



Manitoba Joins International Conservation Network

NESTING DEEP IN the heart of Winnipeg's airport industrial area is a place where five staff and a diverse group of volunteers work towards a common vision: conservation of Manitoba's biodiversity.

This place, started in July of 1994, is the Manitoba Conservation Data Centre, or CDC. The *raison d'être* for the CDC is to research and rank Manitoba species and natural communities.

By comparing the provincial species information to global data, the Manitoba CDC can rank the relative endangerment of Manitoba species and help focus provincial conservation efforts.



A Central Source

To achieve this end, the CDC is creating a centralized, reliable data base containing information about the location, status and trends of all plants, animals, and natural communities in Manitoba.

"The CDC is much needed in Manitoba. Data needs to be compiled in one place with consistent methodology," says Elizabeth Punter, Botanist at the Manitoba CDC, who has spent many hours poring over yet-to-be computerized sources at locales scattered throughout Manitoba.

An International Network

The Manitoba CDC is the latest addition to a group of over 85 CDCs located in the Western Hemisphere. In Canada, CDCs already exist in British Columbia, Saskatchewan, Ontario, and Quebec. CDC's exist in all U.S. states and some Central and South American countries.

Information will be entered into a software system called the Biological and Conservation Data System (BCD), created by The Nature Conservancy. The Nature

Conservancy, a non-profit group based in Virginia, is the initiator of the CDCs, and caretaker during the initial two-year start-up period.

Where to Start?

As a starting point, the Manitoba CDC will focus on the most endangered species, because they are of immediate biodiversity concern.

Species information is being plotted on topographic maps and will ultimately be merged with Geographical Information Systems (GIS) technology to create "what if?" scenarios.

For example, suppose it is found that a proposed road route, when compared with CDC data on a GIS map, will travel through a patch of the very rare Western Prairie Fringed Orchid. The road route could be adjusted and again compared to the map, until satisfactory results are found.

It is a similar concept to hair salons that generate computer images to show clients how they might look with a different hairstyle; one can visualize the potential situation without suffering the disastrous results.

The CDC is an information service; it does not manage or regulate resource use. CDC information is an invaluable resource for use in natural resource management, conservation planning, environmental impact assessments, and planning for sustainable development. ♣

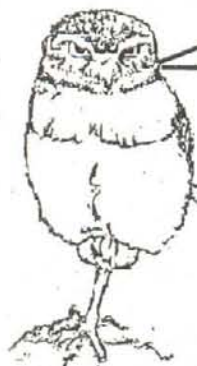
The Process . . .

CDC Scientists Must:

- 1 Review varied resources to create an initial list of plants, animals, and natural communities in Manitoba.
- 2 Verify information for accuracy by using their own expertise, consulting local experts, reviewing literature, and then revising the list accordingly.
- 3 Enter species information into the Biological and Conservation Data (BCD) software system.
- 4 Rank plants, animals, and natural communities according to their relative provincial endangerment status.
- 5 Compare provincial rankings with global CDC rankings to determine world-wide endangerment status of Manitoba species.
- 6 Fill information gaps in the BCD through field study.
- 7 Update data on an ongoing basis.
- 8 Provide information to potential users, including researchers, students, consultants, environmental groups, developers and government agencies.

CDC ADVANTAGES:

- ▶ Can help focus conservation efforts
- ▶ Is a central source of information
- ▶ Saves time and money
- ▶ Contains the most current data
- ▶ Integrates recent and historical data
- ▶ Contains reliable, scientific information



There are only eight mating pairs of us left in Manitoba, down from hundreds in the 1980's!

Burrowers Battle for Life

CDC Focuses on the Plight of the Burrowing Owl

This rapid decline of the nationally endangered Burrowing Owl has occurred not only in Manitoba, but throughout the prairie provinces. The Burrowing Owl did increase in the first half of the century, but has suffered a steady loss since.

Burrowing Owl numbers are stable in the U.S., so scientists are puzzled by the plummeting populations in Canada.

Burrowing Owl Habitat

The Burrowing Owl is unique as an owl in its habitat preference. It prefers to live in ready-made holes dug by burrowing mammals in mixed-grass

prairie. In Manitoba, the eight remaining mating pairs of Burrowing Owls live in the extreme south-west corner of the province, near Melita. In the past, they have been known to nest as far north as Teulon and as far east as Steinbach.

CDC Moves Towards A Solution

Jim Duncan, in his role as Zoologist and resident owl specialist at the Manitoba CDC, has spearheaded an effort to integrate Burrowing Owls data bases from other CDCs and the Saskatchewan and Alberta Operation Burrowing Owl programs. His purpose is to analyze the role of habitat degradation in their decline.

Amphibians in a Coal Mine?

As they go about their lives, amphibians are unaware of their reputation as "the canaries in a coal mine" of the environment—they function as an early warning system for environmental trouble.

Amphibians and reptiles were the first groups of animals to be ranked by the Manitoba CDC, as well as being the first animals to be evaluated nationally using CDC data.

"Frogs are excellent indicators of environmental health," says Jim Duncan, Manitoba CDC Zoologist "because they live in both terrestrial and aquatic condi-

tions and have very permeable skin that absorbs the elements in their habitat."

Jim coordinated a workshop in August of 1994 to evaluate the status of Manitoba's amphibian and reptile populations.

Using a tentative list provided by The Nature Conservancy, a group of 12 local amphibian and/or reptile experts gathered at the Museum of Man and Nature and brainstormed a list based on their knowledge and limited existing data sources.

The amphibian rankings were summarized, along with those of all other Canadian CDCs, and presented by Jim at the Fourth Annual Meeting of the Task Force on Declining Amphibian Populations in Canada (DAPCAN IV) October of 1994. All species living in Manitoba are considered globally secure by The Nature Conservancy. ❀

Amphibians of Manitoba...

- ❀ 15 species live in Manitoba
- ❀ 10 species are secure under present conditions
- ❀ 3 species are rare or uncommon
- ❀ 2 species are rare and/or endangered
- ❀ 12 species have stable populations
- ❀ 2 species are in decline
- ❀ 1 species might be increasing

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The Manitoba CDC has mapped the location of Burrowing Owl nest sites on a LANDSAT digitized image, or map.

Jim's intent was to present his findings at a workshop dealing with the status of Burrowing Owls at February's Fourth Endangered Species Conference in Lethbridge, Alberta, but, due to the pending arrival of his own "owlet", he had to cancel.

His findings, still displayed at the conference, should help attending biologists determine what is necessary to maintain or improve existing Burrowing Owl populations in Canada. ❀

About the Logo



Each CDC chooses a logo at its discretion. Manitoba has chosen a Gray Tree Frog superimposed over a map of the province.

The Gray Tree Frog is an appropriate symbol for Manitoba because it is moderately widespread and secure in the province.

The Artist

The Gray Tree Frog image was drawn by zoologist Patricia Duncan from a composite of images and two live specimens currently residing at the Duncan residence. ❀

Filling in the Empty Spaces

Manitoba CDC Botanist Updates Provincial Plant List

Did you know there have been at least two plants discovered not previously known to exist in Manitoba and many other plants that had managed to escape a provincial list?

In the course of her work compiling a list of Manitoba flora, Manitoba CDC Botanist Elizabeth Punter's meticulous and careful searching has already uncovered these additional species.

The two newest additions to the Manitoba flora list are Bog Club Moss (*Lycopodium inundatum*) and Michaux's Sedge (*Carex michauxiana*). The Bog Club Moss, a vascular plant that reproduces by spores, is not common in Manitoba. Its preferred habitat is in Precambrian areas, acid bogs, shores, and damp, often disturbed, sandy banks. In Manitoba, Michaux's Sedge seems to prefer growing in string bogs.

Creating the List

At the start-up of the Manitoba CDC in July of 1994, The Nature Conservancy



Bog Club Moss
Lycopodium inundatum

provided Elizabeth with a speculative list of Manitoba plant species. She compared this to herbarium collections and to the most recent provincial plant listing to create a more accurate list.

The Nature Conservancy then generated a list reflecting the relative world-wide endangerment of the plant species on her updated list.

This allowed Elizabeth to focus immediately on the globally endangered plant species. To date, she has collected records of occurrence for plant species ranked from extremely rare to rare. ✿

Basis For Global Ranking

- ✓ number of known world-wide surviving occurrences
- ✓ degree to which species is potentially or actively threatened
- ✓ number of known populations considered to be securely protected
- ✓ size of the population
- ✓ the ability of the species to persist at known sites

Manitoba Animals Ranked as Extremely Rare Globally:

- ⊗ Whooping Crane
- ⊗ Eskimo Curlew
- ⊗ Bowhead Whale

Plants Ranked Very Rare to Rare:

- ⊗ Western Prairie Fringed Orchid
- ⊗ Ram's Head Orchid

Number of Manitoba Species Listed To Date:

- 649 vertebrate animals
- 1637 vascular plants
- 423 non-vascular plants
- 184 plant communities
- 15% of plants are not native

Classifying Plant Communities

Humans Aren't the Only Ones Living in Communities

You might not realize that the natural scenery you view contains almost 200 different plant communities, each with its own unique traits.

“... to my knowledge, this represents the first attempt to create a province-wide list of all natural community types using a single, standardized classification system.”

Jason Greenall, Manitoba CDC Ecologist, realizes it. In his role at the Manitoba CDC, he has developed a system for classifying plant communities in Manitoba using guidelines provided by The Nature Conservancy.

Jason's work involves classifying dif-

ferent kinds of forest, wetland and grassland areas based on the dominant and characteristic plant life found there.

Until now, there have been few generally accepted standards for this in Manitoba, particularly grassland and wetland areas.

“A number of ecological classification systems have been used in several different parts of the province. But, to my knowledge, this represents the first attempt to create a province-wide list of all natural community types using a single, standardized classification system.” says Jason.

By using a list provided by The Nature Conservancy, his own expertise, and by sifting through local literature sources, Jason pieced together a list of plant communities that exist in Manitoba.

In November of 1994, Jason facilitated a meeting with 15 local ecological experts at the Manitoba Museum of Man and Nature. His list was honed down according to consensus.

Shortly after this workshop, Jason went through a similar process at the Great Plains Classification meeting in Minneapolis, this time with other CDC ecologists.

So far, Jason has developed a system that includes 184 plant communities, usually based on a minimum size of two hectares. His next step will be to identify, and then rank, the occurrences of the each plant community in Manitoba. ✿



A Natural Community: The Jackpine-Aspen-Blackspruce forest, found in dry, upland boreal areas.



Volunteers: A Vital Part of the Manitoba CDC

CDC Volunteers are as Unique and Diverse as the Species they Research

Drawn to the CDC for a variety of reasons—from gaining work experience, to fulfilling a need to do something worthwhile in their spare time, to experimenting with career aptitudes through a high school Co-op program—Manitoba CDC volunteers are all interested in learning about Manitoba's natural diversity.

Manitoba CDC volunteers make an important contribution by assisting with relevant, realistic projects. Besides

increasing work output, volunteers contribute vitality and fun to the CDC office.

Birds of Manitoba

Some CDC volunteers are transcribing and mapping Manitoba bird species occurrence information to be used in a book to be published by the Manitoba Avian Research Committee (MARC) of the Manitoba Naturalists Society.

The Manitoba CDC data will be merged with GIS technology to produce accurate location maps for this book. ❁

Students Rank Mammals

A project involving ranking and researching Manitoba mammals has been developed for an undergrad Mammalogy class at the University of Manitoba. Jim Duncan, in consultation with Professor Dr. W. O. Pruitt Jr., designed the project, which will both accelerate CDC research, and provide school credit for the students.



Mammology Class List

Robert Arabsky Michael Goodyear
Allan Benoit Tim Morgan
Tim Bowles Darcy Pisiak
Ian Gilchrist

Many Thanks to Our Volunteers . . .

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Susan MacLean
Ric Nash
Brett Fraser
Heather Neil
Donna Derenchuk
Robert Sigurdson

The Manitoba CDC was initiated by 4 partners:

- ❁ The Nature Conservancy
- ❁ The Nature Conservancy of Canada
- ❁ Manitoba Museum of Man and Nature
- ❁ Manitoba Department of Natural Resources

As a unique public/private/non-profit partnership, the Manitoba CDC has also received support from the following generous donors:

- ❁ Falconbridge Limited
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- ❁ Canadian Wildlife Service
- ❁ Ducks Unlimited Canada
- ❁ Ensis Corporation
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- ❁ Shell Environmental Fund
- ❁ Gray Owl Fund
- ❁ The Nature Conservancy (Minnesota Chapter)
- ❁ Northern Forest Owl Symposium Award Fund
- ❁ Manitoba Wildlife Rehabilitation Organization
- ❁ Manitoba Peregrine Committee
- ❁ Manitoba Naturalists Society
- ❁ Inco Limited, Manitoba Division

Manitoba Conservation Data Centre Staff

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Manager: Carol Scott

Carol manages all aspects of the CDC including: human resources (volunteers too!); budgeting; program supervision, delivery, policy development, and evaluation.

Botanist: Elizabeth Punter

Elizabeth compiles and evaluates existing distribution and status information about vascular and non-vascular plants, identifies information gaps and designs field projects to fill them.

Ecologist: Jason Greenall

Jason develops and applies a classification system for Manitoba natural communities, identifies information gaps, and designs field projects to fill them.

Information Manager: Ken Donkersloot Phone: (204) 945-6998

Ken is responsible for computer operations within the CDC data management system, as well as compiling and evaluating managed areas of Manitoba.

Zoologist: Dr. James Duncan

Jim compiles and evaluates existing distribution and status information about vertebrate and invertebrate animals, identifies information gaps and designs field inventory projects to fill them.