) project, and Aurora College that will certify and standardize Environmental Monitors and Environmental Technical Assistants to be involved with Community Monitoring Programs in the NWT.

See ➔ Goal II for more information on monitoring programs.

BEAHR (Building Environmental Aboriginal Human Resources) is a national initiative committed to enhancing aboriginal employment in the environment sector through career awareness, training and employment resources, and the recognition of environmental excellence. A national strategy for BEAHR was developed in 2003 with the input of Aboriginal people, the environment sector, educators and governments. Over the next 15 years BEAHR looks to increase aboriginal participation in the environment sector by facilitating the development of 6,000 new Aboriginal environmental practitioners.

Elders on the land.
Photo: Courtesy of Leslie Leong

Since 1996, the ***First Nations Forestry Program*** (FNFP) has funded some 1,326 projects across Canada through partnerships with First Nations, industry, and the Government of Canada. The program seeks to develop individual skills and capacities, while improving the economic conditions in First Nation communities with full consideration of the principles of sustainable forest management.

See ➔ Goal I *Forest Initiatives* for more information on programs for sustainable Forest Management.

The GRRB has established initiatives to encourage young beneficiaries of the GSA to pursue careers in renewable resources by giving them the opportunity to gain hands-on work experience in these fields:

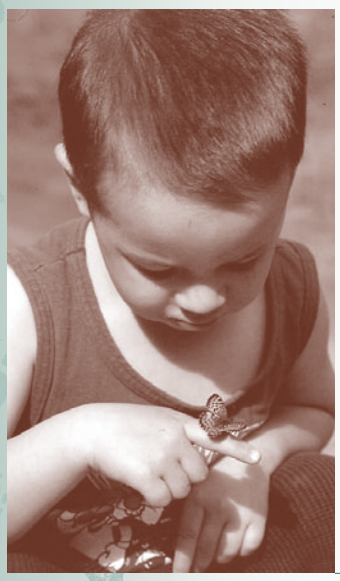
- Developed in 1999, the ***Youth Renewable Resource Work Experience Program*** provides youth with opportunities for "hands on" work experience in renewable resources to encourage them to pursue a career in this field. Local Gwich'in youth are taken into the field with GRRB staff and other researchers to help with wildlife, fisheries and forestry field projects for a day or two at a time.
- Five ***trainee positions*** and ***several summer student positions*** have been created to allow young Gwich'in to gain valuable work experience and provide an opportunity to learn what is involved in managing renewable resources in the GSA.

The SRRB also has a ***Student Wildlife Biologist*** position, in cooperation with RWED-Sahtu Region and Parks Canada Agency (PCA). The summer student assists with laboratory examinations and field surveys, including waterfowl banding, Dall's sheep surveys in the Mackenzie Mountains, and raptor surveys in Tuktut Nogait National Park.

Grade 10 students in the Inuvialuit Settlement Region (ISR) are learning about the Arctic Ocean the traditional way through a program called ***Oceans 10***. The Department of Fisheries and Oceans (DFO), in conjunction with government departments from the three territories, has developed an arctic marine science curriculum for Grade 10 students. The goal of the course is to promote an understanding of oceans, ocean processes, marine resources, ecosystems, and oceans governance among northern youth. One unique aspect of this course is its use of traditional ecological knowledge to illustrate and teach scientific principles.

Several Trapper Training Programs have been established within the NWT to enhance youth with bush skills and respect for the land. These programs focus on students who are committed to working hard and want to learn more about their culture and traditions.

Students in the NWT learn about biodiversity firsthand.
Photo: Courtesy of Leslie Leong



- The ***Sahtu Conservation Education Program*** teaches youth from the Sahtu Settlement Region (SSR) trapping and survival skills, including first aid, pelt preparation, sorting, grading and fur marketing, as well as English language arts, Math, and Sciences.
- RWED-Sahtu Region has a ***Take-a-Kid Trapping Program***, in which RRC/local community members are taking youth out to demonstrate how to trap.
- In the North Slave Region, the ***Bliss Lake Trapper Training Program*** teaches youth about the basics of trapping, on the land survival techniques, traditional knowledge, and the effects forest fire has on the land.
- A project coordinates and presents programs for local community people to become ***trapping instructors***. This two-day course teaches humane, safe and effective use of trapping devices and methods, using International Humane Trapping Standards, under the *Agreement on International Humane Trapping Standards*.

Matrix of Actions – Opportunities for Formal Education and Training

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
12a 13a	2.26 3.2	Continue to offer and develop the ***diploma program in Natural Resources Technology***.	Aurora College, ECE	W14
12a 13a	2.26 3.2	Continue to support and promote an appreciation of the North by northerners through educational programs such as the ***Bachelor in Circumpolar Studies***.	University of the Arctic (Aurora College, ECE)	W15
12b	2.26	Continue to fund northern scientific research through the ***Northern Scientific Training Program***.	GC	W16
12a 13a	2.26	Continue to support training initiatives such as the ***Community Monitoring Program***.	NWT communities, ECE, RWED	
12a	2.26	Continue to support the development of ***Occupational Standards*** for Environmental Monitors and Environmental Technical Assistants.	ECE, BEAHR	W17
8j 10c	2.25 7.1b	Continue to support increased Aboriginal participation in the environmental sector through ***Building Environmental Aboriginal Human Resources (BEAHR)***.	CCHREI, AHRDCC, with funding from HRDC	W17
8j 10c 12a	2.25 2.26 7.1b	Continue to support and promote the ***First Nations Forestry Program*** and the ***Forestry Training Program***.	INAC, First Nations, and industry	W18
12a 13a	2.25 2.26	Continue to offer programs such as the ***Youth Renewable Resource Work Experience Program*** and ***trainee and summer student positions*** that allow young people of the NWT to gain experience in the fields of biological sciences and renewable resource management.	GRRB, SRRB	W9

Matrix of Actions – Opportunities for Formal Education and Training (continued)

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8j 10c 12a 13a	2.26 7.1b	Continue to support and promote education about the marine environment and its biodiversity through educational programs such as ***Oceans 10***.	DFO, GNWT, GYK, GNU	W19
8j 10c 12a 13a	2.26 7.1b	Continue to support and encourage participation in the ***Bliss Lake Trapper Training Program***, the ***Sahtu Conservation Education Program***, and the ***Take a Kid Trapping Program***.	FIC, Youth Secretariat, RWED, HRDC, SRRB, Sahtu Divisional Board of Education, INAC, FHA, SSI/SDC	
8j 10c 12a 13a	3.2 7.1b	Continue to support the teaching of humane trapping practices through the ***Trapper Trainer Program***.	FIC, RWED, MACA, SSI, Sahtu Divisional Education Council, and other partners	

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[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

Scholarships

Several scholarships are offered across the NWT to northerners pursuing post-secondary studies in the fields of renewable resource management and conservation. These include:

GRRB scholarships:

- *Jimmy Edwards Sittichinli Scholarship*. This scholarship, administered by the GRRB, is named after the Reverend Jim Edwards Sittichinli, a respected Elder who was committed to the land and wildlife.
- *Johnny D. Charlie Memorial Scholarship*. Johnny D. Charlie was a respected Elder devoted to his people, the land and wildlife. The GRRB has established a student work scholarship in his memory.

Northern Science and Research Council funding:

- *Northern Research Chairs Program*. The Northern Science and Engineering Research Council established this program to augment and promote Canadian university northern research and training in the natural sciences and engineering.

Outdoor education starts early – Airport Lake, Wrigley
Photo: Courtesy of Leslie Leong

Arctic Institute of North America scholarships:

- ***Jennifer Robinson Memorial Scholarship***. Awarded to a graduate student in northern biology who best exemplifies the qualities of scholarship that the late Jennifer Robinson brought to her studies at the Arctic Institute's Kluane Lake Research Station.
- ***Lorraine Allison Scholarship***. Open to students in a graduate study program related to northern issues, whose application best addresses academic excellence, a demonstrated commitment to northern research, and a desire for research results to be beneficial to northerners, especially native northerners. Candidates in biological science fields will be preferred.
- ***Jim Bourque Scholarship***. Awarded to a Canadian aboriginal student who intends to take, or is enrolled in, post-secondary training in education, environmental studies, traditional knowledge or telecommunications.

SRRB Scholarship/Bursary Program:

- ***SRRB Scholarship/Bursary Program***. For students pursuing post-secondary education in renewable resources or a related field (biology, forestry, or environmental science).

The ***Canadian Northern Studies Trust Awards Program*** (Association of Canadian Universities for Northern Studies) administers the following awards:

- Canadian Northern Studies Polar Commission Scholarship
- RCGS Studentships in Northern Studies
- Scholarships in Northern Studies
- Caribou Research Award
- Arctic Cooperatives Award
- Special Bursaries for Northern Residents
- Research Support Opportunity in Arctic Environmental Studies
- Beverly and Qamanirjuaq Caribou Management Scholarship Fund

Matrix of Actions – Scholarships

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
12a	2.5 2.26 3.1d 3.2	Continue to fund and promote ***various scholarships*** that support students entering into the fields of renewable resource management and the biological sciences.	Various, including the GRRB, AINA, and SRRB	W20 W21 W22 W23 W24

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Biodiversity Awareness Initiatives

Biodiversity Programs and Events

The Canadian Wildlife Federation (CWF), the Canadian Wildlife Service (CWS), RWED, EC, CPAWS-NWT and many other organizations organize annual ***National Wildlife Week*** and ***Earth Week*** activities throughout the NWT. This includes events and displays to raise awareness within the community about biodiversity and the concerns and issues associated with its preservation.

PCA offers an annual ***Environmental Stewardship Certificate Program*** through the Western Arctic Field Unit of the NWT. This program targets Grade 4 students throughout the Western Arctic Region, making them more aware of the environment and educating them about taking responsibility for the protection of the biodiversity of the NWT.

RWED ***Forest Management Extension Services*** provides for the delivery of forest resource information and forest education services to Forest Management Division, the regions, and the public. The division develops and delivers education programs, and provides information to communities on forest research efforts.

The ***Geoscience Forum***, organised by the NWT and Nunavut Chamber of Mines and held annually in Yellowknife, has an environmental program component that updates industry, government, and interested individuals on what is being accomplished in the field of geosciences to promote the conservation of biodiversity and the sustainable use of biological resources.

Reducing human-caused greenhouse gas emissions is imperative to managing our effect on biodiversity. The ***Arctic Energy Alliance*** informs and educates energy and utility consumers on how to be more energy efficient and environmentally aware through communications activities such as media campaigns, workshops, presentations, publications and a web site.

See ➔ Goal I *Protected Areas* for more information on awareness initiatives in or near protected areas.

Wildlife Week activities such as RWED's Open House allow students to meet Biologists and ask questions.

Photo: Courtesy of RWED collection

Matrix of Actions – Biodiversity Programs and Events

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
13a	3.3	Continue to organize biodiversity awareness events to involve communities through the promotion of ***Wildlife Week*** and ***Earth Week***.	CWF, RWED, EC, CWS, CPAWS-NWT	
13a	3.1c 3.3	Continue to promote environmental awareness through the ***Environmental Stewardship Program***.	PCA - Western Arctic Field Unit	
13a	3.1a 3.3 3.4	Continue to promote the education and awareness initiatives of the ***Forest Management Extension Services***.	RWED FM	
10e 13a	1.91 1.92 4.6	Continue to support and promote the environmental program components of the ***GeoScience Forum***.	CSLGC, RWED, INAC, the Canada-Nunavut Geoscience Office, COM – NWT/NU	W4 W5
13a	3.3 3.4	Continue to educate the public on climate change action issues through Arctic Energy Alliance ***communications activities***, including media campaigns, workshops, presentations, publications, and a web site.	AEA	W6

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Traditional Knowledge and Ecological Camps

In northern communities, on-the-land experience can be many times more valuable than classroom studies and can create a well-balanced education program. Several ***outdoor camps*** have been coordinated in the NWT that allow high school students to get outdoors and gain some firsthand experience in both ecological sciences and traditional ecological knowledge. Some of these initiatives are described below.

Since September 1996, the Gwich'in Social and Cultural Institute has held an annual ***Gwich'in Science Camp*** – an on-the-land traditional knowledge and science camp for senior high school students. Students from Aklavik, Fort McPherson, Inuvik and Tsiigehtchic work with and learn from Gwich'in Elders, local community members knowledgeable about Gwich'in history, culture and traditional knowledge, and scientists from the disciplines of anthropology, biology and geography. Instructors cover a variety of topics ranging from the traditional use of plants for food and medicine, to fish biology and the aquatic effects of the ferry landings at Tsiigehtchic and Fort McPherson.

What is Traditional Knowledge Anyway?

For thousands of years, aboriginal peoples around the world have been using natural resources in a sustainable manner. In the Canadian Biodiversity Strategy, traditional knowledge is described as "knowledge gained from generations of living and working within a family, community, or culture". This is the means that has enabled indigenous peoples to interact with nature in a sustainable manner over so many generations.

This expertise could contribute significantly to the conservation of biodiversity and the sustainable use of biological resources. The Convention on Biological Diversity reinforces the need to respect, preserve and maintain the knowledge, innovations and practices of indigenous communities that relate to the conservation and sustainable use of biodiversity.

See ➔ Goal II *Aboriginal and Local Involvement* for more information on TK definition and programs.

Instructors at ***Tundra Science Camp*** have been teaching high school students about tundra biodiversity since 1995. High school students, teachers, scientists and Elders spend 10 days together at the Daring Lake research station, learning about the tundra ecosystem from both scientific and traditional Dene perspectives.

The ***Tibbitt Lake Fire Study Camp*** is held annually during the last week of May. This camp is aimed at high school students in Grades 11 and 12 that have completed Grade 11 Biology. Students learn about post-fire lichen regeneration, plant succession, aquatic invertebrates, bird banding, and traditional knowledge by participating in several study projects related to the1998 fire at Tibbitt Lake near Yellowknife.

An ***On-the-Land Youth Trek*** is held annually within the GSA to give Gwich'n youth an opportunity to learn more about the land. As a group, the youth engage in a boating, hiking or canoe trip, and participate in a two-day on-the-land camp with Elders and biologists. Youth taking part in the On-the-Land Youth Trek and Camp learn about their culture, traveling on the land, traditional skills, wildlife, fish and plants.

The ***Gwich'in Environmental Knowledge Project*** (GEKP) was established to ensure that traditional knowledge be used as fully as possible in resource management in the GSA. Local knowledge provides baseline information against which long-term impacts on the northern environment can be monitored. The GEKP is recording and mapping Gwich'in Elders' knowledge about the ecosystems of the region to produce more informed wildlife management plans, conservation strategies, and land and water use licensing procedures. A ***GEKP database*** is also being created to store, catalogue and share information collected.

See ➔ Goal I for more information on awareness of species at risk and climate change.

Matrix of Actions – Traditional Knowledge and Ecological Camps

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8j 10c 12ab 13a	2.3 3.1bd 3.3 7.1b	Continue to teach students about ecology and TK in ***outdoor camps***, such as ***Gwich'in Science Camp, Tibbitt Lake Fire Study Camp, Tundra Science Camp***.	Many partners, including GSCI, GRRB, RWED	W9
8j 10c 13a	2.3 3.1d 3.3 7.1b	Continue to promote an appreciation of the natural northern environment through intiative such as the ***On-the-Land Youth Trek***.	GRRB	W10
8j 10c 13a	2.3 7.1 7.3	Continue to record, map and catalogue the knowledge of Elders through programs such as the ***Gwich'in Environmental Knowledge Project*** and ***Database***.	GRRB	W9

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[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

The traditional knowledge tent at Tibbitt Lake Study Fire Camp.

Photo: Courtesy of Aurora College/ V. Grout

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- W19: www.cos-soc.gc.ca/vignettes/oceans10_e.asp
- W20: www.grrb.nt.ca
- W21: www.nserc.ca/
- W22: www.ucalgary.ca/aina/
- W23: www.srrb.nt.ca
- W24: www.cyberus.ca/~acuns/en/awards.html

GOAL IV

To maintain or develop incentives and legislation that support the conservation of biodiversity and the sustainable use of biological resources.

Biodiversity-related Legislation

Within today's northern economy, biodiversity is recognized as an asset. Development must go hand in hand with the conservation of biodiversity to ensure that the standards of living we enjoy today are sustainable, and can be enjoyed by future generations.

We all have a role to play in conserving biodiversity and in living sustainably. Most of our actions are voluntary. Government policies and legislation can best help by guiding these actions by building tools to promote and enable sustainable resource development. To achieve the objectives of the UN Convention of Biological Diversity, government policies and legislation should be in line with these objectives.

In the territories, legislative powers and jurisdiction differ from those of the provinces (see insert boxes in this section). In the Northwest Territories, some resources like forest and certain species of wildlife are under territorial jurisdiction. The federal government administers Crown land, aquatic systems (fish) and most migratory birds. Aboriginal governments have jurisdiction over private lands and resources in their land claim settlement areas. Therefore it is important to consider how territorial, federal, and land claim settlement legislation they fit together as an administrative whole to ensure the effective conservation of biodiversity and the sustainable use of biological resources in the NWT.

This section is an overview of the most relevant legislation on biodiversity in the NWT. A more comprehensive listing, encompassing environmental legislation and regulations governing development in the NWT can be found on the *Cumulative Effects Assessment and Management Strategy and Framework* web site: www.ceamf.ca.

Wildlife Legislation

Wildlife is one of the most important renewable resources in the NWT. Northerners value wildlife as both a source of food and an important component of their lifestyles and cultural identities. It is important that legislation enacted to protect and manage these species take into account jurisdictional priorities and multiple objectives, so that legislation is applied in a coordinated and effective manner.

The ***NWT Wildlife Act*** governs the management, conservation and protection of wildlife in the NWT with special emphasis on game and fur bearing animals. The Act governs the administration of hunting licences and permits, wildlife management, harvesting methods, possession and use of wildlife, and enforcement, offences and punishment. The first part of the Act

Select Federal and Territorial Biodiversity Legislation Applying to the NWT

Land Claim and Self-government Agreements

- *Western Arctic* (Inuvialuit) *Claims Settlement Act*
- *Gwich'in Land Claim Settlement Act*
- *Sahtu Dene and Métis Land Claim Settlement Act*
- *Tli Cho Agreement*

Terrestrial Wildlife

- *Canada Wildlife Act*
- *NWT Wildlife Act*
- *Migratory Birds Convention Act*
- *Wild Animal and Plant Protection Act*
- *Species at Risk Act*
- *NWT Species at Risk Act* (under development)

Oceans and Freshwater Environments

- *Oceans Act*
- *Fisheries Act*
- *NWT Waters Act*
- *Arctic Waters Pollution Prevention Act*

Land Management

- *Canada National Parks Act*
- *NWT Territorial Parks Act*
- *Canada National Marine Conservation Areas Act*
- *NWT Forest Management Act*
- *NWT Forest Protection Act*
- *Territorial Lands Act*

Environmental Accountability

- *Canadian Environmental Assessment Act*
- *Mackenzie Valley Resource Management Act*
- *Canadian Environmental Protection Act*
- *NWT Environmental Protection Act*
- *Arctic Waters Pollution Prevention Act*

Territorial legislation are preceded by "NWT"

The management of Muskoxen is under territorial jurisdiction.

Photo: Courtesy of Aurora College/ S. Baryluk

includes laws of general application that apply to non-beneficiaries of the land claims and non-residents. Over the years, the Act has been amended to incorporate the wildlife harvesting provisions of the Inuvialuit Final Agreement and to recognize the paramountcy of the Sahtu and Gwich'in land claim agreements. The ***NWT Wildlife Act*** is currently under revision. The present Act was introduced more than 20 years ago and applies only to vertebrate species. The new Act will be expanded to apply to all wild animals in the NWT, vertebrate and invertebrate, with the exception of fish and migratory birds, which are managed by the federal government. The new Act will also integrate the wildlife provisions of the land claim agreements, so that they can be implemented.

The ***Canada Wildlife Act*** enables the federal Minister of the Environment to acquire lands for the purposes of wildlife research, conservation, and interpretation. The Act provides for the establishment of marine protected areas and National Wildlife Areas (NWA) to ensure the protection of habitat important to migratory birds and other wildlife and the protection of endangered species. Wildlife in NWA's established under the Act are managed by CWS.

See ➔*Land Management* in this section for more on parks and protected areas.

Legislation on Transboundary Wildlife

The federal ***Migratory Bird Convention Act*** (MBCA) and its regulations implement the 1916 treaty between Canada and the United States in which the two countries agreed to adopt a coordinated system to protect migratory birds, their eggs, and their nests. The Act provides for the management of most migratory birds throughout Canada, the establishment of migratory bird sanctuaries and the protection of migratory birds from overharvesting. The MBCA was completely updated in June 1994.

The federal ***Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act*** (WAPPRIITA) implements Canada's international obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Act controls transport in wild animals and plants to better conserve both Canadian and foreign species, and to protect Canadian ecosystems from the introduction of harmful alien species. The Act is administered by EC in cooperation with DFO, the Canadian Food Inspection Agency, Canada Customs and Revenue Agency, the RCMP and provincial/territorial wildlife agencies, including GNWT.

Legislation on Species at Risk

The conservation of wildlife is the shared responsibility of the governments in Canada. Through the Accord on the Protection of Species at Risk, the federal government, as well as provinces and territories, have committed to establishing complementary legislation for the effective protection and recovery of species at risk in Canada.

The federal ***Species At Risk Act (SARA)*** was established to protect wildlife from becoming extinct. It also enables recovery planning and management. The Act covers all wildlife species listed as being at risk nationally, and

The management of migratory birds such as this Yellow-rumped Warbler is under federal jurisdiction.

Photo: Courtesy of Aurora College/ S. Baryluk

their critical habitats. It complements the work done by provincial and territorial governments, and builds upon existing federal and territorial laws and agreements such as the *Fisheries Act*, the *Migratory Birds Convention Act*, the *National Parks Act*, and the *Canada Wildlife Act*. The Act is also consistent with aboriginal and treaty rights and recognizes the value of traditional knowledge of wildlife species in the assessment of species status and the development and implementation of recovery measures.

The territorial government is presently developing species at risk legislation specific to the NWT. The ***proposed NWT Species at Risk legislation*** would set up a process to assess species risk level, designate species at risk, protect species identified as endangered and threatened from harm, plan and implement recovery, and re-assess the status of species when necessary. The legislation would apply to most wild species that naturally occur in the NWT but not apply to fish or migratory birds that are managed by the federal government. The legislation would cover all other animals and plants and would apply on both public and private lands. The legislation would also be consistent with treaty and aboriginal rights to wildlife harvesting. It will also recognize the specific processes set out in modern land claim agreements concerning the role of wildlife co-management boards in making decisions about species that may be at risk.

See ➔ Goal I *Species at Risk* for more information.

Endangered Bowhead Whale
Photo: Courtesy of RWED collection

Jurisdiction and Paramountcy

Federal, Territorial, and Aboriginal Governments in the NWT
Effective sustainable development in the NWT requires coordination in legislation and policies at a number of different levels. A clearer understanding of the responsibilities among the various levels of government, increased coordination, effective work on common goals, and a reduction of barriers to sharing human and financial resources can solve many conservation issues.

For example, responsibilities for the management of many species at risk are shared. The power to designate species, and to establish prohibitions or restrictions on the taking of, or trade in, species may rest with different government agencies or levels of government. The allocation of such powers may be based on the type of environment in which the species live, or on the legal status of the species (game or non-game species). This fragmentation of responsibility is historical and may result in a complex situation, which may lead to difficulties in the formulation and implementation of species protection legislation.

Paramountcy
A clearer understanding of responsibilities is an important first step towards effective intergovernmental coordination. Paramountcy is the second step. When legislations are conflicting in positions, the principle of paramountcy is applied – one Act will prevail over of another to the extent of any conflict.

Jurisdiction	Legislation Examples
Federal	*Land Claim Settlement Acts and Agreements*
Federal	*MBCA, WAPPRIITA, SARA, Fisheries Act, Canada National Parks Act, CWA*
Territorial	*NWT Wildlife Act, NWT Parks Act, Forest Management Act, Forest Protection Act*

↑ Increased Paramountcy

Belugas

Photo: Courtesy of RWED collection

Matrix of Actions – Wildlife Legislation in the NWT

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8c 9d 10a 12b	1.17 1.32	***Canada Wildlife Act (1985, 1994)***	***Federal*** EC/CWS	W1 ➔ Goal I
8c 9d 12b	1.32 4.7	***NWT Wildlife Act (1988)***	***Territorial*** RWED	W2 ➔ Goal I Goal IV
5 14c	1.12 2.10 2.19 5.1	***Migratory Birds Convention Act (1994)***	***Federal*** EC/CWS	W3 ➔ Goal I Goal II Goal V
5 8h	1.81d 5.1	***Wild Animal and Plant Protection Act (1992)***	***Federal*** EC, DFO, CFIA, CCRA, RCMP	W4 ➔ Goal I Goal V
8k	1.21 4.7 4.8	***Species at Risk Act (2002)***	***Federal*** EC	W5 ➔ Goal I
8k	1.21 1.22 4.7 4.8	Continue to develop the ***proposed NWT Species at Risk legislation***	***Territorial*** RWED	W6 ➔ Goal I

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Legislation on Oceans and Freshwater Management

An increased understanding of marine and freshwater ecosystems is imperative to fostering the sustainable development of freshwater bodies and oceans, and of their resources. In the NWT, initiatives involving the management of aquatic resources are increasingly based on an ecosystem approach, in which economic, social and cultural objectives are incorporated.

In the NWT, the Government of Canada has jurisdiction over aquatic resources. Canada's ***Oceans Act*** promotes the sustainable development and integrated management of oceans and their resources. The Act enables the adoption of an ecosystem approach and the use of the precautionary approach in the conservation, management and use of marine resources. It also establishes a national Oceans Management Strategy (OMS) for the federal management of estuarine, coastal and marine ecosystems. Under the *Oceans Act*, Marine Protected Areas (MPAs) may be created for the purpose of conserving living marine resources that are of interest economically, that are threatened or endangered, or that are areas of high or unique biodiversity.

See ➔ Goal I for more information on protected areas.

The federal ***Fisheries Act*** governs all aspects of fisheries, including pollution control, and is aimed at the protection, conservation and preservation of fisheries in Canada, including marine mammals. It prohibits the alteration of fish habitat and deposition of deleterious substances into waters used by fish. The Act applies to inland fisheries and to offshore fisheries to distance of 320 kilometres. DFO and EC share joint responsibility for the administration and enforcement of the sections relevant to pollution prevention and deposition of deleterious substances.

Fresh water: Alexandra Falls

Photo: Courtesy of F. Lepine, Flying Colours Design

All non-domestic water use in the NWT is subject to the ***NWT Waters Act***, which regulates water use and disposal in the NWT. The Act is administered by the NWT Water Board (in the ISR), the Gwich'in Land and Water Board (in the GSA), the Sahtu Land and Water Board (in the SSA) and the Mackenzie Valley Land and Water Board in the remainder of the NWT.

The federal ***Arctic Waters Pollution Prevention Act*** was introduced to prevent pollution of waters adjacent to the mainland and islands of the Canadian Arctic. The Act recognizes the potential threats posed to the delicate balance of marine and coastal biological diversity of the Canadian Arctic by exploitation and shipment of Arctic natural resources. It regulates development and shipping activity in Arctic waters, prescribes limits of liability for unauthorized deposits of water, establishes design requirements for vessels operating in Arctic waters and provides for the establishment of Shipping Safety Control Zones. The administering agencies in the NWT are Transport Canada in respect to Arctic shipping, and INAC in respect to non-shipping (inshore) activities.

Matrix of Actions – Ocean and Freshwater Management Legislation

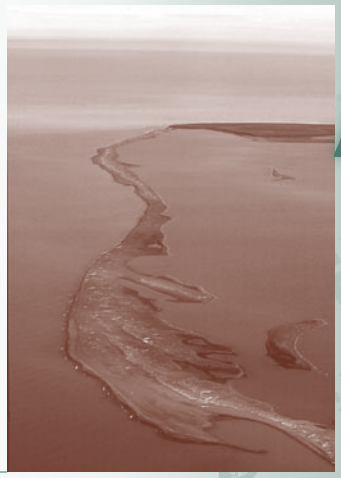
CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
6ab 8acdfi 10b	1.1 1.2 1.4 1.52 1.55 1.56 2.15 2.16 2.18	***Oceans Act (1997)***	***Federal*** DFO, SRRB, GRRB, FJMC	W7 W8 ➔ Goal I Goal II
8ci 10b	1.4 1.55	***Fisheries Act (1985)***	***Federal*** DFO, EC, SRRB, GRRB, FJMC	W9 ➔ Goal I Goal II
8dl	1.1 1.7 1.55	***NWT Waters Act (1992)***	***Federal*** NWT Water Board, GLWB, SLWB, and MVLWB	W10
5 8l	1.7 2.18	***Arctic Waters Pollution Prevention Act***	***Federal*** Transport Canada and INAC	W11

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (🕮), in web pages (🖱) or follow up on another Goal in this report (➔).

Legislation on Land Management

Lands in the NWT are managed by three different levels of government: Aboriginal, federal, or territorial. The federal ***Territorial Lands Act*** provides authority for dealing with the administration and protection of federal Crown Lands in the NWT, including land withdrawals. It establishes Caribou Protection Measures that place restrictions on activities during calving and post calving periods. It also authorizes and regulates sale, lease or other disposition of territorial lands.

Landscape and seascape meet.
Photo: Courtesy of Tessa Macintosh



Forest landscape
Photo: Courtesy of Tessa Macintosh

Legislation on Land Entitlement and Resource Management

The federal government recognizes aboriginal and treaty rights of the aboriginal peoples of Canada in the *Constitution Act*, 1982. There are also several settled land claims in the NWT. Land claim legislation establishes local beneficiary control over their land and resources based on their traditional use and occupancy.

The Inuvialuit claim was the first to be settled with the passing of the ***Western Arctic (Inuvialuit) Claims Settlement Act*** in 1984. The Act enables the implementation of the ***Western Arctic Claim Inuvialuit Final Agreement***. The agreement establishes the ISR, which contains 435,000 square kilometres in the Mackenzie Delta and Beaufort Sea Region, and guarantees the Inuvialuit input into decisions concerning development activities in this region. It mandates the creation of an environmental impact screening and review process, and conveys special rights to beneficiaries with respect to the harvesting of fish, game, and marine mammals. The agreement also provides for measures to protect and preserve Arctic wildlife, environment and biological productivity.

The 1992 ***Gwich'in Land Claim Settlement Act*** enabled the implementation of the ***Gwich'in Comprehensive Land Claim Agreement***. This agreement establishes approximately 22,422 square kilometres of land in the Mackenzie Delta region immediately south of the ISR as the GSA. The agreement contains provisions requiring government to implement a comprehensive land and water regulation regime covering land use planning, environmental impact assessment and review, and regulation of land and water use. Along with recognizing certain rights and privileges for Gwich'in people on Crown Land within the GSA, this agreement also transferred ownership of specific lands to the Gwich'in people and established the GRRB.

The 1994 ***Sahtu Dene and Métis Land Claim Settlement Act*** enabled the implementation of ***Sahtu Dene and Métis Comprehensive Land Claim Agreement***. The agreement recognizes the traditional use of the Sahtu region by the Slavey, Hare, Mountain Dene and Métis in the NWT "from time immemorial". The agreement establishes the SSA, which covers 41,437 square kilometres of the NWT, and allocates subsurface rights for 1,813 square kilometres of land within this area to the Sahtu Dene and Métis. The Act confirms hunting and fishing rights of the Sahtu Dene and Métis throughout the SSA, and establishes their exclusive trapping rights within this area. The agreement also guarantees the Sahtu Dene and Métis participation in institutions of public government for renewable resource management, land use planning and land and water use in the SSA, and participation in environmental impact assessment and review in the Mackenzie Valley.

In 2003, representatives of the Treaty 11 Council, the GNWT, and the Government of Canada signed the ***Tli Cho Land Claim and Self-government Agreement*** in Rae-Edzo. Under the agreement, the first combined land claim and self-government agreement in the NWT, the Tli Cho Government will be created, and the Tli Cho people will be transferred ownership of approximately 39,000 square kilometres of land – the largest single block of First Nation owned land in Canada. Implementation of the agreement will mean increased certainty and clarity about ownership and

management of land and resources in the North Slave region. The ratification process will not be complete until the federal government passes enabling legislation to bring the Tlicho Agreement into force.

Other land claim settlement agreements that will eventually lead to legislation include:

- *Deh Cho Interim Measures Agreement and Framework Agreement*
  The Deh Cho First Nations, the Government of Canada, and the GNWT signed these agreements on May 23, 2001, as a temporary arrangement to protect aboriginal interests during the period that a final agreement is being negotiated. The Deh Cho Interim Measures Agreement provides for significant Deh Cho First Nations' participation in land, water and resource management within the Deh Cho Region, through participation on the MVEIRB and the creation of a Deh Cho panel of the MVLWB. Given the significance of the Deh Cho region in terms of resource potential, and the concern for protecting the ecological integrity of the region, the Interim Measures Agreement helps clarify the "rules of the game" for affected stakeholders, like industry, in the interim period until a final agreement is achieved.

  The Framework Agreement provides a roadmap to guide future negotiations. The three parties of the Agreement have agreed to work toward completing an Agreement-in-Principle in five years, with an additional two years to reach a final agreement. They have also agreed to address a broad range of topics relating to land, resources and governance in the Deh Cho region, including the creation of a Deh Cho government.

The management of raptors is under territorial jurisdiction.
Photo: Courtesy of Tessa Macintosh

Land Ownership in the NWT

Land ownership in the NWT falls under one of the following land designations:

- **Private Settlement Lands:** Aboriginal people own large tracts of land in the Inuvialuit Settlement Region, Gwich'in Settlement Area, Sahtu Settlement Area, and Tli Cho Lands. These were selected during the settlement of land claims.
- **Commissioner's Land:** Commissioner's lands are public lands under the administration of the Government of the NWT. This includes land acquired by the NWT with territorial funds, public lands that have been transferred to the GNWT, and all roads, streets, lanes and trails on these lands.
- **Crown Lands:** Crown lands are public lands under the administration of the Government of Canada. The Department of Indian Affairs and Northern Development Act specifies that the Minister is responsible for resources in the NWT, and has control, management and administration of all lands situated in the NWT belonging to Her Majesty in right of Canada not under management, charge and direction of any other Minister or agency of the Government of Canada. Some of the land within Land Claim settlement areas is Crown Land.

Find More:
➔ Land Ownership in the NWT
nwt-tno.inac-ainc.gc.ca/la-lmo_e.htm

- *The Déline Self-Government Agreement in Principle*
  Signed on August 23, 2003 by the Déline Dene Band, the Déline Land Corporation, the Government of Canada and the GNWT, the Déline Self-government Agreement in Principle (AIP) is an important step towards a final self-government agreement. It sets out the areas of agreement among the negotiating parties on most of the subjects under negotiation. The Déline self-government AIP is the first to be negotiated on a community basis in the Sahtu Region under the Sahtu Dene and Métis Comprehensive Land Claim Agreement.

Legislation on Parks and Protected Areas

There has been a growing recognition in recent decades of the important role protected areas, landscapes and nature parks can play in the preservation of diversity within wild species and natural ecosystems. This recognition has led to the development of specific measures to assist in safeguarding natural values within these areas through voluntary agreements and through the imposition of stricter legislation and land-use controls.

Parks and protected areas are areas where specific land-use controls are applied to protect the natural environment in areas of particular value. In Canada, the ***Canada National Parks Act*** provides a legislative framework for protecting representative examples of Canada's 39 natural regions through the planning, establishment and administration of National Parks. The Act was amended in 1988 to strengthen enforcement capability and provide for the establishment of national marine parks and wilderness zones. Parks Canada Agency (PCA) administers this Act.

Within the GNWT, the revised ***Territorial Parks Act*** administered by the Parks and Tourism division of RWED provides for the establishment of territorial parks. The Act was revised in 2003 and now includes with two new park classifications: Wilderness Conservation Areas and Cultural Conservation Areas. Wilderness Conservation Areas are defined as areas "to protect core representative areas that contribute to regional biodiversity, such as land forms, watershed or wildlife habitats." The Act also guarantees the right of aboriginal peoples to hunt, fish and trap in territorial parks.

The ***Canada National Marine Conservation Areas Act*** was established to ensure the protection of natural, self-regulating marine ecosystems that are essential to the maintenance of biological diversity. The Act establishes a system of marine conservation areas representative of Canada's 29 marine regions, including the Atlantic, Arctic and Pacific Oceans and the Great Lakes. The Act also promotes the adoption of the precautionary principle in the conservation and management of the marine environment so that lack of scientific certainty is not used as a reason for postponing preventive measures.

See ➔ Goal I for more information on protected areas.

The CWA (Wildlife Area Regulations) enables Environment Canada to protect both terrestrial and marine areas that are nationally important to wildlife in terms of the numbers of individuals they support at some time during the year. The Wildlife Area Regulations allow the Minister to set aside lands for this purpose as well as for scientific research and education.

See ➔ *Wildlife Legislation* in this Goal for more on the *Canada Wildlife Act*.

Protected Area Designation and Relevant Legislation

Legislation	Protected Area Designation	Administering Department/Agency
Canada National Parks Act	• National Parks and Reserves	Parks Canada
Canada National Marine Conservation Areas Act	• National Marine Conservation Areas	Parks Canada
Migratory Birds Convention Act	• Migratory Bird Sanctuaries	Canadian Wildlife Service
Canada Wildlife Act	• National Wildlife Areas • Marine Wildlife Areas	Canadian Wildlife Service
NWT Wildlife Act	• Territorial Wildlife (Game) Sanctuaries and Preserves • Critical Wildlife Area • Special Management Area	GNWT Department of RWED
Territorial Parks Act	• Natural Environment Park • Wilderness Conservation Area • Cultural Conservation Area	GNWT Department of RWED
Oceans Act	• Marine Protected Areas	Department of Fisheries and Oceans

Forest management

Photo: Courtesy of RWED collection

Legislation on Forests and Forest Management

Following the devolution of forest management and fire management responsibilities from the federal government, the GNWT passed legislation that set out guidelines for the management and protection of forests in the NWT. Enacted in April 1987, the ***Forest Management Act*** provides for the management of NWT's forests, including conservation of forests, design, implementation, and supervision of programs and activities respecting the management of forests and forest research.

The territorial ***Forest Protection Act*** establishes policies, programs, measures and penalties to protect NWT forests from fires. It sets out a number of prohibitive and protective measures regarding use of explosives in forest areas, the lighting, care and extinguishment of fires, and the duty to report and extinguish fires. The Forest Management Division of RWED administers both of these Acts. Forest legislation in the NWT is currently being updated.

See ➔ Goal I *Forest Initiatives* for more information on forest-related actions.

Diamond mine in the NWT.
Photo: Courtesy of Tessa Macintosh

Matrix of Actions – Land Management Legislation

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
8k	1.15	***Territorial Lands Act (1985)***	***Federal*** INAC	W12 ➔ Goal I
8j	1.1 1.4 1.19 1.32 1.37 1.63 1.9 2.3 2.15 7.1	***Land Claim Settlement Agreements and Acts (1984, 1992, 1994)***	***Federal*** INAC	W13 W14 W15
6ab 8abc d&e 10a	1.2 1.17 1.18 1.32 1.56 (in part) 1.78 2.15 4.6	***Canada National Parks Act (2000)***	***Federal*** PCA	W16 ➔ Goal I Goal II
8d	1.78 4.7	***Territorial Parks Act***	***Territorial*** RWED	W17
8d	1.02 1.55 1.56	***Canada National Marine Conservation Areas Act (2002)***	***Federal*** PCA	W18 W19
8c 10b	1.68 1.69	***Forest Management Act (1987)***	***Territorial*** RWED FM	W20 ➔ Goal I
8cd	1.75	***Forest Protection Act (1987)***	RWED FM	W21 ➔ Goal I

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (🕮), in web pages (🖱) or follow up on another Goal in this report (➔).

Legislated Environmental Accountability

Environmental protection legislation forces businesses and individuals to be accountable for their actions affecting the conservation and sustainable use of biological diversity. In the NWT, there are two accountability regimes administered through legislation: one in the ISR, and the other in the Mackenzie Valley (the remainder of the NWT, with certain exceptions).

See ➔ Box 4 in Goal II for more information.

The ISR and Wood Buffalo National Park are protected by the federal ***Canadian Environmental Assessment Act***. This Act sets out responsibilities and procedures for the environmental assessment (EA) of projects within the ISR for which the federal government holds decision-making authority. The Act establishes an EA process that helps responsible authorities (RAs) determine the environmental effects of projects early in the planning stage.

The federal ***Mackenzie Valley Resource Management Act***, assented to on the 18th of June 1998, applies to the rest of the NWT. This Act implements federal obligations under the Gwich'in and Sahtu Dene and Métis Land claim agreements to create an integrated co-management regime for land and waters in the Mackenzie Valley. This Act establishes a Land Use Planning

Board, and Land and Water Board in each of the settlement areas and an Environmental Impact Review Board for the entire Mackenzie Valley. The Mackenzie Valley Land and Water Board was also established in 2000 in areas outside settlement areas. The Act requires the development of a method of monitoring the cumulative impacts of land and water uses and deposits of waste, and independent environmental audits at least once every five years.

The Land Use Planning Boards have the power to develop land use plans and ensure that future use of lands is carried out in conformity with those plans. The Land and Water Boards regulate the use of land and water, including the issuance of land use permits and water licences. The Environmental Impact Review Board is the main instrument for the examination of the environmental impact of proposed developments in the Mackenzie Valley, including the use of public reviews.

See ➔ Goal II for more information on land use planning and management in the NWT.

The goals of the ***Canadian Environmental Protection Act*** (CEPA) and the territorial ***NWT Environmental Protection Act*** are to protect the environment, human life and health from the risks associated with toxic substances that pose a threat to Canada's ecosystems and biological diversity. The territorial act establishes air quality standards and addresses spill contingency planning and the management of hazardous waste materials in the NWT. CEPA and the NWT Environmental Protection Act apply throughout the NWT.

See ➔ Goal II for more information on environmental accountability.

Matrix of Actions – Environmental Accountability Legislation

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
14a	2.20 4.8	***Canadian Environmental Assessment Act (1992)***	***Federal*** EC, INAC	W22 W23 ➔ Goal II
6b 14a	4.5	***Mackenzie Valley Resource Management Act (1998)***	***Federal*** INAC	W24
7c 8dl 14de	1.02 1.07 1.89 2.22 2.24	***Canadian Environmental Protection Act (1999)***	***Federal*** EC	W25
8l 14d	1.02 1.07 1.89	***NWT Environmental Protection Act***	***Territorial*** GNWT	W26 W27 ➔ Goal II

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (W) or follow up on another Goal in this report (➔).

References

Documents referred in the Matrix of Actions are marked by 🕮; web pages are marked by 🖰.

Web Pages

- W1: laws.justice.gc.ca/en/w-9/24619.html
- W2: www.nwtwildlife.rwed.gov.nt.ca/
- W3: laws.justice.gc.ca/en/m-7.01/text.html
- W4: laws.justice.gc.ca/en/w-8.5/106599.html
- W5: www.speciesatrisk.gc.ca/
- W6: www.nwtwildlife.rwed.gov.nt.ca/legislation/speciesatrisk2001.htm
- W7: www.mar.dfo-mpo.gc.ca/oceans/e/oaco/oaco-canada-e.html
- W8: www.dfo-mpo.gc.ca/canwaters-eauxcan/oceans/index_e.asp
- W9: laws.justice.gc.ca/en/f-14/59326.html
- W10: laws.justice.gc.ca/en/n-27.3/86369.html
- W11: laws.justice.gc.ca/en/a-12/1990.html
- W12: laws.justice.gc.ca/en/t-7/102519.html
- W13: laws.justice.gc.ca/en/w-6.7/text.html
- W14: laws.justice.gc.ca/en/g-11.8/62476.html
- W15: laws.justice.gc.ca/en/s-1.5/98346.html
- W16: laws.justice.gc.ca/en/n-14.01/18251.html
- W17: www.canlii.org/nt/sta/pdf/type80.pdf
- W18: laws.justice.gc.ca/en/c-7.3/18128.html
- W19: parkscanada.gc.ca/progs/amnc-nmca/
- W20: www.canlii.org/nt/sta/pdf/type164.pdf
- W21: www.canlii.org/nt/sta/pdf/type126.pdf
- W22: www.ceaa-acee.gc.ca/
- W23: laws.justice.gc.ca/en/c-15.2/28087.html
- W24: laws.justice.gc.ca/en/m-0.2/79357.html
- W25: laws.justice.gc.ca/en/c-15.31/28329.html
- W26: www.canlii.org/nt/sta/pdf/type39.pdf
- W27: www.gov.nt.ca/rwed/eps/leg.htm

Accords, Agreements and Policies

Agreements, accords, "signed" strategies, and policies are formal commitments from which we can initiate and coordinate actions on biodiversity in Canada, including the NWT. They represent the spirit of a group position and actions, and they are often the result of public input and expectations. These commitments are grouped by Goal as described in this report. Many of these commitments are described in more detail elsewhere in this report.

Agreements, Accords and Strategies

Biodiversity and Sustainable Development See ➔ Goal V for more information on Circumpolar Cooperation initiatives.	
Agenda 21 (The Rio Declaration on Environment and Development) Agenda 21 recommends over 2,500 actions in 150 program areas (without explicit priorities) for an environmental work program for the period beyond 1992 and into the twenty-first century. ✎ ***Signed:*** Adopted June 12, 1992 by 174 national governments.	www.un.org/esa/sustdev/documents/agenda21/index.htm
Convention on Biological Diversity ✎ ***Signed:*** By Canada, June 11, 1992; ratified December 4, 1992. As of 2003, 32 other countries have also signed the Convention, and 48 have ratified it.	www.biodiv.org
Agreement between the Government of Canada and the Government of the United States of America on Arctic Cooperation ✎ ***Signed:*** January 11, 1998, by the Government of Canada and the Government of the United States.	www.lexum.umontreal.ca/ca_us/en/cts.1988.29.en.html
Species at Risk See ➔ Goal I for more information on Species at Risk initiatives. See ➔ Goal V for more information on Circumpolar Cooperation initiatives.	
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) CITES is an international agreement between Governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. ✎ ***Signed:*** By Canada on March 3, 1973; ratified April 10, 1975. Also ratified by 163 other countries (as of October 1, 2003).	www.cites.org/ and www.cites.ec.gc.ca/
Agreement on the Conservation of Polar Bears ✎ ***Signed:*** November 15, 1973, by Canada, Denmark (Greenland), the United States, Norway, and the Russian Federation.	pbsg.npolar.no/convagree/agreement.htm
Accord for the Protection of Species at Risk in Canada Federal, provincial and territorial Ministers responsible for wildlife commit to a national approach for the protection of species at risk. The goal is to prevent species in Canada from becoming extinct as a consequence of human activity. ✎ ***Signed:*** October 1996, by most federal, provincial, and territorial wildlife Ministers. Modified in 1998 to include Stewardship. Not signed by GNWT.	www.speciesatrisk.gc.ca/recovery/accord_e.cfm
Inuvialuit-Inupiat Polar Bear Management Agreement in the Southern Beaufort Sea ✎ ***Signed:*** March 4, 2000, by the Inuvialuit of Canada and the Inupiat of the United States.	pbsg.npolar.no/convagree/inuvi-inup.htm

Protected Areas See ➔ Goal I for more information on Protected Areas initiatives. See ➔ Goal V for more information on Circumpolar Cooperation initiatives.	
Convention on Wetlands of International Importance (Ramsar Convention) ✎ ***Signed:*** By Canada on February 2, 1971; date of accession January 15, 1981. 138 parties to the Convention as of November 26, 2003.	www.ramsar.org/
Convention for the Protection of the World Cultural and Natural Heritage ✎ ***Signed:*** By Canada, November 23, 1972; acceptance July 23, 1976. More than 170 countries have signed in all.	whc.unesco.org/nwhc/pages/home/pages/homepage.htm
Statement of Commitment to Protect Canada's Network of Protected Areas This document confirms Canada's commitment to establish a network of national protected areas representing each of Canada's 39 ecological regions. ✎ ***Signed:*** November 25, 1992, by federal, provincial and territorial governments.	www.cd.gov.ab.ca/preserving/parks/fppc/1992statement_eng.pdf
Protected Areas Strategy ✎ ***Signed:*** September 27, 1999, by the Government of Canada (INAC) and the Government of the Northwest Territories (RWED).	www.gov.nt.ca/RWED/pas/
Forest Management See ➔ Goal I for more information on Forest initiatives.	
Canada Forest Accord The goal of the Canada Forest Accord is to maintain and enhance the long-term health of our forest ecosystems, for the benefit of all living things both nationally and globally, while providing environmental, economic, social and cultural opportunities for the benefit of present and future generations. ***3rd Canada Forest Accord (2003-2008)*** ✎ ***Signed:*** May 2, 2003 by Federal, Provincial (with the exception of Quebec) and Territorial ministers responsible for forests, as well as aboriginal organizations, industry and NGOs.	nfsc.forest.ca/accord.html
Wildlife Sustainable Use and Management See ➔ Goal I for more information on Sustainable Use of Wildlife initiatives. See ➔ Goal V for more information on Circumpolar Cooperation initiatives.	
Convention on the Protection of Migratory Birds in Canada and the United States ✎ ***Signed:*** August 16, 1916, by the United Kingdom (for Canada) and the United States. Ratified December 7, 1916.	www.lexum.umontreal.ca/ca_us/en/cus.1916.465.en.html
Porcupine Caribou Management Agreement ✎ ***Signed:*** October 26, 1985, by the Government of Canada, the Government of the NWT, the Government of Yukon, and Native organizations in the Yukon and NWT.	www.yfwmb.yk.ca/comanagement/mgmtplans/pcmbplan/thecaribou.html
Agreement between the Government of Canada and the Government of The United States of America on the Conservation of the Porcupine Caribou Herd ✎ ***Signed:*** July 17, 1987, by the Government of Canada and the Government of the United States.	www.canadianembassy.org/environment/caribou-en.asp
Beverly and Qamanirjuaq Barren Ground Caribou Management Agreement ✎ ***Signed:*** April 1, 2002 by the Governments of Manitoba, Saskatchewan, the Northwest Territories, Nunavut and Canada.	www.arcticcaribou.com/pdf/ManagmtAgreement.pdf

Climate Change See ➔ Goal I for more information on Climate Change initiatives. See ➔ Goal V for more information on Circumpolar Cooperation initiatives.	
United Nations Framework Convention on Climate Change ✎ ***Signed:*** By Canada, June 12, 1992; ratification December 4, 1994. As of February 17, 2003, 165 other countries have also signed the Convention, and 187 have ratified it. ***Kyoto Protocol*** ✎ ***Signed:*** By Canada, April 29, 1998; ratification December 17, 2002. As of September 29, 2003, 83 other countries have also signed the Convention, and 118 have ratified it.	unfccc.int/index.html
Contaminants See ➔ Goal II for more information on contaminant programs. See ➔ Goal V for more information on Circumpolar Cooperation initiatives.	
Convention on Long-Range Transboundary Air Pollution Establishes internationally agreed-upon reduction goals and management approaches for selected POPs and heavy metals. ✎ ***Signed:*** By Canada on November 13, 1979; ratified December 15, 1981. As of September 26, 2003, 167 other countries have also signed the Convention, and 187 have ratified it.	www.unece.org/env/lrtap/lrtap_h1.htm
Canada-wide Accord on Environmental Harmonization The Accord was designed to lead to improved cooperation and better environmental protection across Canada. ✎ ***Signed:*** January 29, 1998, by the Canadian Council of Ministers of the Environment (CCME) – with the exception of Quebec.	www.ccme.ca/assets/pdf/accord_harmonization_e.pdf
Canada-wide Acid Rain Strategy for Post-2000 Calls for a pollution prevention approach for regions such as western and northern Canada to further protect the environment from acid deposition. ✎ ***Signed:*** October 19, 1998 by the Ministers of Energy and the Environment.	www.ec.gc.ca/acidrain/strat-e.pdf
Stockholm Convention on Persistent Organic Pollutants ✎ ***Signed:*** By Canada, May 23, 2001; ratified same day. As of September 26, 2003, 150 other countries have also signed the Convention, and 39 have ratified it. This Convention is not yet in force.	www.pops.int/documents/convtext/convtext_en.pdf

Land Claims Settlements and Self-Government See ➔ Goal II for more information on Aboriginal and Local Involvement.	
Inuvialuit Final Agreement ***Signed:*** July 25, 1984, by the Inuvialuit of the Inuvialuit Settlement Region the Government of the NWT, the Government of the Yukon, and the Government of Canada.	www.ainc-inac.gc.ca/pr/agr/inu/wesar_e.html
Sahtu Dene and Métis Comprehensive Land Claim Agreement ***Signed:*** September 6, 1993, by the Sahtu Dene and Métis, the Sahtu Tribal Council, the Government of the Northwest Territories and the Government of Canada.	www.ainc-inac.gc.ca/pr/agr/sahtu/sahmet_e.pdf
Gwich'in Comprehensive Land Claim Agreement ***Signed:*** April 22, 1992, by the Gwich'in Tribal Council, the Government of the Northwest Territories and the Government of Canada.	www.ainc-inac.gc.ca/pr/agr/gwich/gwic_e.html
Deh Cho First Nations Interim Measures Agreement ***Signed:*** May 2001, by the Government of Canada, the Government of the Northwest Territories and the Deh Cho First Nations.	www.ainc-inac.gc.ca/pr/agr/dci_e.pdf
Déline Self-Government Agreement in Principle ***Signed:*** August 23, 2003, by the Déline Dene Band, the Déline Land Corporation, the Government of the Northwest Territories and the Government of Canada.	www.gov.nt.ca/maa/negotiations/deline_aip_highlights.pdf
Tli Cho Agreement ***Signed:*** August 25, 2003, by the Government of Canada, the Government of the Northwest Territories and the Tlicho First Nations.	www.tlicho.com
Ecosystem management and Environmental Accountability See ➔ Goal II for more information on Environmental Accountability and Emergency Planning.	
Whitehorse Mining Initiative Leadership Council Accord ***Signed:*** September 13, 1994, by the mining industry, senior governments, labour unions, Aboriginal peoples and the environmental community.	www.nrcan.gc.ca/mms/pdf/accord.pdf
Environmental Agreement – BHP Billiton ***Signed:*** January 6, 1997, by BHP Diamonds Inc., the Government of Canada, and the Government of the Northwest Territories.	See ➔ Goal II www.monitoringagency.net/
Environmental Agreement – Diavik Diamond Mines Inc. ***Signed:*** March 8, 2000, by DDMI, the Government of Canada, the Government of the Northwest Territories, Dogrib Treaty 11 (Tlicho), Lutsel K'e Dene Band, Yellowknives Dene First Nation, North Slave Métis Alliance, and the Kitikmeot Inuit Association.	www.ainc-inac.gc.ca/nr/prs/j-a2000/envagr_e.pdf
Agricultural Policy Framework Agreement ***Signed:*** June 2002, by the Government of Canada, and the governments of all provinces and territories except Nunavut.	www.agr.gc.ca/cb/apf/pdf/accord_e.pdf
Cooperation and Coordination See ➔ Goal V for more information on Circumpolar Cooperation initiatives.	
Declaration on the Protection of the Arctic Environment and Arctic Environmental Protection Strategy ***Signed:*** June 14, 1991 by Canada, Denmark, Finland, Iceland, Norway, Sweden, the USSR and the USA.	www.arctic-council.org/files/pdf/artic_environment.pdf
Agreement between the Government of Canada and the Government of the United States of America on Cooperation in the Boreal Ecosystem-Atmosphere Study (BOREAS) ***Signed:*** April 18, 1994, by the Government of Canada and the Government of the United States.	www.lexum.umontreal.ca/ca_us/en/cts.1994.26.en.html

Policies

Biodiversity and Sustainable Development See ➔ Goal I for more information on Sustainable Use of Wildlife initiatives.	
Sustainable Development Policy Commits the GNWT to apply the concept of sustainable development to all decisions and actions related to natural and heritage resources in the NWT. ✎ ***Signed:*** May 28, 1990 (date effective) by the Minister of Resources, Wildlife and Economic Development.	See ➔ Goal I *Sustainable Use of Wildlife* ☜ www.gov.nt.ca/rwed/plc/pdf/5205.pdf
Protected Areas See ➔ Goal I for more information on Protected Areas initiatives.	
Federal Policy On Wetland Conservation ✎ ***Signed:*** 1991, by the Minister of the Environment.	☜ dsppsd.communication.gc.ca/collection/cw66-116-1991e.pdf
Marine Protected Areas Policy Outlines the overall policy and objectives of the Marine Protected Areas program. ✎ ***Signed:*** March 1999, by the Minister of Fisheries and Oceans.	☜ www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/legislation-lois/policies/mpa-policy/pdf/policy.pdf
Wildlife Sustainable Use and Management See ➔ Goal I for more information on Sustainable Use of Wildlife initiatives.	
Policy for the Management of Fish Habitat ✎ ***Signed:*** 1986, by the Minister of Fisheries and Oceans.	☜ www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/legislation-lois/policies/fhm-policy/index_e.asp
Wildlife Policy for Canada ✎ ***Signed:*** 1990, by the Wildlife Ministers Council of Canada.	☜ www.cws-scf.ec.gc.ca/birds/pol_e.cfm
Traditional Knowledge See ➔ Goal II for more information on Monitoring and Research.	
Traditional Knowledge Policy Recognizes traditional knowledge of aboriginal peoples of the NWT and commits GNWT to incorporate traditional knowledge into Government decisions and actions. ✎ ***Signed:*** November 30, 1993 (date effective) by the Minister of Resources, Wildlife and Economic Development.	☜ www.gov.nt.ca/rwed/plc/pdf/5206.pdf
Contaminant and Protection of the Environment See ➔ Goal II for more information on contaminant programs.	
Toxic Substances Management Policy ✎ ***Signed:*** June 1995, by the Minister of the Environment.	See ➔ Goal II ☜ www.ec.gc.ca/toxics/en/index.cfm

Legislative Assembly in Yellowknife, NWT.
Photo: Courtesy of Jiri Hermann

Box 6 – Differences Between the NWT and a Province

Devolution and the Changing Context for Biodiversity Actions in the NWT

There are several differences between provinces and territories that affect how decisions are made regarding biodiversity issues and sustainable development. The major differences for the NWT concern the administration and jurisdiction over land and biological resources.

A province derives its jurisdiction from the *Constitution Act*. The NWT does not have independent jurisdiction; its powers are derived from federal legislation. The federal government, in right of Canada, retains jurisdiction over Crown lands in the NWT. This differs from the provinces, which own provincial Crown lands in right of the province. This means that, currently, the GNWT cannot collect royalties from resources taken from Crown lands, or regulate many aspects of development on such lands.

Through its Northern Affairs Program, INAC has responsibilities over land, water and resource management. In the NWT, INAC administers surface rights on Crown lands, manages the federal government's proprietary interest in minerals and participates in environmental assessments of resource development proposals.

Northern governance is changing, however, as a result of new self-government and land claim agreements, and of intergovernmental agreements. Over the past few decades, some authorities have shifted from Ottawa to the NWT as part of a process called devolution. For example, the GNWT has jurisdiction over some areas that were previously administered by the federal government in the NWT, such as forest management, education and health care. Local NWT input has also increased with the creation of many regional boards on resource, land and water use (see Appendix 3).

The process of devolution for land, water and resource management is continuing. In January 2004, representatives of the Aboriginal Summit (representing aboriginal interests in the NWT) and the governments of the NWT and Canada signed the *Northwest Territories Lands and Resources Devolution Framework Agreement*, committing all three parties to move towards formal discussions.

Devolution will change the way NWT residents make decisions on sustainable development and biodiversity issues in the future.

Find more:

- Backgrounder – Devolution in the NWT: nwt.inac.gc.ca/dv_e.htm
- Aboriginal Self-government in the NWT: www.gov.nt.ca/publications/asg/cons.pdf
  The Constitutional Development of the NWT

Devolution

The transfer of responsibilities and authority to a more locally or regionally based government. For example, the taking over by the Government of the Northwest Territories of provincial-type responsibilities from the federal government is part of devolution.

GOAL V

To work with other countries to conserve biodiversity, use biological resources in a sustainable manner and share equitably the benefits that arise from the utilization of genetic resources.

Circumpolar Cooperation Initiatives

Recognizing that biodiversity transcends national boundaries and must be addressed on a global level, Canada has committed to participate in international efforts to coordinate and enhance activities related to the conservation and sustainable use of biodiversity, and to encourage participation in international efforts to implement the UN Convention on Biological Diversity.

For the NWT, this means a commitment on both a national and international level. The NWT has a role in ensuring the conservation and sustainable use of biological resources across the Arctic not only within national cooperation frameworks as a part of Canada, but also in international initiatives as a member of the circumpolar community.

Effective conservation of many circumpolar species and other natural resources requires close cooperation with other Arctic and non-Arctic states. NWT collaboration in international efforts to implement the Convention on Biological Diversity includes participation in international councils and committees, collaboration in international research, monitoring, and management initiatives, information sharing arrangements, and implementation of other international conventions and agreements that complement the UNCBD.

King Eiders

Photo: Courtesy of R. Popko, RWED

The Arctic Council

On June 14, 1991, the eight pan-Arctic countries of Canada, Denmark, Finland, Iceland, Norway, Sweden, the USSR and the USA signed the *Declaration on the Protection of the Arctic Environment*.

The *Arctic Environmental Protection Strategy* (AEPS) was subsequently adopted to fulfill the objectives of the Declaration, including the protection of the Arctic ecosystem; the sustainable utilization of natural resources in the Arctic; and the identification, reduction and elimination of pollution.

The Arctic treeline landscape.
Photo: Courtesy of Leslie Leong

Four specialized working groups were formed to focus on priority areas for implementation of the AEPS:

1. *Arctic Monitoring and Assessment Program;*
2. *Conservation of Arctic Flora and Fauna;*
3. *Protection of the Arctic Marine Environment;* and
4. *Emergency Protection, Preparedness and Response.*

In 1996, the Foreign Ministers of the eight Arctic states agreed to form the Arctic Council with a mandate to undertake a broad program to include all dimensions of sustainable development, including the conservation and sustainable use of biodiversity. A fifth working group on sustainable development was subsequently established in 1998 for the purpose of developing the economic, social and cultural aspects of sustainable development.

The Arctic Council is the main intergovernmental forum for cooperation on common concerns and challenges faced by countries across the circumpolar region. Participants in the Council include the eight member states, as well as six indigenous organizations that are permanent participants of the Council: the Aleut International Association, Arctic Athabaskan Council, Gwich'in Council International, Inuit Circumpolar Conference, Russian Association of Indigenous Peoples of the North, and Saami Council. These groups work through the Arctic Council *Indigenous Peoples Secretariat*.

Arctic Monitoring and Assessment

The ***Arctic Monitoring and Assessment Program*** (AMAP) was established to implement the components of the AEPS dealing with pollution.

Find more: www.amap.no

This program integrates both monitoring and assessment activities, which include:

- *Trends and Effects Monitoring Program*

  This program is designed to monitor levels of pollutants and their effects on the Arctic environment. The program includes both monitoring and research components on a circumpolar or subregional level.
- *National Implementation Plan*

  The monitoring work within AMAP is based on existing national and international monitoring and research programs. Each country defines its own National Implementation Plan (NIP) to meet the AMAP monitoring objectives. Monitoring projects are carried out within each of the participating countries and across borders under bilateral and multilateral cooperation.
- *Assessment Reports*

  AMAP assessment reports document the sources, levels and trends, as well as the effects of a wide range of contaminants, including persistent organic pollutants (POPs), heavy metals and radionuclides. This work is important in identifying pollution risks and their impact on Arctic ecosystems and human health, and in assessing the effectiveness of international agreements on pollution control.

- ***Thematic Data Centres*** (Data Compilation)
  Data from recent (largely unpublished) monitoring and research are often used in AMAP's assessments. This data is compiled within AMAP's Thematic Data Centres (TDCs). TDCs have been established for the following types of data: atmospheric contaminants data, marine contaminants data, freshwater and terrestrial contaminants data, radioactivity data, and human health data.

As a direct follow-up to the AMAP monitoring and assessment work, the *Arctic Council Action Plan to Eliminate Pollution of the Arctic* (ACAP) was developed to address pollution sources identified by AMAP. The ACAP working group has also recently begun to develop recommendations with regard to new chemicals that are making their way into the Arctic food chain, such as brominated flame-retardants.

Find more: www.arctic-council.org/f2000-acap.html

The *Arctic Climate Impact Assessment* (ACIA) was established by the Arctic Council to assess the consequences of climate variability. The ACIA examines present status and possible future impacts of climate change and increased UV radiation on the environment and its living resources, on human health and social and economic activities, as well as possible adaptations and responses.

Find more: www.acia.uaf.edu/

Conserving Arctic Flora and Fauna

The ***Conservation of Arctic Flora and Fauna*** (CAFF) Program is a forum for scientists, indigenous peoples, and conservation managers to address issues of circumpolar conservation concern. CAFF aims at promoting the conservation of biodiversity and the sustainable use of living resources. Current CAFF initiatives include the development of a circumpolar approach to monitoring and conserving biodiversity in the Arctic, an assessment of the ecological impacts of climate change, and an overview of the *Status and conservation of Arctic flora and fauna*.

Find more: www.caff.is/

CAFF published its *Strategic Plan for the Conservation of Biodiversity* in September 1998. The Strategic Plan was developed as a tool towards the implementation of the *Co-operative Strategy for the Conservation of Biological Diversity in the Arctic Region* (Arctic Biodiversity Strategy).

Under the direction of the *Flora Group*, recent CAFF initiatives on Arctic flora include:

- The *Pan Arctic Flora Project*, which aims to harmonize nomenclature and taxonomy of vascular plants in the circumpolar region as a basis for studying the biodiversity, origin and evolution of Arctic flora;
- The *Circumpolar Arctic Vegetation Mapping Project*, a 1:7,500,000 digitalized vegetation map and database of the Arctic region north of the treeline; and

The Arctic Region according to CAFF definition.
Photo: Courtesy of Arctic Council

Arctic nest – Canada Goose
Photo: Courtesy of G. Calef, RWED

- An *Atlas of Rare Endemic Vascular Plants of the Arctic* (1998).

Under the direction of the *Circumpolar Seabird Working Group* (CSWG), initiatives on circumpolar fauna (specifically migratory birds and Arctic seabirds) include:

- The *International Murre Conservation Strategy and Action Plan*; and

  Find more: www.caff.is/sidur/uploads/internationalmurrestrategy-summary.pdf

- The *Circumpolar Eider Conservation Strategy and Action Plan,* and *Technical reports* and brochures on various seabird conservation issues.

  Find more: www.caff.is/sidur/uploads/eiderstrategy.htm.pdf

As part of a Circumpolar Biodiversity Monitoring Program, CAFF has established *circumpolar expert monitoring networks* on the following topics:

- Vascular plants;
- Arctic char;
- Reindeer/caribou;
- Waders, geese, wetlands;
- Seabirds;
- Ringed seal; and
- Polar bear.

The long-term monitoring objectives of CAFF are to integrate circumpolar biodiversity monitoring with the circumpolar physio-chemical monitoring activities of the AMAP.

The ***Circumpolar Protected Areas Network*** (CPAN) ***Strategy and Action Plan*** was adopted by the eight countries of the Arctic Council in 1996, and a CPAN Standing Committee was established under CAFF in 2000. The Standing Committee has several projects under development and implementation, including a compendium of ecologically important marine areas in the circumpolar region and an assessment of the full value of Arctic protected areas.

Find more: www.caff.is/sidur/uploads/cpan.htm.pdf

Emergency Protection, Preparedness and Response

Expanded use of natural resources (oil, gas, and mining) and growth in tourism in the Arctic is expected to lead to new and more frequently used navigation routes. This calls for new efforts to enhance the security of marine transport, prevent emergencies or respond to them effectively, including smooth cross-border assistance among neighbouring states.

The ***Emergency Prevention, Preparedness and Response*** (EPPR) ***Working Group*** was developed as a forum for exchanging information on best practices for preventing spills, preparing to respond to spills should they occur, and practical response measures for use in the event of a spill. EPPR is not a response agency. The work is focused mainly on oil and gas transportation and extraction, and on radiological and other hazards. The EPPR Working Group has developed a number of tools, including:

- an *Arctic Guide to Emergency Prevention, Preparedness and Response;*
- an *Environmental Risk Analysis of Arctic Activities*;
- a *Circumpolar Map of Resources at Risk from Oil Spills in the Arctic*; and
- a *Field Guide for Oil Spill Response in Arctic Waters*.

Find more: eppr.arctic-council.org/

Protection of the Arctic Marine Environment

PAME

Established in 1993, ***Protection of the Arctic Marine Environment*** (PAME) was established to control measures related to the protection of the Arctic marine environment from land and sea-based activities through policy and non-emergency pollution prevention.

Recognizing that existing and emerging activities in the Arctic pose unique challenges to Arctic coastal marine environments, Arctic Council Ministers requested that the PAME Working Group develop an *Arctic Marine Strategic Plan* (AMSP). The purpose of the AMSP is to guide Arctic Council activities related to the protection of Arctic seas by facilitating cooperation and coordination in the management the Arctic marine and coastal environment. PAME has also developed a *Regional Program of Action* (RPA), which addresses urgent pollution problems in the Arctic marine environment stemming from land-based activities.

Find more: www.pame.is

Arctic Estuary

Photo: Courtesy of Leslie Leong

Matrix of Actions – The Arctic Council

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
5	5.1	Continue to work in the spirit of the ***Declaration on the Protection of the Arctic Environment***.	Arctic Council members and permanent participants	W1
5	5.1 5.3 5.4 5.5	Continue to involve Aboriginal partners as permanent participants in the work of the Arctic Council through the ***Indigenous People's Secretariat***.	Aleut International Association, Arctic Athabaskan Council, GCI, ICC, Russian Association of Indigenous Peoples of the North, and the Saami Council	W2
5	5.1 5.3 5.5	Continue to participate in ***Arctic Council related programs and working groups*** such as ACIA, AMAP, CAFF, CPAN, EPPR, PAME, SDWG, and others as appropriate	Arctic Council members and permanent participants	W2 W3 W4

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

International Research and Monitoring Programs

The NWT participates in many international research and monitoring programs as a member of the circumpolar community.

The ***International Tundra Experiment*** (ITEX) is a collaborative effort involving scientists from more than 11 countries, including all the Arctic nations, to examine the response of circumpolar plant species to changes in temperature, through a warming experiment. NWT scientists participate in the ***Canadian Tundra and Taiga Experiment*** (CANTTEX), the Canadian component of ITEX, to share information on studies designed to monitor impacts of global climate change on tundra and taiga ecosystems in Canada. The program is building a monitoring network based on common protocols so that data can be exchanged and synthesized across multiple sites. In the NWT, RWED and researchers from Canadian universities maintain an ITEX research station at Daring Lake, northeast of Yellowknife.

Find more: www.itex-science.net/

CWS administers a series of shorebird monitoring programs throughout the NWT as part of the ***Program for Regional and International Shorebird Monitoring*** (PRISM). PRISM is a coordinated effort designed to meet the monitoring goals of the U.S. and Canadian Shorebird Plans through surveys of shorebirds in North America. Both plans identified the need for reliable information on the distribution, abundance and population trends of shorebirds.

See ➔ Goal II *Inventories, Research and Monitoring* for more information.
Find more: www.shorebirdworld.org/fromthefield/prism/prism1.htm

Over the past few decades, climate variability and change have become important issues across the Arctic. Many climate and process studies are being conducted in the NWT as scientists begin to grapple with the potential effects climate change may have on the biodiversity of the North.

The ***Mackenzie GEWEX Study*** (MAGS) is a series of large-scale hydrological and related atmospheric and land-atmosphere studies to be conducted within the Mackenzie Basin in Canada. Results from MAGS will provide an improved understanding of cold region, high latitude hydrological and meteorological processes, and the role that they play in the global climate system.

Find more: www.gewex.org/mags.html

CWS and Aurora College contribute to ***ArcticNet***, a series of research initiatives that connect researchers around the world with northern communities, federal and provincial agencies and the private sector to study the impacts of climate change in the Arctic. Over the next four years and beyond, ArcticNet will conduct *Integrated Regional Impact Studies* (IRIS) throughout the Arctic as an effort to contribute the knowledge needed to address concerns about climate change. The direct involvement of northerners in the scientific process is a primary goal of the network.

Find more: www.arcticnet.ulaval.ca/

Matrix of Actions – International Research and Monitoring Programs

CBD[1]	CBS[2]	Actions in the NWT	Collaborators	Find More[3]
5	5.1 5.3	Continue participation in international research and monitoring programs such as ***ITEX, CANTTEX, PRISM, MAGS, ArcticNet*** and others, as appropriate.	Many partners	W6 W7 W8

[1] Refers to appropriate Articles of the UN Convention on Biological Diversity.
[2] Refers to appropriate Strategic Directions in the Canadian Biodiversity Strategy.
[3] Find more information in documents (📖), in web pages (🖱) or follow up on another Goal in this report (➔).

Researchers in the field.
Photo: Courtesy of S. Baryluk

Cooperation on the Management and Conservation of Transboundary Species

International cooperation and coordination on transboundary species is essential to the effective conservation and management of migratory birds and large mammals with ranges that extend over several jurisdictions. Cooperation may take many forms, including agreements and treaties, joint management plans, and monitoring or research activities. Some of the major initiatives for international coordination of transboundary species in which the NWT is involved are listed in other sections.

See ➔ Goal I *Sustainable Use of Wildlife* for more information on international programs related to sustainable use of transboundary species.

See ➔ Goal II for more on international programs related to management of transboundary species.

See ➔ Goal IV *Policies, Accords and Agreements* for more information on international agreements and accords.

Information Sharing

Ultimately, the success of a conservation plan depends on the ability of conservation authorities and organisations to convey information about the true ecological, economic and social value of biodiversity to decision-makers and the public. Raising awareness and improving understanding of Arctic conservation concerns and biodiversity is an essential step toward the integration of conservation considerations into local, national and international plans and policies.

The *Canadian Polar Commission* has been promoting and disseminating knowledge of the Polar Regions, including the Canadian Arctic, since 1991. The Commission makes recommendations on science policy, including monitoring, research, and public awareness of the importance of polar science, to the Government of Canada. The Commission also has responsibilities to enhance Canada's international profile as a circumpolar nation. The Canadian Polar Commission is a member of the International Arctic Science Committee (IASC). The IASC is a non-governmental organization that facilitates cooperation in all aspects of Arctic research, in all countries engaged in Arctic research, and in all areas of the Arctic Region.

CANADIAN POLAR COMMISSION
COMMISSION CANADIENNE DES AFFAIRES POLAIRES

Find more: 🖱 www.polarcom.gc.ca and 🖱 www.iasc.no/

Cranberries
Photo: Courtesy of Leslie Leong

International Conventions and Agreements

The trend towards sustainable resource management has been strongly influenced by international guidance in the form of voluntary partnerships and international treaties. Canada is party to a host of conventions that address international biodiversity concerns. These include agreements on biodiversity, climate change, persistent organic pollutants, and trade in endangered species, among others.

See ➔ Goal IV *Policies, Accords and Agreements* for more information on international agreements and accords.

References

Web Pages Cited in Matrices

- W1: www.arctic-council.org/
- W2: www.arctic-council.org/participants.html
- W3: www.caff.is/
- W4: www.pame.is/
- W5: www.taiga.net/canttex/
- W6: www.cws-scf.ec.gc.ca/birds/pdf/cscp.pdf
- W7: www.shorebirdworld.org

Box 7 – Biodiversity Priorities in Canada: Working with Others… Four Steps Forward

Background

At the United Nations Conference on the Environment and Development in Rio de Janeiro, Brazil, in 1992, Canada became signatory to the United Nations Convention on Biological Diversity (UNCBD).

In 1996, the Canadian Biodiversity Strategy was developed with the help of experts from governments, industry, the scientific community, conservation groups, and indigenous organizations to apply the UN-CBD to the Canadian context. A series of strategies were suggested to increase our ability to conserve biodiversity and to foster ecologically sustainable development in Canada. All jurisdictions in Canada committed to produce action plans or reports on how they will implement the UNCBD, using the Canadian Strategy as a framework for planning and reporting.

The Secretariat that is tasked to help countries exchange information and cooperate in the implementation of the UNCBD around the World is hosted by Canada.

Secretariat of the Convention on Biological Diversity
393, Saint Jacques Street, suite 300
Montreal, Quebec, Canada H2Y 1N9
Tel: +1 (514) 288-2220, Fax: +1 (514) 288-6588
E-mail: secretariat@biodiv.org
Web: http://www.biodiv.org

The Northwest Territories Biodiversity Action Plan is both a response to the CBS, and a tool to plan future actions on biodiversity.

In 2000, the Federal/Provincial/Territorial Working Group on Biodiversity proposed to the Wildlife Ministers' Council of Canada (WMCC) that the working group take stock of what has been accomplished to date, and then to describe the major gaps and propose avenues for further collaboration and implementation across Canada.

Priorities for Actions Across Canada

By 2002, at a joint meeting of the Canadian Endangered Species Conservation Council and Wildlife Ministers' Council of Canada, the Ministers agreed on a set of priorities on biodiversity initiatives for cooperation, and on detailed plans for each priority.

These priority plans build on work and link to activities that are already taking place within each region of Canada, including the Northwest Territories.

1. Invasive Alien Species

Work on invasive alien species is very complex. No one region of Canada, working in isolation, can make significant progress in managing this important risk to biodiversity. All jurisdictions, including the Northwest Territories, have agreed to work more closely together using the:

- *National Plan for Invasive Alien Species* – discussion and consultation on this plan are under way; the plan should be ready by late 2004.

Find more: www.bco.ec.gc.ca/en/activities/ias.cfm

2. Stewardship

Programs that effectively promote stewardship provide tools to help people work together to conserve biodiversity and sustain natural ecosystems. This has been an important component of how we work in the North.

In Canada, stewardship is recognized and encouraged in a new agenda.

- *Canada's Stewardship Agenda* was agreed upon by all Ministers in 2003 and calls for increased investments at the community level, strengthened tools to share knowledge and awareness, strengthened policy and legislative support, and improved connectivity between programs.

Find more: www.stewardshipcanada.ca

3. Reporting on Status and Trends

Sharing information is key to effective adaptive ecological management. An analysis of how effectively we presently share biodiversity information with the public has showed that more cooperation is needed across jurisdictions and across sectors. Tangible products of this renewed cooperation will include:

- *Canadian Biodiversity Index* – under development as a key component of a national reporting system on biodiversity; and
- *One-window web site access to status and trends biodiversity information* – under development. This site will link to data from organizations working on biodiversity for easy access and analysis.

Find more: www.cise-scie.ca/english/home.cfm

4. Biodiversity Science Agenda

- A *Science Agenda* is being drafted to help set future priorities, including for funding, and to study the need for a biodiversity science advisory mechanism.

Find more: www.bco.ec.gc.ca/en/activities/ias.cfm

Find more:
See ➔ www.bco.ec.gc.ca for more information on these biodiversity priorities.

Appendices

Appendix 1

Accord for the Protection of Species at Risk in Canada

Federal, provincial and territorial Ministers responsible for wildlife commit to a national approach for the protection of species at risk. The goal is to prevent species in Canada from becoming extinct as a consequence of human activity.

We recognize that:

1. Species do not recognize jurisdictional boundaries and cooperation is crucial to the conservation and protection of species at risk;
2. the conservation of species at risk is a key component of the Canadian Biodiversity Strategy, which aims to conserve biological diversity in Canada;
3. Governments have a leadership role in providing sound information and appropriate measures for the conservation and protection of species at risk, and the effective involvement of all Canadians is essential;
4. Species conservation initiatives will be met through complementary federal and provincial/territorial legislation, regulations, policies, and programs;
5. Stewardship activities contributing to the conservation of species should be supported as an integral element in preventing species from becoming at risk; and
6. Lack of full scientific certainty must not be used as a reason to delay measures to avoid or minimize threats to species at risk.

On October 2nd, 1996, Ministers responsible for wildlife in Canada agreed in principle to the Accord and committed to a national approach to protect species at risk.

In 1998, after a series of public consultation, the Accord was modified to include the principle of Stewardship.

We agree to:

- participate in the Canadian Endangered Species Conservation Council in order to coordinate our activities and resolve issues for the protection of species at risk in Canada;
- recognize the Committee on the Status of Endangered Wildlife in Canada as a source of independent advice on the status of species at risk nationally; and,
- establish complementary legislation and programs that provide for effective protection of species at risk throughout Canada, and that will:
  a) address all native wild species;
  b) provide an independent process for assessing the status of species at risk;
  c) legally designate species as threatened or endangered;
  d) provide immediate legal protection for threatened or endangered species;
  e) provide protection for the habitat of threatened or endangered species;
  f) provide for the development of recovery plans within one year for endangered species and two years for threatened species that address the identified threats to the species and its habitat;
  g) ensure multi-jurisdictional cooperation for the protection of species that cross borders through the development and implementation of recovery plans;
  h) consider the needs of species at risk as part of environmental assessment processes;
  i) implement recovery plans in a timely fashion;
  j) monitor, assess and report regularly on the status of all wild species;
  k) emphasize preventive measures to keep species from becoming at risk;
  l) improve awareness of the needs of species at risk;
  m) encourage citizens to participate in conservation and protection actions;
  n) recognize, foster and support effective and long term stewardship by resource users and managers, landowners, and other citizens; and
  o) provide for effective enforcement.
- refer any disputes that may arise under this Accord to the Canadian Endangered Species Conservation Council for resolution.

Additional guidance on the implementation of this approach is provided in the evolving national framework for the conservation of species at risk.

Reproduced as accessed on the web at www.speciesatrisk.gc.ca/recovery/accord_bac_e.cfm

Appendix 2

Wildlife-related Monitoring Programs in the Northwest Territories

The NWT conducts a host of wildlife-related monitoring programs that help in determining changes in biodiversity and better understanding functional linkages in ecosystems.

Type of Monitoring
Ungulates and associated predators
Fur-bearers, carnivores and small mammals
Birds
Ocean ecosystem
Marine fishes, mammals and other species
Fish, amphibians and aquatic invertebrates
Terrestrial ecosystems – forest and tundra
Insects
Multi-species – general

In these programs, ***wildlife*** includes any animal or plant.

Monitoring is defined as an activity undertaken at regular intervals and expected to continue on a long-term (e.g., 10+ years) or undetermined basis. The objective of monitoring is to detect changes – sometimes still of an unknown nature, whereas the objective of research is to test hypotheses.

Research is defined as project that is expected to end when hypotheses were tested or when the objectives were completed. Research projects are not included in the monitoring list.

If radio or satelite tracking is done to investigate specific questions on, for example, movement or habitat use, then tracking is considered research. If tracking is expected to continue indefinitely so that it can be used as a tool to monitor movement, use, dispersion, population parameters etc. in a changing environmental context, then tracking may be considered monitoring.

A list of many of these monitoring programs can be found on the NWT Biodiversity Action Plan web site, at ***www.nwtwildlife.com/biodiversity/biodiversity_action_plan.html***

The list includes monitoring conducted by federal and territorial governments, as well as by non-governmental organizations and Aboriginal governments and groups. This list does not include monitoring conducted solely by private industry.

Appendix 3

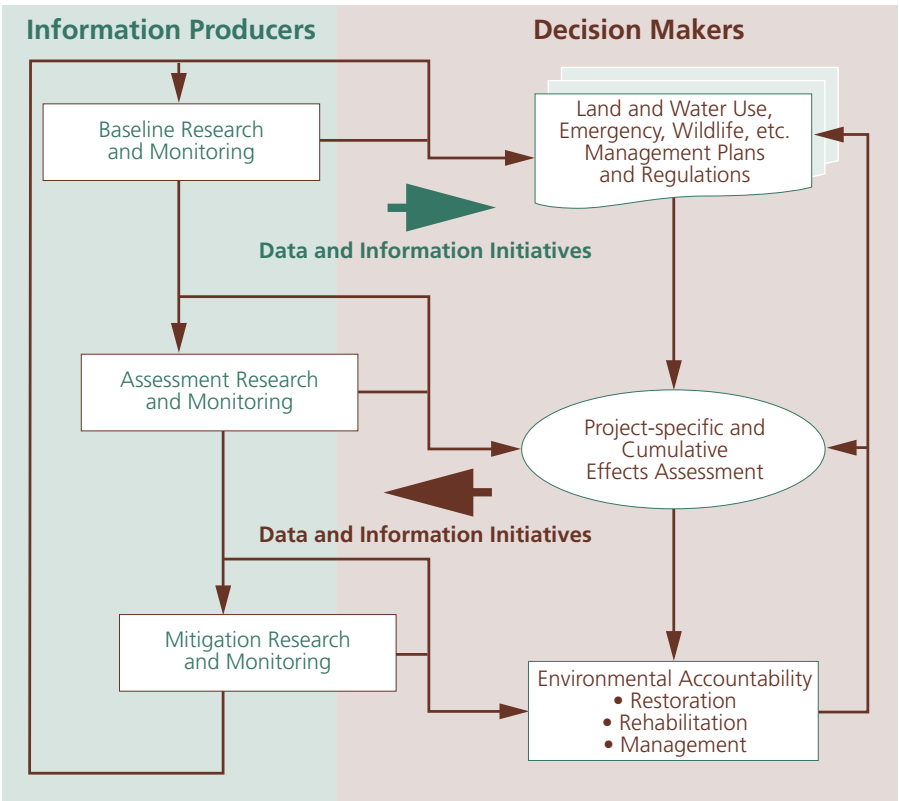
List of NWT Tools Available to Help in Ecological Management in an Adaptive Management Context

Each tool – program, legislation, and agreement – in the list is related to its appropriate box in the diagram on integrated adaptive management below. Arrows represent how information is usually shared between boxes.

Information Producers mainly function as advisors to *Decision Makers*.

In addition, Decision Makers will also produce useful new information essential to ***adapt*** the research and monitoring protocols, which in turn may result in changes in plans, regulations, agreements, etc. in tune with changes in the ecological system and changes in social expectations.

Simple Diagram of Integrated Adaptive Management



See ➔ Goal II for more information on ecological management in the NWT.
See ➔ Goal IV for more information on and a complete list of legislation related to biodiversity in the NWT.

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Baseline Research and Monitoring	**Monitoring and research needed to detect and understand the natural variation in environmental conditions.**						
Northern Ecosystem Initiative – baseline research on climate change and biodiversity	Government of Canada, EC	Beginning Phase 2	Northern Canada	Fund research and development on climate change, contaminants, biodiversity, impacts of major development.	1999	?	www.mb.ec.gc.ca/nature/ecosystems/nei-ien/dh00s00.en.html
NWT Biophysical Study – baseline research component	GNWT (RWED)	Being developed	Mackenzie River Valley	Fund baseline studies on natural variations to help predict impacts associated with oil/gas industry.	2002	?	www.gov.nt.ca/rwed/mog/downloads/oilgas_update_nov2002.pdf
Mackenzie Valley Cumulative Impact Monitoring Program (MVCIMP) – valued ecosystem component (VEC) program	Government of Canada, INAC and NWT CIMP Working Group	Five-year Work Plan drafted	NWT with focus on Gwich'in and Sahtu SA; eventual focus on Mackenzie Valley	Implement community-based impact monitoring required pursuant to the SDMLCA and GCLCA and as a requirement of MVRMA.	2002	2007 for re-view	www.ceamf.ca/08_cim/08_cimpreference.htm See Audit component in the Environmental Accountability section below.
Assessment Research and Monitoring	**Monitoring and research needed to understand the effects of development on the environment.**						
West Kitikmeot Slave Study	Many partners	Closed	Slave Geological Region	Study impacts associated with diamond industry.	1994	2001	www.wkss.nt.ca/
Beaufort Region Environmental Assessment and Monitoring Program (BREAM)	Government of Canada, INAC and many partners	Closed	Beaufort Sea	Offshore environmental ecosystems monitoring, and research on oil spills scenarios.	1990	1994	www.aina.ucalgary.ca/scripts/minisa.dll/144/hiproe/
NWT Biophysical Study – assessment research component	GNWT (RWED) with many partners	Being developed	Mackenzie River Valley	Fund studies on impacts associated with oil/gas industry.	2002	?	www.gov.nt.ca/rwed/mog/downloads/oilgas_update_nov2002.pdf
Northern Ecosystem Initiative – assessment research on impacts of major development	Government of Canada, EC	Beginning Phase 2	Northern Canada	Fund research and development on climate change, contaminants, biodiversity, impacts of major development.	1999	?	www.mb.ec.gc.ca/nature/ecosystems/nei-ien/dh00s00.en.html

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Mitigation Research and Monitoring	**Monitoring and research needed to understand how the effects of development on the environment could be reduced.**						
Northern Ecosystem Initiative – mitigation research on climate change, and impacts of major development	Government of Canada, EC	Beginning Phase 2	Northern Canada	Fund research and development on climate change, contaminants, biodiversity, impacts of major development.	1999	2005?	www.mb.ec.gc.ca/nature/ecosystems/nei-ien/dh00s00.en.html
Environmental Studies Research Funds (ESRF)	Government of Canada (NRCAN and INAC); Implementation as part of the ***Canada Petroleum Resources Act*** – Environmental Studies Research Fund Regions Regulations administrated by a Board: federal government, the Canada-Newfoundland Offshore Petroleum Board, the Canada-Nova Scotia Offshore Petroleum Board, the oil and gas industry, and members of the general public.	Imple-mentation	Crown lands in the NWT, Nunavut or Sable Island, or submarine areas, not within a province, in the internal waters of Canada, the territorial sea of Canada or the continental shelf of Canada.	Funds research program including "environmental and social studies designed to assist in the decision-making process related to oil and gas exploration and development on Canada's frontier lands". Funds are provided through levies on frontier lands paid by interested holders such as the oil and gas companies".	1983 (Funds); 1987 (Legi-slated)	Inde-finite	www.esrfunds.org/
Program of Energy Research and Development (PERD)	NRCAN, Office of Energy Research and Development, and other federal departments	Imple-mentation	Canada	Fund, among others, mitigation research on offshore and northern oil and gas, environmental and safety issues, improvements in sustainable development of communities, energy-efficient Industry R and D, and support for Canadian energy sector's response to impacts of climate change enhanced natural uptake of greenhouse gas.	1983	?	www2.nrcan.gc.ca/es/oerd/english/view.asp?x=659

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Land and Water Use, Emergency, Wildlife, etc. Management Plans and Regulations	**Specific tools to regulate, plan and manage human actions on ecosystems.**						
Land and Water Use							
Land and water use permitting system in the ***Gwich'in*** SA	Gwich'in Land and Water Board	In force	Gwich'in Settlement Area	"Regulates the use of land and water."	1998	Inde-finite	infosource.gc.ca/Info_1/glwb-e.html
Land and water use permitting system in the ***Sahtu*** SA	Sahtu Land and Water Board	In force	Sahtu Settlement Area	"Regulates the use of land and water."	1998	Inde-finite	www.slwb.com/
Land and water use permitting system in the ***Mackenzie Valley***	Mackenzie Valley Land and Water Board	In force	NWT outside settlement areas	"Regulates the use of land and water."	2000	Inde-finite	
Plans							
NWT Emergency Plan	Government of the Northwest Territories and many partners	Imple-mentation	NWT	"Provide policy and guidance where GNWT agencies and their partners support local emergency operations, and meet a collective responsibility to provide a prompt and coordinated management response for territorial emergencies."	1998?	Inde-finite	www.maca.gov.nt.ca/publications/acrobat/emergency_plan/contents.pdf
Protected Area Strategy	Many partners	Imple-mentation	NWT	"Provide a context for specific action items and commitments to facilitate the establishment of protected areas."	1999	Inde-finite	www.gov.nt.ca/rwed/pas/
Gwich'in Land Use Plan	Gwich'in Land Use Planning Board	Final, under review	Gwich'in Settlement Area	Develop and implement a land use plan for the Gwich'in Settlement Area with responsibilities under the Gwich'in Comprehensive Land Claim Agreement and the *Mackenzie Valley Resource Management Act* (Part 2).	1998	?	www.gwichinplanning.nt.ca/
Sahtu Land Use Plan	Sahtu Land Use Planning Board	Drafted, under review	Sahtu Settlement Area	"Develop and implement a land use plan for the Sahtu Settlement Area"... with responsibilities under the... "Sahtu Dene and Métis Comprehensive Land Claim Agreement (Section 25.2) and the *Mackenzie Valley Resource Management Act* (Part 2)."	1998	?	www.sahtulanduseplan.com/index.html

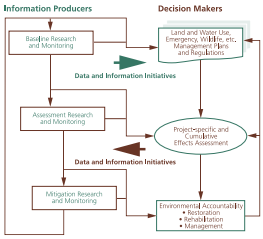
Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Deh Cho Land Use Plan	Deh Cho Land Use Planning Committee	Being drafted	Deh Cho territory	"Guide the development of the plan and ensure proper consultation and communication is occurring with all relevant parties" with responsibilities under the Deh Cho First Nations Interim Measures Agreement.	2001	?	www.dehcho lands.org/home.htm
Community Conservation Plans (Aklavik, Holman Inuvik, Paulatuk, Sachs Harbour, Tuktoyaktuk)	Implemented under recommendation of Inuvialuit Renewable Resource Conservation and Management Plan (1988), which was prepared by WMAC-NWT and the FJMC in partial fulfillment of obligations under the Inuvialuit Final Agreement.	Implementation	Inuvialuit Settlement Region	"Provide guidance in the planning (not a legally binding document) and describes strategies to address five goals on"...important wildlife habitat and harvesting areas, land use decisions and management of cumulative impacts, educational initiatives, general wildlife management, measures for species of concern, cooperative and consistent approach to renewable resource management.	2000 (Updated)	Regularly Updated	www.bmmda.nt.ca/downloads.htm
Renewable Resource Management							
Advise, plan and implement decisions on Renewable Resource management in the Inuvialuit Settlement Region	WMAC-NWT and FJAC	In place	Inuvialuit Settlement Region	Provide main legislated tool for the co-management of renewable resources in the ISR.	1984	Indefinite	www.fjmc.ca
Advise, plan and implement decisions on Renewable Resource management in the Gwich'in Settlement Region	Gwich'in Renewable Resource Board	In place	Gwich'in Settlement Area	Provide main legislated tool for the co-management of renewable resources in the GSA.	1994	Indefinite	www.grrb.ca
Advise, plan and implement decisions on Renewable Resource management in the Sahtu Settlement Region	Sahtu Renewable Resources Board	In place	Sahtu Settlement Area	Provide main legislated tool for the co-management of renewable resources in the SSA.	1993	Indefinite	www.srrb.ca
Advise, plan and implement decisions on Renewable Resource management in Wek'èezhìi' (Tlicho land)	Wekèezhìi Renewable Resources Board	To be established	Wekèezhìi'	Provide main legislated tool for the co-management of renewable resources in the Wekèezhìi'.			

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Renewable Resources Legislation See ➔ Goal IV for more information.							
NWT Wildlife Act	GNWT (RWED)	In force, and under revision	NWT	Provide GNWT with tools to manage wildlife in the NWT.	1988	Indefinite	www.lex-nt.ca/loi/index.html
NWT Forest Management Act	GNWT (RWED)	In force, and under review	NWT	Provide GNWT with tools to manage forests in the NWT.	1987	Indefinite	www.lex-nt.ca/loi/index.html
Migratory Birds Convention Act	Government of Canada, EC	In force	Canada	"Implement the... Migratory Birds Convention (1929)... by protecting migratory birds and nests."	1994	Indefinite	laws.justice.gc.ca/en/m-7.01/
Fisheries Act	Government of Canada, DFO	In force	Canada	Protect fish and fish habitat.	1985	Indefinite	laws.justice.gc.ca/en/f-14/
Species at Risk Act	Government of Canada, EC, DFO, PCA	In force	Canada: federal and crown lands	"Prevent Canadian indigenous species, subspecies and distinct populations of wildlife from becoming extirpated or extinct, to provide for the recovery of endangered or threatened species, to encourage the management of other species to prevent them from becoming at risk."	2002	Indefinite	www.speciesatrisk.gc.ca/index_e.cfm
NWT proposed Species at Risk Act	GNWT (RWED)	Proposed, under consultation	NWT	Provide GNWT with tools to prevent species from becoming extirpated or extinct because of human activities in the NWT.	?		www.nwtwildlife.rwed.gov.nt.ca/legislation/species%20at%20risk.pdf
Resource Legislation See ➔ Goal IV for more information.							
Canada Petroleum Resources Act	Government of Canada, INAC	In force	Crown lands in the Northwest Territories, Nunavut or Sable Island, or submarine areas, not within a province, in the internal waters of Canada, the territorial sea of Canada or the continental shelf of Canada.	"Governs the allocation of Crown lands to the private sector, tenure to the allocated rights, and the setting and collection of royalties."	1985	Indefinite	www.ainc-inac.gc.ca/oil/index_e.html; laws.justice.gc.ca/en/c-8.5/

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Canada Oil and Gas Operations Act	National Energy Board.	In force	Crown lands in the Northwest Territories, Nunavut or Sable Island, or submarine areas, not within a province, in the internal waters of Canada, the territorial sea of Canada or the continental shelf of Canada.	"Regulates the industrial activities with respect to resource conservation, environmental protection and safety of workers."	1985	Indefinite	laws.justice.gc.ca/en/o-7/
Territorial Lands Act and Public Lands Grants Act: Canada Mining Regulations	Government of Canada, INAC	In force	Crown lands in the Northwest Territories, except in National Parks, land claim settlement areas, and other exceptions.	"Administration and disposition of minerals belonging to (the Crown) under all lands forming part of the NWT."	1985	Indefinite	laws.justice.gc.ca/en/t-7/c.r.c.-c.1516/text.html
Cumulative Effects Assessment	**Formal tools to help during cumulative impact assessments: legislations and agreements.**						
Mackenzie Valley Resource Management Act (MVRMA)	Government of Canada, INAC and Boards	In force	NWT south of Inuvialuit Settlement Region and excluding Wood Buffalo National Park.	MVRMA requires project-specific cumulative effects assessment and management – refers to Land Settlement Agreements.	1998	Indefinite	laws.justice.gc.ca/en/m-0.2/
Canadian Environmental Assessment Act (CEAA)	Government of Canada, Canadian Environmental Assessment Agency	In force	Inuvialuit Settlement Region	CEAA requires project-specific cumulative effects assessment and management.	1992	Indefinite	laws.justice.gc.ca/en/C-15.2/
Gwich'in Land Claim Settlement Act	Government of Canada, INAC, and Boards	In force	Gwich'in Settlement Area	Regulates the application of the Gwizh'in Comprehensive Land Claim Agreement.	1992	Indefinite	
Sahtu Dene and Métis Land Claim Settlement Act	Government of Canada, INAC, and Boards	In force	Sahtu Settlement Area	Regulates the application of the Sahtu Dene and Métis Comprehensive Land Claim Agreement.	1993	Indefinite	

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Western Inuvialuit Land Claim Settlement Act	Government of Canada, INAC, and Boards	In force	Inuvialuit Settlement Region	Regulates the application of the Western Arctic Claim Inuvialuit Final Agreement.	1984	Inde-finite	
Environmental Accountability • Restoration • Rehabilitation • Management	**Formal tools to help the public review the effectiveness of mitigation, restoration, and rehabilitation measures: Agreements and Audits.**						
BHP ***Environmental Monitoring Agreement***	Independent Environmental Monitoring Agency	In place	Area near BHP EKATI™ diamond mine	"Review and comment on the design of monitoring and management plans and the results of these activities and on integration of traditional knowledge; act as an intervener in regulatory processes directly related to environmental matters involving the ***Ekati Diamond Mine***™ and its cumulative effects; bring concerns of the aboriginal peoples and the general public to the ***Ekati Diamond Mine***™ and government; keep aboriginal peoples and the public informed about Agency activities and findings; and, writing an annual report with recommendations that require the response of BHP and/or government."	1997	Inde-finite	www.monitoringagency.net/
Diavik ***Environmental Agreement***	Environmental Monitoring Advisory Board	In place	Area near Diavik Diamond Mine	"Facilitate the use of integrated, holistic and cooperative approaches to monitoring, management and regulation of the Diavik Diamond Project."	2001	Inde-finite	www.diavik.ca/html/body_emab.html
Mackenzie Valley Cumulative Impact Monitoring Program (MVCIMP) – ***Audit***	Government of Canada	To be initiated	NWT south of Inuvialuit Settlement Region and excluding Wood Buffalo National Park	Provide an independent and mandatory evaluation of the integrated management system as required under MVRMA.	2005	?	

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
	General tools to help gather and share information and data amongst all organizations involved in cumulative impact assessment and adaptive management.						
Arctic Science and Technology Information System (ASTIS)	Arctic Institute of North America, University of Calgary	Continuing	Northern Canada	AINA mandate is to "advance the study of the... Arctic through the natural and social sciences, the arts and humanities and to acquire, preserve and disseminate information on physical, environmental and social conditions in the north". ASTIS archives and store studies results and reports related to science and technology in northern Canada.	1945 (Institute)	?	www.ucalgary.ca/aina/index.html
Northern Information Network	Government of Canada, INAC	Continuing	Northern Canada	"Encourages information sharing about the Yukon, the Northwest Territories and Nunavut for more effective decision making in the areas such as resource management and economic development."	1999 (new site)	Indefinite	esd.inac.gc.ca/nin/
Northern Ecological Management and Assessment Network ***(EMAN – North)*** – Information Centre	Government of Canada, EC and many partners	Development	Northern Canada	Information Centre "to provide a central access point for long-term ecological monitoring information"	1997 (EMAN-North); 1999 (IC)	Indefinite	www.emannorth.ca and http://www.emanrese.ca/eman/program/about.html
Beaufort Mackenzie Mineral Development Area	Government of the Northwest Territories, Minerals, Oil and Gas Division, The Joint Secretariat – Inuvialuit Renewable Resource Committees and the Inuvialuit Land Corporation.	Continuing	Inuvialuit Settlement Region	"Bring together resource information for the Inuvialuit Settlement Region (ISR) in the Northwest Territories... (in the form of) a comprehensive internet guide to the geology, infrastructure, environmental data, development processes, and economic studies in the ISR."	1999	Indefinite	www.bmmda.nt.ca/default.htm

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Public Registry	Mackenzie Valley Environmental Impact Review Board	Continuing	NWT south of Inuvialuit Settlement Region and excluding Wood Buffalo National Park	"Notices and documents about environmental assessments and preliminary screenings" in Mackenzie Valley.	1998	Inde-finite	www.mveirb.nt.ca/mvposts.html
Fort Liard Ressources Directory	Government of the Northwest Territories, Minerals, Oil and Gas Division	Continuing	Fort Liard Area	"Compile information on the physical environment, resource interests, and land uses in the area."	1999	Inde-finite	www.liardresources.nt.ca/default.htm
	**General and formal tools to help define the process of adaptive management and cumulative impact assessment at the NWT level and at regional levels.** **"Fitting it all together"**						
Territorial-wide Process							
Cumulative Effects Assessment and Management CEAM–NWT (NWT wide)	Government of Canada and partners in a Working Group (Work Plan) and Steering Committee (Framework)	Framework and Blueprint (comple-ted), Imple-mentation Plan (being developed)	NWT excluding Wood Buffalo National Park	"Identify activities, milestones and resource requirements for the development of a (CEA) framework" and provide for an agreed basis for CEA in the Mackenzie Valley.	1999	2002 (Frame-work) 2003 (Blue-print 2003)	www.ceamf.ca
Regional Process							
CEAM – Regional Work Plan (Slave Geological Province)	Government of Canada and partners in a SGP Project Group and Steering Committee	Under review	Slave Geological Province	"Make recommendations to decision-makers to facilitate the protection of ecological integrity, the building of sustainable communities (including social and economic dimensions), and responsible economic development within a sound environmental management framework" in the Slave Geological Province.	2001	2002	www.ceamf.ca

Actions	Lead Organizations	Stage[1]	Location	Goal	Start Year	End Year	Find More
Regional Process (continued)							
CEAM – Regional Work Plans (Deh Cho Region)	Government of Canada and partners in a Project Group and Steering Committee	Initiated	Deh Cho region	Aim to be determined: Would make recommendations to decision-makers to facilitate the protection of ecological integrity, sustainable development of communities, within a sound environmental management framework in the Deh Cho Region.	2002	?	www.ceamf.ca
Project-specific Processes							
Cumulative Impact guidelines for screening and pre-review of developments in the ISR	Environmental Impact Screening Committee	In place	Area near any development screened in the Inuvialuit Settlement Region	Screen all activities in the ISR, except those on private land, that meet the definition of a development according to the IFA.	1998	Indefinite	www.bmmda.nt.ca/downloads.htm
Cumulative impact procedures for public review of development requiring environmental impact assessment in the ISR	(Inuvialuit) Environmental Impact Review Board	In place and updated	Area near any development under environmental review in the Inuvialuit Settlement Region	Conduct Environmental Review of all development in the ISR that was screened and referred by EISC.	1997, 2002 (updated)	Indefinite	www.bmmda.nt.ca/default.htm
Cumulative impact cooperation plan for assessment review of pipeline development projects in the Mackenzie Valley including the ISR	Northern Pipeline Environmental Impact Assessment and Regulatory Chairs' Committee	In place	Area near any proposed natural gas pipeline in the NWT	"Cooperation Plan outlines, in principle, how the parties would coordinate their response to any proposal to build a major natural gas pipeline through the Northwest Territories."	2002	?	www.mveirb.nt.ca/MVPWG/MVPWG.html

In conjunction with the formal work of CEAM – NWT, organizations have produced reports to provide examples on how adaptive management and Cumulative EA processes could be formalized in the entire NWT and in different regions of the NWT. Two of these examples can be found in:

- **Northern Ecosystem Initiative – Regional Approaches to Managing Effects in Canada's North**, Lead org.: Government of Canada, Environment Canada, AXYS Environmental Consulting Ltd. and Canadian Institute of Resources Law. Stage: Completed and available as an example for northern Canada. One model used as an example by the Mackenzie Valley CEAM Steering Committee, 2000.

  Find more: www.ceamf.ca/ceam_documents/nei_cemf_paper_nov_1_00.pdf

- **Cumulative Effects Assessment Generic Framework – Example for the Slave Geological Province**, Lead org.: Canadian Arctic Resources Committee and Macleod Institute for Environmental Analysis. Stage: Completed and available as an example for northern Canada with detail example for the Slave Geological Province. Provides a conceptual basis for designing a CEA. One model used as an example by the Mackenzie Valley CEAM Steering Committee, 1999.

  Find more: www.carc.org/new/final%20generic%20framework.pdf; www.ceamf.ca/ceam_documents/regional_approaches_to_managing_ce_march_2000.pdf

Appendix 4

Geographical Information System (GIS) Capacities in the Northwest Territories

The Canadian Biodiversity Strategy calls for the development of information management systems to facilitate the rapid analysis and distribution of biological and biophysical data and information. GIS is recognized as one of the most efficient ways to share and analyze data and information among organizations involved in landscape-level resource and ecological management. Current GIS capacities in the NWT are detailed below:

Agency or Organization	GIS Platforms and Hardware[1]	GIS-Trained Personnel[2]	Data Analysis Capabilities[3]
Federal Government			
DFO, Yellowknife Office	✓	✓	
DFO, Inuvik Office	✓		
Environment Canada, CWS, Yellowknife	✓	✓	✓
INAC, Yellowknife Office	✓	✓	✓
PCA, Western Arctic Field Unit (Inuvik)	✓	✓	✓
PCA, Southwest NWT Field Unit (including Nahanni National Park Reserve and Wood Buffalo National Park)	✓	✓	✓
Territorial Government			
DOT, Yellowknife Office	✓		
ECE, Prince of Wales Northern Heritage Centre	✓	✓	✓
MACA, Yellowknife Office	✓	✓	
RWED, Geomatics	✓	✓	✓
RWED, Wildlife and Fisheries	✓	✓	✓
RWED, South Slave region	✓		
RWED, Forest Management, HQ (Hay River and Fort Smith)	✓	✓	✓
RWED, North Slave Region, Wildlife and Forest Management	✓		
RWED, Deh Cho Region, Wildlife and Forest Management	✓	✓	
RWED-INAC C.S. Lord Northern Geoscience Centre	✓	✓	✓
RWED, Inuvik Region, Wildlife and Forest Management	✓	✓	✓
Regional and Aboriginal Government			
Akaitcho Territory Government	✓		
Dogrib Treaty 11 Council	✓	✓	✓
Gwich'in GIS Project (GRRB, GLWB, GLUPB, GTC)	✓	✓	✓
Inuvialuit Joint Secretariat	✓	✓	✓
North Slave Métis Alliance	✓		
Sahtu GIS Project (SRRB, SLUPB, RWED Sahtu)	✓	✓	✓
Communities			
Aboriginal Wildlife Harvesters Committee (Fort Resolution)	✓		
City of Yellowknife	✓		
Déline Uranium Team	✓		
Fort Providence Renewable Resource Committee	✓		
Hay River Dene Band	✓		
Wildlife, Land and Environment Committee (Lutsel K'e)	✓		
Boards and Committees			
Deh Cho Land Use Planning Committee	✓		
Mackenzie Valley Land and Water Board	✓		
Sahtu Land and Water Board	✓	✓	
Non-Governmental (Non-profit) Organizations			
Aurora Research Institute	✓	✓	✓
Canadian Parks and Wilderness Society – NWT Chapter	✓		
Ducks Unlimited Canada, Yellowknife Office	✓	✓	✓

[1] Includes GIS software (platforms), a plotter and map printer; may include multi-user network capacity
[2] Available staff whose duties directly include GIS, and who have training in GIS software and applications
[3] GIS staff has full data analysis capacities – the ability to produce and manipulate GIS data

Appendix 5

Available Land Cover Inventories in the NWT

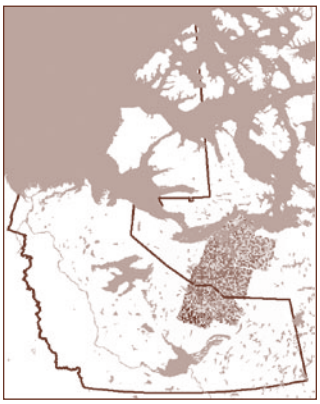
Since 1997 in the NWT, three projects have been initiated to develop high-resolution land cover inventories. Although each program differs in their goals, they cover somewhat different areas and, as a group, can complement each other. They form the very first intensive efforts to map the land cover of the NWT using high-resolution satellite imagery for local to regional uses.

Find more information on satellites and remote sensing:
edc.usgs.gov/products/satellite/avhrr.html, geo.arc.nasa.gov/sge/landsat/landsat.html

Northwest Territories Forest Land Cover Classification

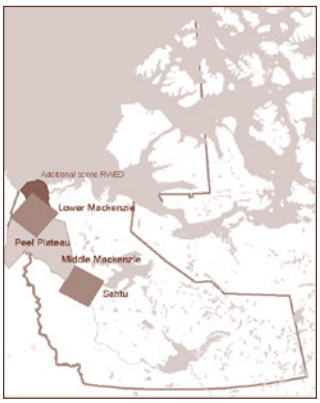
Goal: Inventory of land cover in forested regions
Lead: Forest Management Division, RWED
Scheme: Adapted from the National Forest Inventory Design for Canada
Class types: 101
Satellite: Landsat™
Data type: Pixels 30 x 30 square metres
Status: Completed 2003
Availability: Shared under agreements
Contact: Forest Management, RWED, Fort Smith, NT

Slave Geological Province Land Cover Classification



Goal: Baseline inventory in area with increasing development activity (NWT and Nunavut)
Lead: Remote Sensing, GNWT, and WKSS
Class types: 22
Satellite: Landsat™
Data type: Pixels 25 x 25 square metres
Status: Completed 2000
Availability: Public
Contact: Remote Sensing, RWED, Yellowknife, NT
nwtcrs.rwed-hq.gov.nt.ca/pub/wkss/wkssc.htm

Ducks Unlimited Canada – NWT Earth Cover Classification



Goal: Inventory of earth cover features throughout the boreal forest
Lead: Ducks Unlimited Canada
Scheme: Adapted from DU Land cover Classification Scheme.
Class types: Scenes vary from 28-40 classes
Satellite: Landsat™
Data type: Pixels 30 x 30 square metres
Status: Two scenes completed (dark grey) and two in progress (light grey); one scene extension under development by RWED (black)
Availability: Shared under agreements
Contact: DUC, Yellowknife, NT

Glossary

- **Aboriginal Harvesters:** Aboriginal people who have treaty rights or traditional rights to harvest in the NWT. Aboriginal harvest quotas and closed seasons only apply on specific species in specific areas.
- **Aboriginal Organizations:** Refers in a general way to groups or organizations representing Dene, Métis and/or Inuvialuit interests in the NWT.
- **Accountability:** The obligation to demonstrate and take responsibility for performance in light of agreed-upon commitments (CCME).
- **Adaptive Management:** An approach to management that acknowledges an uncertain understanding of environmental dynamics; it links flexible management and decision-making to the results of research and monitoring.
- **Biology:** The study of living organisms (plants, animals, etc.).
- **Climate Change:** A change in the "average weather" that a given region experiences over a long time. Average weather includes all the features we associate with the weather such as temperature, wind patterns and precipitation. The rate and magnitude of global climate changes over the long term have many implications for natural ecosystems. (Anonymous 1995; Maxwell 1997)
- **Co-management:** The process of jointly managing something.
- **Commissioner's Land:** Public lands under the administration of the GNWT. This involves land acquired by the NWT with territorial funds, public lands that have been transferred to the Territories, and all roads, streets, lanes and trails on these lands.
- **Community-based Monitoring:** A "community-based" approach to monitoring may have several aspects:
  - Monitoring may include either Elders' traditional knowledge, and/or the local knowledge and experience of those currently involved in harvesting and gathering (i.e., the collection of observations of land users). Monitoring may also involve community members participating in the collection, analysis/interpretation, and reporting of traditional or science-based monitoring information. School-based monitoring may be an important component.
  - Community-based monitoring focuses on the questions and issues of priority to the community itself; in this sense, the monitoring undertaken to address such concerns may not always be conducted by community members, or utilize traditional/local knowledge. For example – the monitoring needed to address water or food contamination concerns may be science-based, conducted by government organizations.

- **Crown Land:** Public lands under the administration of the Government of Canada. The *Department of Indian Affairs and Northern Development Act* specifies that the Minister is responsible for resources in the NWT, and has control, management and administration of all lands situated in the NWT belonging to Her Majesty in right of Canada not under management, charge and direction of any other Minister or agency of the Government of Canada.
- **Cumulative Effects:** Changes to the biophysical, social, economic, and cultural environments caused by the combination of past, present and… foreseeable future actions (CEA Working Group/AXYS, 1999).
- **Cumulative Effects Assessment:** An assessment of the incremental effects of an action on the environment when the effects are combined with those from past, existing and future actions (CEA Working Group/AXYS, 1999). The process of systematically analyzing and assessing cumulative effects (often in the context of a specific proposal or project; however, CEA may also be conducted on a regional basis, with no reference to any specific individual project or development).
- **Cumulative Effects Monitoring:** The collection and analysis of information to determine changes in the environment resulting from multiple sources. May relate to social, economic, and cultural aspects of the environment, in addition to the natural/biophysical aspects, using Traditional Knowledge or western science.
- **Cumulative Effects Management:** There are two aspects to cumulative effects management: "prevention" through planning, design and mitigation, and "adaptive management"– the incorporation of information from monitoring and assessment into decision-making processes. These decisions may occur at different stages of development, from land use planning, rights issuance, through to screening, environmental assessment, regulation and reclamation of individual projects.
- **Cumulative Impact:** The CEA Working Group has defined cumulative impacts as "changes to the environment caused by an activity, combined with other past, present and future activities". The term "cumulative impact" has been used interchangeably with "cumulative effect" in this document. The *MVRMA* does not define the term "cumulative impact".
- **Cumulative Impact Assessment:** See Cumulative Effects Assessment
- **Data:** Facts used as a basis for reasoning, discussion, or calculation.
- **Data Deficient Species:** A species where there is insufficient information to support status designation (COSEWIC).
- **Decadal:** Occurs every 10 years.
- **Devolution:** The transfer of responsibilities and authority to a more locally or regionally based governments. For example, the taking over by the GNWT of provincial-type responsibilities from the federal government is part of devolution.
- **Ecosystem:** A biological community of interacting organisms and their physical environment.

- **Ecological Management:** Management of human activities so that ecosystem… processes continue at appropriate temporal and spatial scales. Ecological Management is also referred to as ecosystem management (CBS 1995).
- **Endangered Species:** A species facing imminent extinction or extirpation (COSEWIC).
- **Environment:** Broadly defined to include social, economic, and cultural, in addition to natural/biophysical aspects.
- **Exotic:** Organisms that have evolved elsewhere and have been actively or indirectly relocated thought human activities. "Elsewhere" in North America usually means from outside the continent. Synonymous to "non-native", "alien" or "non-indigenous".
- **Extinct Species:** A species that no longer exists anywhere (COSEWIC).
- **Extirpated Species:** A species that no longer exists in the wild in the NWT or Canada but is still found elsewhere (COSEWIC).
- **First Nations:** Means the Gwich'in First Nation, the Sahtu First Nation, Tlicho First Nation, Deh Cho First Nation, and bodies representing other Dene or Métis of the NWT.
- **Forest:** Plant communities consisting of trees, bushes, shrubs and other woody vegetation, either growing or dead (Management of Forests in the NWT Designation Order of the Governor in Council made under the *NWT Act* (Canada) P.C. 1987-7/466).
- **Greenhouse Effect:** The heating of the Earth's surface and lower atmosphere attributed to an increase in carbon dioxide and other gases, which are more transparent to incoming solar radiation than to reflected radiation from the Earth.
- **Heavy Metals:** Heavy metals, such as mercury, cadmium and lead, are present naturally in rocks and soil. Human activities, such as mining, smelting and coal-burning power generation, may also release these metals to the environment.
- **Indicators:** Used to measure the condition of something of interest. Biodiversity indicators are information tools, summarizing data on complex environmental issues to indicate the overall status and trends of biodiversity (Secretariat of the Convention on Biological Diversity). Indicators are often used as variables in the modeling of changes in complex environmental systems (CEAA, 1999). An indicator represents a key aspect of the environment that, when tracked over time, can provide trends in the condition of the environment beyond the properties of the indicator itself. Indicators may be used as variables in the conceptual modeling of changes in complex environmental systems, linking various stressors to indicators and ultimately to VCs. Indicators may be assessed using Traditional Knowledge, conventional science, or both.
- **Information:** Interpretation that results from a data gathering process, based on previous information and a set of assumptions. Information is a subjective interpretation or opinion.

- **Introduced:** Organisms that have evolved outside a specific area (e.g., the NWT) and have been actively or indirectly relocated by human activities.
- **Invasive:** Species or sub-species, which are able to spread and prosper in natural ecosystems where they have not occurred before.
- **Local Ecological Knowledge:** Knowledge of a specific area, and its ecosystems, which has been accumulated over a lifetime.
- **Knowledge:** Higher-level abstraction of information based on a reality that is shared by a group of people.
- **Mackenzie Valley:** Area in the NWT not including the Inuvialuit Settlement Region and Wood Buffalo National Park (MVRMA).
- **Mitigation:** The elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such efforts through replacement, restoration, compensation or any other means (CCEA ss.2(1)).
- **Mitigative or Remedial Measures:** Measures for the control, reduction or elimination of an adverse impact of a development on the environment, including a restorative measure (MVRMA Part V s111).
- **Monitor:** Determine what is changing, usually over a long period of time.
- **National Classification System:** System developed to provide a "rational and scientifically defensible… assessment of contaminated sites across Canada". Each site is assigned to either Class I, Class II, or Class III.
- **Non-Resident Hunters:** People who are not NWT residents but are Canadian citizens, or landed immigrants, or non-Canadian, and who wish to hunt in the NWT. All non-resident hunters require the service of outfitters to hunt big game species in the NWT; they must acquire a seasonal licence, tags, and trophy fees.
- **Not at Risk Species:** A species that has been evaluated and found to be not at risk (COSEWIC).
- **Overharvesting:** The act or an instance of killing too many trees, animals, fish, etc., by logging, hunting, fishing, etc., resulting in the species becoming at risk of extinction.
- **Paramountcy:** Requiring first consideration.
- **Persistent Organic Pollutants (POPs):** Primarily human-made chemicals released from agricultural practices and many industrial processes and products (e.g. PCBs).
- **Precautionary Principle:** A fundamental truth or law as the basis of action, taken in advance to prevent problems.
- **Private Lands:** Aboriginal people own large tracts of land in the Inuvialuit Settlement Region, Gwich'in Settlement Area, Sahtu Settlement Area, and Tli Cho Lands. These were selected through the settlement of land claims.
- **Radionuclides:** Contaminants that release radiation or energy. They can be naturally occurring (e.g. uranium) or result from human activities, such as atmospheric testing of nuclear weapons and nuclear waste disposal.

- **Reclamation:** A planned series of activities designed to recreate the biophysical captivity of an ecosystem in such a way that the resulting ecosystem is different from the ecosystem existing before disturbance (Dunster J. and Dunster K. 1996).
- **Research:** Determine how and why changes are occurring. Research can be conducted over a shorter period of time then monitoring.
- **Resident Hunters:** Non-aboriginal people who have resided in the NWT for a specified period and who wish to hunt in the NWT. Resident hunters may hunt specific species during a specific season after they acquire a seasonal hunting licence and appropriate tags.
- **Restoration:** A process of returning ecosystems or habitats to their original structure and species composition. Restoration requires a detailed knowledge of the (original) species, ecosystem functions, and interacting process involved (Dunster J. and Dunster K. 1996).
- **Sponsoring Agency:** A federal or territorial government agency with the appropriate legislation for establishing protected areas in the NWT.
- **Special Concern Species:** A species with characteristics that make it particularly vulnerable to human activities or natural events (COSEWIC)
- **Sustainable Development:** Development that conserves an ecological balance by avoiding depletion of natural resources.
- **Synchrony:** Occurring at the same time.
- **Threatened Species:** A species likely to become endangered if limiting factors are not reversed (COSEWIC).
- **Traditional Knowledge:** Knowledge and values that have been acquired through experience and observation, from the land or from spiritual teachings, and handed down from one generation to another.
- **Trappers:** Only Aboriginal and non-aboriginal harvesters with harvesting rights within the NWT can trap in the NWT.
- **Valued Component (VC):** VCs are aspects of the environment that are considered important, on the basis of economic, social, cultural, community, ecological, legal or political concern. They provide a focus for the collection and reporting of monitoring information. A VC is not an indicator in itself, although impacts on or trends in some characteristic of a VC may be used as an indicator. For example, caribou may be chosen as a VC, although the caribou are not an indicator in themselves (e.g., the indicator may be caribou body fat).

List of Acronyms

ABEKC	Arctic Borderlands Ecological Knowledge Co-op
ACAP	Arctic Council Action Plan to Eliminate Pollution of the Arctic
ACIA	Arctic Climate Impact Assessment
ACUNS	Association of Canadian Universities for Northern Studies
AEA	Arctic Energy Alliance
AEPS	Arctic Environmental Protection Strategy
AHRDCC	Aboriginal Human Resource Development Council of Canada
AINA	Arctic Institute of North America
AIP	Agreement in Principle
AMAP	Arctic Monitoring and Assessment Program (Working Group of the Arctic Council)
AMMO	Association of Mackenzie Mountain Outfitters
AMSP	Arctic Marine Strategic Plan
ARI	Aurora Research Institute
ARNEWS	Acid Rain Early Warning System
ASRD	Alberta Sustainable Resource Development
ASTIS	Arctic Science and Technology Information System
BCOA	Barrenground Caribou Outfitters Association
BCR	Bird Conservation Region
BEAHR	Building Environmental Aboriginal Human Resources
BOREAS	Boreal Ecosystem-Atmosphere Study
BQCMB	Beverly-Qamanirjuaq Caribou Management Board
BREAM	Beaufort Region Environmental Assessment and Monitoring Program
BSIMPI	Beaufort Sea Integrated Management Planning Initiative
C&I	Criteria and Indicators Framework
C-CIARN	Climate Change Impacts and Adaptations Research Network
C-NVC	Canadian National Vegetation Classification
CAFF	Conservation of Arctic Flora and Fauna (Working Group of the Arctic Council)
CAIPP	Canadian Arctic Indigenous Peoples against POPs
CANTTEX	Canadian Tundra and Taiga Experiment
CAPP	Canadian Association of Petroleum Producers
CARC	Canadian Arctic Resources Committee
CBD	Convention on Biological Diversity (1992)
CBI	Canadian Boreal Initiative
CBS	Canadian Biodiversity Strategy
CCAF	Canadian Climate Action Fund
CCEA	Canadian Council on Ecological Areas
CCFM	Canadian Council of Forest Ministers
CCHREI	Canadian Council for Human Resources in the Environment Industry

CCME	Canadian Council of Ministers of the Environment
CCOG	Canadian Council on Geomatics
CCRA	Canadian Customs and Revenue Agency
CCWM	Canadian Council of Wildlife Ministers
CDC	Conservation Data Centre
CE	Cumulative Effects
CEA	Cumulative Effects Assessment
CEAA	*Canadian Environmental Assessment Act*
CEAM	Cumulative Environmental Assessment and Management
CEAMF	Cumulative Environmental Assessment and Management Framework (now the Cumulative Effects Assessment and Management Strategy and Framework)
CEPA	*Canadian Environmental Protection Act* (federal)
CESCC	Council on Endangered Species Conservation in Canada
CFIA	Canadian Food Inspection Agency
CFS	Canadian Forest Service
CGDI	Canadian Geospatial Data Infrastructure
CIMP	Cumulative Impacts Monitoring Project
CIRL	Canadian Institute of Resources Law
CISE	Canadian Information System for the Environment
CITES	Convention on International Trade in Endangered Species
COM-NWT/NU	Chamber of Mines (NWT and Nunavut)
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CPAN	Circumpolar Protected Areas Network
CPAWS-NWT	NWT Branch of the Canadian Parks and Wilderness Society
CPC	Canadian Polar Commission
CSAS	Canadian Science Advisory Secretariat
CSLGC	CS Lord Geoscience Centre, (GNWT and GOC partnership)
CSWG	Circumpolar Seabird Working Group
CWA	*Canada Wildlife Act* (federal)
CWF	Canadian Wildlife Federation
CWS	Canadian Wildlife Service, Environment Canada
CWS-PN	Canadian Wildlife Service – Prairie and Northern Region
CWS-YK	Canadian Wildlife Service – Yellowknife Branch
CYFN	Council of Yukon First Nations
DCFN	Deh Cho First Nations
DEWG	Denendeh Environmental Working Group
DFO	Department of Fisheries and Oceans Canada
DIAND	Department of Indian and Northern Development (same as INAC)
DND	Department of National Defence
DOE	Department of Environment (same as Environment Canada)
DOH	Department of Health
DOT	Department of Transportation (GNWT)
DRR	Department of Renewable Resources (Government of Yukon)

DRRC	Dogrib Renewable Resources Committee
DSD	Department of Sustainable Development (Government of Nunavut)
DU	Ducks Unlimited
DUC	Ducks Unlimited Canada
EA	Environmental Assessment
EC	Environment Canada
ECE	Department of Education, Culture and Employment (GNWT)
EIRB	Environmental Impact Review Board (Inuvialuit Settlement Region)
EIS	Ecological Integrity Statement
EISC	Environmental Impact Screening Committee
ELC	Ecological Land Classification
EMAB	Environmental Monitoring Advisory Board for Diavik Diamond Mines
EMAN	Ecological Monitoring and Assessment Network
EN	Ecology North
ENGO	Environmental Non-Governmental Organization
EPPR	Emergency Prevention, Preparedness and Response
ESRF	Environmental Studies Research Funds
ESWG	Ecological Stratification Working Group
FHA	Fur Harvesters Auction
FIC	Fur Institute of Canada
FJMC	Fisheries Joint Management Committee (Inuvialuit Settlement Region)
FM	Forest Management Division, RWED (GNWT)
FNFP	First Nations Forestry Program
GBLWWG	Great Bear Lake Watershed Working Group
GC	Government of Canada
GCI	Gwich'in Council International
GCLCA	Gwich'in Comprehensive Land Claim Agreement
GEKP	Gwich'in Environmental Knowledge Project
GEWEX	Global Energy and Water Cycle Experiment
GGS	NWT Greenhouse Gas Strategy
GIS	Geographical Information System
GLOBE	Global Learning and Observations to Benefit the Environment
GLUPB	Gwich'in Land Use Planning Board
GLWB	Gwich'in Land and Water Board
GMVF	Genuine Mackenzie Valley Furs
GNU	Government of Nunavut
GNWT	Government of the Northwest Territories
GRRB	Gwich'in Renewable Resource Board
GRRC	Gwich'in Renewable Resource Council
GSA	Gwich'in Settlement Area
GSCI	Gwich'in Social and Cultural Institute
GTC	Gwich'in Tribal Council

GYK	Government of the Yukon
HC	Heritage Canada
HRDC	Human Resources Development Canada
HTA	Hunters and Trappers Association
HTC	Hunters and Trappers Committee
HTFCC	Hunting, Trapping and Fishing Coordinating Committee
IAC	Implementation Advisory Committee
IASC	International Arctic Science Committee
IBA	Impacts and Benefits Agreement
IBA	Important Bird Area
ICC	Inuit Circumpolar Conference
ICEC	International Classification of Ecological Communities
IEMA	Independent Environmental Monitoring Agency for the Ekati Diamond Mine
IFA	Inuvialuit Final Agreement
IFAICC	Inuvialuit Final Agreement Implementation Coordinating Committee
IGC	Inuvialuit Game Council
IISD	International Institute for Sustainable Development
IJS	Inuvialuit Joint Secretariat
IISD	International Institute for Sustainable Development
IMS	Information Management System
INAC	Indian and Northern Affairs Canada (also known as DIAND)
IRC	Inuvialuit Regional Corporation
IRIS	Integrated Regional Impact Studies
ISC	International Science Committee
ISR	Inuvialuit Settlement Region
ITEX	International Tundra Experiment
ITK	Inuit Tapiriit Kanatami
IUCN	The World Conservation Union (International Union for the Conservation of Nature)
KHTA	Kitikmeot Hunters and Trappers Association
KIA	Kitikmeot Inuit Association
LDFN	Lutsel K'e Dene First Nation
LRTAP	Long-Range Transport of Atmospheric Pollutants
LWB	Land and Water Board
MACA	Department of Municipal and Community Affairs (GNWT)
MAGS	Mackenzie GEWEX (Global Energy and Water Cycle Experiment) Study
MBCA	*Migratory Birds Convention Act* (federal)
MBS	Migratory Bird Sanctuary
MCA	Marine Conservation Area
MPA	Marine Protected Area
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	*Mackenzie Valley Resource Management Act*

NA	North America
NABCI	North American Bird Conservation Initiative
NACOSAR	National Aboriginal Council on Species at Risk
NASA	National Aeronautics and Space Administration
NAWMP	North American Waterfowl Management Plan
NCE	Northern Climate ExChange
NCP	Northern Contaminants Program
NEI	Northern Ecosystem Initiative
NFI	National Forest Inventory
NGO	Non-governmental Organization
NIN	Northern Information Network
NIP	National Implementation Program
NOAA	National Oceanic and Atmospheric Administration (US)
NRBS	Northern River Basin Study
NRC	National Research Council
NRCAN	Natural Resources Canada
NRI	Northern Research Institute (Yukon College)
NSF	National Science Foundation
NSERC	Natural Sciences and Engineering Research Council of Canada
NSMA	North Slave Métis Alliance
NSTP	Northern Scientific Training Program
NTI	Nunavut Tunngavik Incorporated
NTMN	Northwest Territory Métis Nation
NU	Nunavut
NWA	National Wildlife Area
NWMB	Nunavut Wildlife Management Board
NWT	Northwest Territories (also NT)
NWTAM	Northwest Territories Association of Municipalities
NWT HC	Northwest Territories Housing Corporation
NWT-PAS	Northwest Territories Protected Areas Strategy
NWT PC	Northwest Territories Power Corporation
NWT PUB	Northwest Territories Public Utilities Board
NWTRPA	NWT Recreation and Parks Association
OAGC	Office of the Auditor General of Canada
OCIPEP	Office of Critical Infrastructure, Protection and Emergency Preparedness
OIP	Office of International Programs
OMS	Oceans Management Strategy
PAME	Protection of the Arctic Marine Environment
PAS	Protected Areas Strategy
PCA	Parks Canada Agency
PCB	Polychlorobiphenyl Compound
PCMB	Porcupine Caribou Management Board
PCSP	Polar Continental Shelf Project
PERD	Program of Energy Research and Development

POPs	Persistent Organic Pollutants
PRISM	Program for Regional and International Shorebird Monitoring
PSP	Permanent Sampling Plot
PWS	Public Works and Services
RA	Responsible Authority
RCGS	Royal Canadian Geographical Society
RCMP	Royal Canadian Mounted Police
RENEW	Recovery of Nationally Endangered Wildlife
RPA	Regional Program of Action
RRB	Renewable Resources Board
RRC	Renewable Resources Committee
RRRC	Regional Renewable Resource Committee
RWED	Department of Resources, Wildlife and Economic Development (GNWT)
RWED FM	Forest Management Division, RWED (GNWT)
SARA	*Species at Risk Act* (federal)
SARC	Species at Risk Committee
SDMCLCA	Sahtu Dene and Métis Comprehensive Land Claim Agreement
SLUPB	Sahtu Land Use Planning Board
SLWB	Sahtu Land and Water Board
SRRB	Sahtu Renewable Resources Board
SSA	Sahtu Settlement Area
SSI	Sahtu Secretariat Incorporated
SSHRC	Social Sciences and Humanities Research Council
TDC	Thematic Data Centres
TEK	Traditional Ecological Knowledge
TFN	Tli Cho First Nation
TK	Traditional Knowledge
TNC	The Nature Conservatory
TSMP	Toxic Substances Management Policy
UBC	University of British Columbia
UN	United Nations
UNCBD	Untied Nations – Convention on Biological Diversity
UNCED	United Nations – Convention on Economic Development
USDA	United States Department of Agriculture
USFIP	United States Federal Interagency Program
USFWS	United States Fish and Wildlife Service
VEC	Valued Ecosystem Component (also known as VC)
VGFN	Vuntut Gwich'in First Nation
WAPPRIITA	*Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act* (federal)
WMB	Wildlife Co-management Board
WKSS	West Kitikmeot Slave Study
WMAC-NWT	Wildlife Management Advisory Council (NWT)

WMAC-NS	Wildlife Management Advisory Council (North Slope)
WMCC	Wildlife Ministers' Council of Canada
WMB	Wildlife Co-management Board
WWF	World Wildlife Fund Canada
Y2Y	Yellowstone to Yukon Conservation Initiative
YDFN	Yellowknives Dene First Nation
YFWMB	Yukon Fish and Wildlife Management Board

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Team members were involved in the drafting, reviewing and revising of this report at many stages, and provided comments and suggestions on its content and format.

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The NWT Biodiversity Team is continuing to work on biodiversity actions across the NWT.

We welcome your input. The NWT Biodiversity Team would benefit from your participation as a Team member.

www.nwtwildlife.com/biodiversity/biodiversity_action_plan.html