



Environment
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E N V I R O N M E N T

Update

Vol. 8 No. 2 July 1988



Canada

A Word from the Editor

As midsummer comes round once more, water becomes increasingly important: water to drink on hot days, water for swimming, sailing, canoeing and fishing, water to feed the sprinklers that keep our lawns green. For the agricultural industry, in particular, an abundant supply of water is vital; without it, soil erodes and crops and livestock suffer.

Until recently, it was commonly assumed that Canada's freshwater resources were pure and inexhaustible. That assumption has now proved groundless. In the west, shortages are developing as demands for water approach or surpass the available supply; in the east, water pollution is a serious problem.

Protecting the quantity and quality of our freshwater is the aim of two important recent federal initiatives. The new Federal Water Policy establishes a broad approach to the use and management of this essential resource, while a renewed Canada-U.S. Great Lakes Water Quality Agreement provides for increased control over pollutants entering the lakes.

Another kind of environmental protection is being promoted in Saskatchewan through "Operation Burrowing Owl." The program, launched last summer, encourages land-owners to preserve the habitat of these little prairie birds, which are fighting extinction in three provinces.

Some protective measures are aimed not at preserving the environment but at ensuring human safety in the face of a natural threat. A workshop entitled "Project Tornado" was held last March in Wellington County, Ontario, to discuss emergency preparedness at the start of the province's severe weather season. Ontario experiences an average of 25 tornadoes each year — more than any other province.

Human safety is also the prime concern of mountain rescue specialists in the western and northern national parks. This summer, *Environment Update* features a profile of Willi Pfisterer, a skilled alpine climber who has helped make the Parks Service rescue team one of the finest in the world.

Another Parks highlight in this issue concerns Gros Morne National Park, now the tenth Canadian site on UNESCO's World Heritage List. Although relatively small, Gros Morne contains magnificent scenery, presenting a dramatic transition from the sea to the vertical rock walls of towering land-locked fjords. It is also internationally renowned for its geological features and has a heritage of human settlement that stretches back 4,500 years.

Since our last issue, Canada has celebrated both Heritage Day and Environment Week. A highlight of this year's federal Heritage Day activities was a ceremony in Saint John, New Brunswick, at which Environment Minister Tom McMillan signed a cost-sharing agreement for the restoration of the city's impressive 19th-century market building.

The theme of Environment Week 1988 was "Our Common Future" — the title of the report released last year by the World Commission on Environment and Development. That report spells out the fatal consequences of polluting and depleting the world's natural resources and urges that people around the globe act now, at every level, to safeguard the environment on which our future depends.

Environment Week showed Canadians how to meet that challenge by working together for a better world. Through such simple actions as recycling glass and cans, tuning up the car, picking up litter and speaking out about environmental concerns, each of us can help ensure that our successors will inherit a legacy of clean air, pure water and healthy soil.

Finally, a milestone in Canadian efforts to protect the environment was reached in May, when the House of Commons adopted the *Canadian Environmental Protection Act*. The new act strengthens federal control over the release of toxic substances into the environment and imposes stiff penalties on polluters. It will be enforced co-operatively by the federal and provincial governments, ensuring that Canadians nation-wide will enjoy a cleaner, healthier environment.

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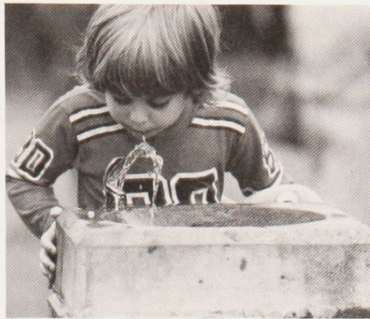
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Update

Each issue of *Update* features a variety of topics on our environment and heritage and contains articles from all parts of the country in order to highlight the accomplishments of the Department. Anyone wishing to reproduce articles may do so. We ask that credit be given to this publication.

Readers who wish to comment or require further information can write to the Editor, *Environment Update*, Communications Directorate, Environment Canada, Ottawa K1A 0H3.

Cover photo: Western Brook Pond, Gros Morne National Park

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A Legislative Milestone

Environmental history was made in Canada in May, when the House of Commons adopted the *Canadian Environmental Protection Act* (CEPA).

CEPA contains the toughest sanctions against polluters ever enshrined in Canadian environmental law, including \$1-million-a-day fines and jail terms for corporate offenders. The new law is backed by a tough enforcement and compliance program, for which the government has approved \$37 million in new funds.

The law will be enforced by the federal and provincial governments acting in partnership through agreements that will ensure an equivalent level of protection for all Canadians, no matter where they reside in the country.

CEPA consolidates much of the legislative authority of the Minister of the Environment. It establishes a comprehensive system for managing toxic chemicals throughout their life cycle, from development to production, transport, use, storage and disposal.

Under the new act, each citizen can help ensure that environmental regulations are respected. Any two Canadians can request the Minister of the Environment to investigate an alleged offence under the act, and the Minister must follow up and respond.

CEPA is the product of four years of intensive consultation, involving thousands of people in every province and territory. It is, in the fullest sense, legislation made by Canadians for the benefit of Canada's environment and its people.

Development of Forks National Historic Park

Construction has begun on visitor information and interpretation facilities, an amphitheatre and a boat dock in the Forks National Historic Park, at the junction of the Red and Assiniboine rivers in Winnipeg. The work is scheduled to be completed by the end of 1988.

The park will highlight the site's historical significance in the development of industry, transportation and social life in Manitoba. Total development costs are estimated at \$3.5 million, of which \$2.8 million will be provided by the federal government.

Research Balloon Launched into Arctic Ozone Layer



Wayne Evans, A.E.S.

Environment Canada scientists launched a research balloon into the upper atmosphere in March from a weather station at Alert, 750 km from the North Pole. The project is the latest in the Department's ongoing studies of the ozone layer over the Arctic.

In 1986, a team of federal researchers headed by Wayne Evans, senior scientist with the Atmospheric Environment Service in Toronto, discovered a thinning in the Arctic ozone layer. Last year, however, it appeared that the "hole" might have closed.

The balloon launched this spring will help to determine, through measuring gases in the ozone layer, whether the thinning is likely to occur again. Scientists suspect that wind and weather conditions over the Arctic may produce a hole only in alternate years.

During the past decade, the ozone layer over the Antarctic has become progressively depleted each spring. Each thinning in the layer permits greater amounts of ultra-violet radiation to penetrate to earth, increasing the likelihood of skin cancers and harm to plant life. In order to prevent further environmental damage, Canada and 24 other nations signed the "Montreal Protocol" last September, an international agreement to limit the use of ozone-destroying chlorofluorocarbons.

Completion of Canada's Acid Rain Abatement Program

All seven eastern provinces have ratified their commitment to the Canadian Acid Rain Abatement Program, which will reduce allowable sulphur dioxide emissions in the eastern part of the country to 2.3 million tonnes per year by 1994 — just half the 1980 allowable level of 4.6 million tonnes.

The program was completed in February, with the signing of a federal/provincial agreement with Nova Scotia. In addition to specifying new provincial limits for acid rain-causing emissions, the agreement provides for co-operative research and monitoring programs and for the exchange of technology and information about the problem.

The Canadian government is now increasing pressure on the United States to sign a binding bi-national accord to cut the transboundary flow of sulphur dioxide. Canada has presented the U.S. government with the draft of such a document, containing specific reduction targets and clear deadlines for their achievement.

Half the acid rain-causing emissions that harm the Canadian environment originate in the United States. Canada, in turn, accounts for 15 to 25 per cent of the acid rain that falls on the United States, principally in New England.

Parks Officer for British Columbia

Pat Thomson, previously Director General of Environment Canada's National Parks Directorate, has been appointed British Columbia Co-ordinator, Park Projects.

Mr. Thomson is responsible for coordinating the development of South Moresby National Park Reserve in the Queen Charlotte Islands and other park developmental activities in British Columbia. He will supervise the South Moresby park liaison officer located in the Queen Charlotte City area, as well as the planning and development officers in the Parks Service office to be established in British Columbia.

Ian Rutherford, previously Director General of Field Services for the Atmospheric Environment Service, succeeds Pat Thomson as Director General, National Parks Directorate, for a one-year period, effective July 4.

Petroleum Refining Industry Cleans Up

Discharges of contaminants into Canadian waterways by the petroleum industry decreased by more than 75 per cent between 1972 and 1984, according to the *Environmental Status Report for the Canadian Petroleum Refining Industry, 1983-1984*.

The report, released in December 1987, assesses the Canadian petroleum refining industry's adherence to federal Petroleum Refinery Effluent Regulations and Guidelines. In 1983, Canada's 36 operating refineries complied, on average and on a national basis, with monthly limits more than 92 per cent of the time and with daily limits more than 97 per cent of the time. In 1984, 30 refineries were in operation, and the level of compliance improved still further.

Trace toxic contaminants in refinery effluents remain a concern despite progress. Extensive joint studies by Environment Canada and the Petroleum Association for Conservation of the Canadian Environment (PACE) have shown that efficient treatment systems can reduce toxic pollutants, and the government is working with PACE to upgrade and improve existing methods.

New Toxics Regulation Panel

A former chairman of Pollution Probe is heading a high-powered panel to oversee the regulation of toxic chemicals harmful to the environment. He is Dr. Ross Hume Hall, a professor of biochemistry at McMaster University in Hamilton, Ontario, past president of the Canadian Biochemical Society, and a strong advocate of toxic chemical controls.

The panel will begin by developing a list of substances that pose the most danger to the environment and that should, therefore, be regulated on a priority basis. The process will be a significant first step in the difficult task of identifying and controlling toxins, which is a major objective of the *Canadian Environmental Protection Act*.

The federal Cabinet has approved \$37 million in new funds to assess and control chemicals and to ensure stringent enforcement measures under the act.

Good News about Whooping Cranes



Whooping Crane and chick, Wood Buffalo National Park

The North American Whooping Crane population — which hovered on the brink of extinction less than 50 years ago — soared to 134 in 1987, a 23-per-cent increase over 1986. It is now likely that the breeding population will climb from 32 pairs in 1987 to 37 or 38 this year.

The species' dramatic recovery took a critical leap forward last year with an extremely successful breeding season and fall migration. Excellent habitat conditions and new egg-testing techniques developed by Environment Canada's Canadian Wildlife Service are major factors in this environmental success story.

The numbers of these graceful cranes began to decline at the turn of the century. The migratory flock reached an all-time low of 15 in 1941. Since that time, co-operative efforts of the Canadian and U.S. governments, private organizations and individuals

have brought the species back to a level where the total population could exceed 150 birds by 1990.

Habitat conditions in Wood Buffalo National Park, where the cranes breed, were excellent last spring and summer for the fourth consecutive year. These conditions helped the birds reproduce and gain strength prior to their migration to the Aransas National Wildlife Refuge in Texas. The hatching of 15, 16, 21 and 25 chicks during each of the past four years respectively attests to the increasing number of breeding pairs.

Because the cranes are migratory, they cannot be observed over a long period in any one location, but sightings of these magnificent birds are increasing in Saskatchewan, Nebraska, Idaho, New Mexico and Texas.



Chemical Concentrations in Niagara Falls Mist

Levels of PCBs and chloroform in the mist of Niagara Falls are well below provincial guidelines, according to a report released by Environment Canada. The report finds that chemical concentrations in the air near the falls are no greater than those normally found over large North American cities.

Air samples taken from sites above the falls and within the Niagara Gorge indicate PCB levels 15 times lower than the provincial allowable limit, while levels of chloroform are 800 times lower.

The report, entitled *Vapour Phase Air Concentrations of PCBs and Chloroform at Niagara Falls*, was produced by Environment Canada in co-operation with York University and Concord Scientific Corp. The project was prompted by a University of Toronto study published earlier in 1987 that suggested, on the basis of theoretical calculations, that the mist might contain high levels of toxins.

Completion of Pacific Rim National Park

The acquisition of land for Pacific Rim National Park is now complete, 18 years after the governments of Canada and British Columbia signed an agreement to establish the park. In March, Environment Minister Tom McMillan sent a cheque for \$17 million to the province in final payment for forest areas recently transferred to the federal government.

Pacific Rim National Park contains a number of Indian reserves and has a rich history of Indian culture. It also represents the principal and most striking features of Vancouver Island's west coast: Long Beach, a spectacular stretch of sand backed by a giant forest and strewn with huge logs; offshore islands in Barkley Sound that are one of the last remaining habitats of the bald eagle in Canada; and virtually undisturbed wilderness along the historic Lifesaving Trail, once of vital importance to sealers and whalers.

Drinking Water Obtained from Fog in the Andes



Net set up by Bob Schemenauer to collect water from fog in northern Chile

A unique project to draw drinking water from fog in the mountains of Chile is being conducted by an Environment Canada physicist.

Northern Chile, in the high Andes, is one of the most arid spots in the world, and its inhabitants must truck in water to meet their minimum daily requirements. But the area has a lot of fog, and analyses undertaken by Dr. Robert Schemenauer of the Atmospheric Environment Service indicated that the fog is pure enough to be converted into drinking water.

Working with departmental technicians and with scientists and students from the University of Chile, Dr. Schemenauer is setting up large nylon mesh screens that condense water from the fog-filled air. The moisture collects in a trough at the bottom of the mesh and is then channelled into a pipe. Eventually, the pipes will extend down the mountain to a reservoir. Each screen can collect about 240 litres of water per day, enough to supply the basic drinking and cooking needs of six villagers. The researchers hope to erect 60 nets by the end of 1988.

The project makes a significant contribution towards solving the problem of drought in developing countries, and the principle of water collection from fog or low clouds could eventually be applied in many other parts of the world.

The Arctic — Not So Pristine?

Even the most remote northern regions are not immune to pollution. Evidence collected over three years by Environment Canada scientists has revealed that the Arctic is a catchment area for contaminants. The presence of toxics in the Arctic food chain is confirmed by data collected by Fisheries and Oceans Canada and Indian and Northern Affairs Canada.

During 1985-87, regional staff of Environment Canada's Water Quality Branch analysed samples from the Arctic snow pack and detected a range of agricultural and industrial chemicals: polynuclear aromatic hydrocarbons (PAHs), lindane and its isomer alpha-BHC, dieldrin, heptachlor epoxide, alpha-chlordane, p,p-DDE, PCBs and alpha-Endosulfan. The contaminants are probably transported atmospherically from southern points of origin.

As further studies of Arctic pollution are undertaken, two things are already clear: the problem is not Canada's alone, and the sources of pollution are global. To promote the exchange of information about contaminant pathways and the effects of residues, an international workshop is planned for 1989.

Two Precedent-Setting Environmental Agreements Signed with Prince Edward Island

A Memorandum of Understanding on Conservation and Development, the first of its kind in Canada, was concluded last fall between the governments of Canada and Prince Edward Island. Federal Environment Minister Tom McMillan and Gilbert Clements, provincial minister responsible for the environment, signed the document in Charlottetown.

The Memorandum provides a framework for co-operation among six federal and five provincial departments committed to the sustainable development of Prince Edward Island's natural resources. "It demonstrates the link between the environment and the economy," said Mr. McMillan, "promoting the concept that greater integration of economic and environmental planning brightens the future of both."

Lady Aberdeen Commemorated at Rideau Hall

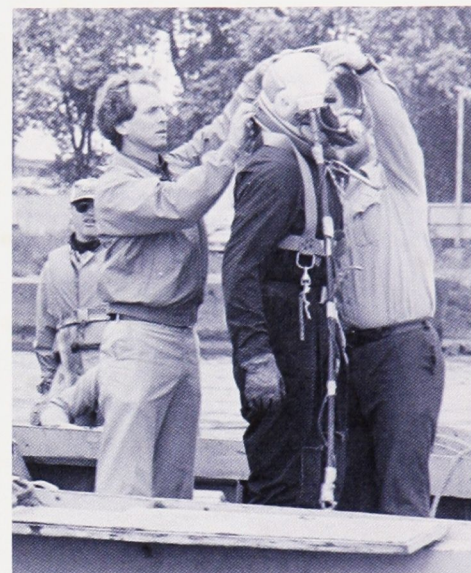
Governor General Jeanne Sauv  and Environment Minister Tom McMillan unveiled a bronze plaque at Government House last fall to commemorate Lady Aberdeen (1857-1939). The plaque is mounted on one of the granite boulders that line the driveway at Rideau Hall.

Lady Aberdeen's energetic dedication to social issues led to significant improvements to health care systems and to women's working and living conditions in Canada. Widely recognized for founding the Victorian Order of Nurses, she also founded the National Council of Women of Canada and spearheaded the Aberdeen Foundation, a group that distributed reading material to settlers.

Born in London, she married John C. Gordon, the Seventh Earl of Aberdeen, Canada's Governor General from 1893 to 1898. She was elected president of the International Council of Women in 1893 and held the post until her death.

Lady Aberdeen's granddaughter, Lady Jessamine Harmsworth, and senior members of the Victorian Order of Nurses were among the guests at the Rideau Hall ceremony.

New Technology Measures Niagara River Flows



Diver prepares for descent to the bottom of the Niagara River to install a FLOW-200 meter

Months of co-operation between staff of Environment Canada's Inland Waters Directorate and the U.S. Army Corps of Engineers have brought the latest in flow measurement technology to the Niagara River.

Last year, divers installed a FLOW-2000 system, on loan from the Dutch manufacturer Stork Servex, in the fast-moving waters near Fort Erie, Ontario. The system is a type of acoustic velocity meter (AVM), using the principle that the speed of sound moving with the flow of water is greater than its speed against the flow.

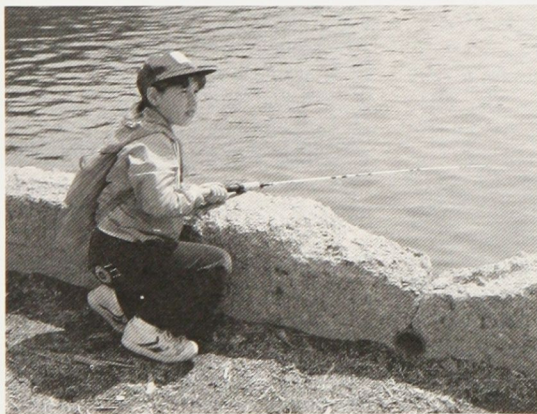
Although AVMs are in use elsewhere in North America and in Europe, the Niagara River project is unique because of new features in the FLOW-2000 system, and because of the river itself. The extreme speed of the water at the installation point made the work hazardous and tiring for divers and difficult for engineers and departmental staff.

The system began collecting data in September. Since then, it has been used in an International Joint Commission study of emergency measures for reducing Great Lakes water levels.

Its success is a welcome example of international co-operation between governments and private enterprise to improve the collection of data for effective water management.



New Federal Water Policy



Canada is so richly endowed with rivers and lakes that, until recently, most of us simply assumed we would always enjoy a limitless and virtually free supply of clean, fresh water. With a population only one tenth that of the United States, and a larger share of the world's renewable freshwater, what grounds were there for concern about the future of our water resources?

Our water resources can no longer be taken for granted; they must be protected and managed.

Simply these: while the demand for water has risen steadily in Canada, the supply has not grown and the quality has diminished. It is becoming increasingly clear that our water resources can no longer be taken for granted; they must be protected and managed, like any other essential and vulnerable natural resource.

To meet this need, the first-ever broad federal policy on the use and management of water was released last November. The document, which draws on several years of intensive consultation within and outside government, outlines federal positions on key water-related issues, including the much-discussed possibility of large-scale water exports, and provides a framework for co-operation with other levels of government and the private sector on areas of common concern.

In his introduction to the document, Environment Minister Tom McMillan explodes the myth that Canada's water supply is a "bottomless well."

"The truth is that Canada, which occupies seven per cent of the world's land mass, has nine per cent of its renewable water. So, we have just about our fair share. Even that fact, however, is misleading. About 60 per cent of Canada's freshwater drains north, while 90 per cent of our population lives within 300 km of our southern border. In other words, to the extent that we Canadians have lots of water, most of it is not where it is needed,

in the populated areas of the country. In those populated areas where it is plentiful, water is fast becoming polluted and unusable. The overall problem in the country is compounded by drought in certain regions. Put simply, Canada is not a water-rich country."

The Water Policy's overall objective is to encourage the use of freshwater in an efficient and equitable manner, consistent with the social, economic and environmental needs of present and future generations. The policy sets out five basic courses of action:

- fair and realistic water pricing, based on consumption;
- federal leadership in water science;
- an integrated approach to water resource planning, involving all sectors of society;
- a broad review of water legislation; and
- a public awareness program on water issues.



It also states the federal position on 25 specific issues, including groundwater contamination, municipal water supply and wastewater systems, drinking water, the preservation of wetlands, the management of northern water resources and potential interjurisdictional conflicts.

The document's completion marks the end of only the first phase in a continuing process. It provides a framework for further discussions with other levels of government, industry, the scientific sector and many other interested parties with a view to reaching agreement on a comprehensive and genuinely national water policy. ■

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Water Facts

1. Canada has about nine per cent of the world's renewable freshwater supply, compared with 18 per cent for Brazil, 13 per cent for the USSR, nine per cent for China, and eight per cent for the United States.
2. World-wide water demands (withdrawals from waterbodies) have risen from 250 cubic metres per person (per year) in 1900 to more than 700 cubic metres today. Per capita demands in Canada are even higher — about double that amount.
3. Water withdrawals in the North Saskatchewan, South Saskatchewan, Milk and Red-Assiniboine river basins of the southern Prairies are now approaching their reliable supply limits (the supply that is available 90 per cent of the time). While most other regions have a generous supply, some uses are impeded by serious forms of pollution.
4. Two-thirds of Canada's river flow is northward, while 80 per cent of the population lives within 200 km of the Canada-US border.
5. Canada has built over 600 large dams and about 60 large domestic inter-basin diversions. To date, only about 40 per cent of Canada's hydroelectric potential has been developed. Water power meets about two-thirds of the nation's electrical needs.
6. One-quarter of all Canadians rely on ground water for domestic use.
7. Although two-thirds of urban Canadians are served by sewage treatment systems, that proportion is very much lower east of the Ottawa River.
8. The pollution of water resources has become a critical problem. Estimates indicate that as many as 100,000 chemicals are in commercial use world-wide, with about 1,000 new chemicals entering the market every year. Most of those chemicals have the potential of entering national and international water systems.



New Agreement Strengthens Great Lakes Clean-up



Federal Environment Minister Tom McMillan and Lee Thomas, head of the U.S. Environmental Protection Agency, sign renewed Great Lakes Water Quality Agreement

Geographically and economically, the Great Lakes are a large part of Canada. Holding 20 per cent of the world's total lake volume, they are the largest reservoir of fresh water on the planet, and two out of every three Canadians draw their drinking water from the Great Lakes-St. Lawrence River basin. Canadian industries along the lakes, many of them dependent on the lake system for their operations, account for half the gross national product of the entire country.

But the Great Lakes are not ours alone; we share them with the United States, and the quality of their water is of equal concern to both nations. For that reason, the signing of a renewed Canada-U.S. Great Lakes Water Quality Agreement last winter was cause for celebration on both sides of the border.

The original 1978 agreement was revised and ratified following a comprehensive eight-month review that involved the governments of Canada, the United States, Great Lakes states and provinces, and the public at large.

The highlight of the new agreement signed by federal Environment Minister Tom McMillan and Lee Thomas, Administrator of the U.S. Environmental Protection Agency,

The highlight of the new agreement is its emphasis on stronger control over pollutants entering the lakes.

is its emphasis on stronger control over pollutants entering the lakes. It also includes specific timetables for the review of clean-up activities and a commitment to co-ordinate the implementation of the agreement through semi-annual meetings between the two signing parties.

The document includes new annexes that:

- provide for research, monitoring and control of pollutants entering the lakes from the atmosphere;
- deal with pollution from contaminated sediments;
- identify 42 heavily polluted sites around the lakes as "areas of concern" and establish a process for taking remedial action;
- call for specific plans to reduce pollution from urban and rural land drainage; and
- require that sources of contaminated groundwater be identified and controlled.



Researchers take water samples of Great Lakes

The agreement also calls for the development and introduction of ecosystem objectives for each of the lakes, to describe the desired level of health that should be maintained.

"The amendments demonstrate what can be accomplished when committed people work together on a common cause," said Mr. McMillan. "Progress in protecting Great Lakes water quality should serve as a model for bi-national co-operation on all trans-boundary environmental problems." ■

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Landowners Help Protect Burrowing Owls

Saskatchewan's threatened Burrowing Owls have gained some important new allies in their fight against extinction. A total of 288 landowners in the south of the province have volunteered to protect Burrowing Owl habitat on their properties. As a result, 18,081 acres of pasture, harbouring 572 pairs of the bird, are now safe from disturbance.



credit: World Wildlife Fund Canada

His Royal Highness The Duke of Edinburgh presents an "Operation Burrowing Owl" gate sign to Walter Bedford of Avonlea, Saskatchewan

The landowners' co-operation has been secured through "Operation Burrowing Owl." The program received widespread attention when it was launched by His Royal Highness The Duke of Edinburgh in June 1987 at the farm of Grant and Sheila Fahlman near Kronau.

In his capacity as international president of the World Wildlife Fund, the Duke of Edinburgh helped band some of the 30 Burrowing Owls on the Fahlman property. He presented the Fahlmans and several other Saskatchewan landowners with large gate signs, acknowledging their contribution to "Operation Burrowing Owl."

The publicity attending the launch helped interest a number of other landowners in participating in the program, according to its co-ordinator, Dale Hjertaas of Saskatchewan Parks, Recreation and Culture.

"In a few cases, the program actually helped avert plans for breaking ground on which Burrowing Owls nested," Hjertaas said. "Once the farmers knew that they had an endangered species on their property, they agreed to retain the land as pasture."

Through the program, co-operating landowners agree not to disturb Burrowing Owl nesting areas for a five-year period and to report nesting pairs on their property. Some people have also agreed to the installation of underground nesting boxes, which stimu-

Burrowing Owls

Burrowing Owls (*Athene cunicularia*) are one of the most endearing of prairie birds — pigeon-sized creatures with long, bare legs and large yellow eyes, peering curiously at the surrounding grasslands from their vantage point atop a disused badger burrow. Unfortunately, they are becoming an increasingly rare sight; the species is endangered in Manitoba and threatened in Saskatchewan and Alberta.

The owls were originally native to the wild short-grass prairie, a vast region of dry, rolling grassland where they nested in close association with burrowing mammals such as prairie dogs, ground squirrels and badgers.

At first, the birds adapted readily to the incursions of settlers. Indeed, farm establishment may initially have increased the owls' numbers by extending the acreage of grazing land suitable for breeding habitat.

Modern agricultural practices, however, have proved disastrous to the species. The intensive

cultivation of former pastures, extermination of the rodents whose burrows provided nesting areas for the owls, and use of chemical pesticides have all contributed to the birds' sharp decline. Accidental collisions with motor vehicles are another serious hazard, particularly during the late summer, when the young owls begin their migration to wintering grounds in Texas or Mexico.

Various projects are now being undertaken in an effort to reverse the decline in the owls' numbers. In addition to Saskatchewan's "Operation Burrowing Owl," a program to release breeding pairs in artificially enhanced nesting sites in British Columbia seems to be having some success. More active intervention, through capture and relocation of entire Burrowing Owl colonies, may eventually be necessary in the prairie provinces if major engineering projects threaten to wipe out established nesting sites.

late nesting activity and allow for easy banding of the birds. All co-operating landowners receive a bright yellow gate sign.

In some cases, landowners are paid to protect the bird. Depending on the number of owls involved, a landowner can receive up to \$200 for agreeing to protect them by retaining habitat and not using insecticides. Widespread pesticide use on prairie farmlands has severely affected the birds' reproductive success.

For many landowners, protecting Burrowing Owl colonies is something that comes naturally.

"We have 15 pairs on our front lawn and we take the best care of them that we can" said Walter Bedford, a cattle and grain farmer from Avonlea. "They are interesting little birds and don't hesitate to run at our family dog." The Bedfords are full partici-



Project Tornado: Reap the Whirlwind

pants in "Operation Burrowing Owl" and were one of the families honoured by Prince Philip.

The tiny bird with huge yellow eyes and spindly legs faces a number of threats. Its preference for productive grassland has brought it into close proximity with human populations, where road traffic and shooting have taken their toll. The decline of local badger populations has also contributed to shrinking numbers, as the owls rely heavily on abandoned badger holes for their homes.



credit: World Wildlife Fund Canada

The Burrowing Owl, an endangered species in Canada

"Operation Burrowing Owl" is a co-operative project of the World Wildlife Fund, Canadian National Sportsmen's Shows, the Saskatchewan Natural History Society, Saskatchewan Parks, Recreation and Culture, the Saskatchewan Wildlife Federation and Wildlife Habitat Canada. The program's co-ordinator, Dale Hjertaas, can be contacted at the Wildlife Branch, Saskatchewan Parks, Recreation and Culture, 3211 Albert Street, Regina, Saskatchewan, S4S 5W6; telephone (306) 787-2892. ■

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Imagine you are a municipal official in Wellington County, southern Ontario, and that you are responsible for emergency preparedness in your community.

At 2:10 p.m. one hot day in June, the teleprinter in your office clicks into action with the following message:

"The Ontario Weather Centre has issued a severe thunderstorm warning for the Waterloo-Wellington-Dufferin area, in effect until 3:30 p.m. EDT. At 2:10 p.m., radar indicates a line of severe thunderstorms from Owen Sound to London, moving east at 50 km/h. Large hail is likely and winds have already damaged some buildings.

"Remember . . . some severe thunderstorms produce tornadoes. Be prepared to take immediate safety precautions."

"Remember . . . some severe thunderstorms produce tornadoes. Be prepared to take immediate safety precautions."

Looking out of the window, you estimate that those thunderstorms will be overhead in 20 minutes. What do you do?

That was the question that Mike Leduc, Tony Chir and Barry Greer of the Atmospheric Environment Service posed last spring to more than 100 Wellington County officials at a workshop on tornado awareness and emergency preparedness. The session, named "Project Tornado," was the first emergency planning exercise of its kind in Ontario. Held on March 30 - Tornado Awareness Day in the province - it launched Ontario's 1988 severe weather season, which runs from April to October each year.

Project Tornado, sponsored jointly by Environment Canada, Emergency Planning Ontario and various municipal authorities, is one of several initiatives undertaken following an official review of the weather warning services provided during the Edmonton tornado of July 31, 1987.

The report of the review, which was conducted by Dr. Keith Hage, recommended that federal weather radar and computing systems be upgraded nation-wide and that a Doppler radar network be installed across the country. It also proposed that educational workshops be staged in tornado-prone areas to exchange information on emergency preparedness.



Townhouse complex in Barrie, Ontario, devastated by tornado in May 1985

The Wellington County session was the first such workshop. The choice of location was significant, according to Phil Aber, Ontario Regional Director, Atmospheric Environment Service. Ontario is a hot-spot for tornadoes, experiencing an average of 25 annually - more than one third of all those reported in Canada. Most of them occur in the southwest of the province. Ninety per cent are considered "weak," but a disastrous tornado can be expected to strike somewhere in the province about once every four years. One such serious outbreak occurred on May 31, 1985; nine twisters touched down, killing 12 people and causing more than \$100 million of property damage.

A key element of the March 30 workshop was a 15-minute video, entitled "Reap the Whirlwind," that dramatically depicted the events leading up to and resulting from a major tornado strike on a community. The video, produced by the Atmospheric Environment Service, was used as the basis for three case studies involving the warning, reaction and aftermath phases of the emergency. Participants were asked to assess the information available during each phase and to make decisions about the actions required.

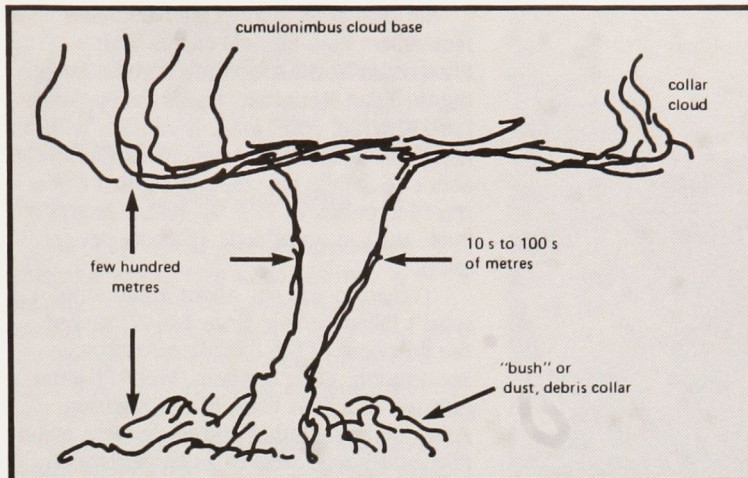
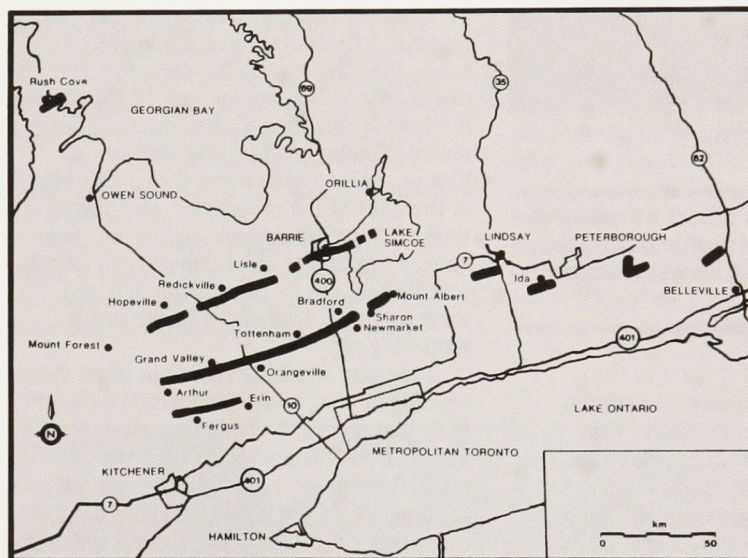


Diagram of a tornado



Major Ontario tornado tracks, May 31, 1985

Throughout the discussions, the necessity of having a detailed, approved and up-to-date emergency plan was made clear. The municipal official who receives a severe thunderstorm warning, for example, has no time to ponder the next move or search for names and numbers in a directory. He or she must be able instantly to transmit the message to appropriate people in a wide range of organizations and places, such as the provincial and municipal police forces, municipal government, ambulance services, hospitals, school boards, industries, group homes, shopping centres, arenas and trailer parks. The sequence and method of communication must be predetermined, and each organization and place contacted must likewise have its own action plan ready.

Workshops such as this are only one aspect of Environment Canada's efforts to inform Canadians in tornado-prone areas about the actions they can take to protect themselves. For example, recommended guidelines for school safety procedures during severe storms have been distributed to school boards, and posters and brochures have been widely circulated to individuals and groups. To improve the media's understanding of weather information, the

Atmospheric Environment Service has developed seminars on the topic for journalists.

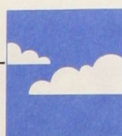
The department also seeks the public's help in gathering data about weather patterns. In Ontario, for instance, the volunteer weather watcher network has expanded to about 1,500 people across the province. This year, it will be supplemented in Windsor, on a trial basis, by a network of local amateur radio operators. If effective, this approach maybe applied nationally.

Project Tornado typifies the kind of collaborative effort that is essential in planning for, and reacting to, severe storms. The need for such co-operation was emphasized by Environment Minister Tom McMillan in his response to the recommendations of the Edmonton tornado review. "Environment Canada cannot act alone," stated the Minister. "The help of other federal, provincial and local government agencies,

the media and the general public must be enlisted to protect lives in future emergencies."

There is a good chance that lives will, indeed, be saved as a result of the Wellington County workshop. In addition to focusing the county's attention on emergency procedures, the session attracted significant public and media interest that has stimulated other municipalities to review their emergency plans. Similar workshops will soon be held in Sarnia, the London area and Aylmer, and others will probably be organized in the fall. ■

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Alpine Specialist Turns in his Red Socks



Willi Pfisterer

Interpretive Services officer Merna Forster provided this profile of Jasper National Park's best-known mountain rescue expert.

It was one of Willi Pfisterer's unwritten rules — only the alpine specialist wore red knicker socks. In the 20 years that he worked as an alpine specialist in the national parks of western Canada, no park warden dared appear in red socks for his mountain climbing or ski schools. Greenhorns who broke the rule suffered an endless stream of Pfisterer's jokes.

Pfisterer handed in his red socks last summer to mark his retirement from Environment Canada's Parks Service, closing a chapter on the development of mountain rescue techniques. He played a key role in that development and in winning international respect for the work of the warden service.

To those who know him he is simply "Willi," a man who modestly describes himself as "a little immigrant with a funny accent." In fact, the stocky 62-year-old is a barrel-chested powerhouse with an iron will, whose exploits are legendary.

National park warden Darro Stinson remembers high-altitude climbs with Pfisterer in North America's highest range, the St. Elias Mountains in Kluane National Park Reserve. After long, hard days with a heavy pack, Pfisterer's heart-beat peaked at about 76, while his younger companions recorded pulses of 122. At rest, Pfisterer's pulse sank to an athletic 45 beats per minute.

"What do you say about a guy who hasn't fallen on skis since 1967?" asked the president of the Canadian Avalanche Association, Chris Stethem. Well, Pfisterer grew up in a little town in the Austrian Alps. His grandfather and uncle were mountain guides who worked as carpenters on the side. When skiing became popular, his 63-year-old grandfather decided that he and three-year-old Willi had to ski too.

"Mountaineering was part of the life," he says. "Our house was at the end of town, then the trail to the mountain Am Hochkonig." The summit, on which stood a hut built by his grandfather, was the destination of many of the great climbers of Europe. Some would leave their motorbikes at the base of the mountains, and young Willi Pfisterer would look after them. Soon he was anxious to climb himself: "I found one of them pitons (a climbing aid) and went up to the roof of the house to try rappelling off."

The piton suddenly came out of its chimney anchor and he fell backwards down the roof, into some telephone wires and then into a flower-filled window box, which crashed to the ground. A flower pot hit young Willi on the head, knocking him out — his first climbing accident — but it didn't deter him. He tackled his first mountain — climbing in bare feet because his Aunt Lizzie had borrowed his only shoes — when he was 10.

Pfisterer's climbing and his apprenticeship as a mechanic in Salzburg were interrupted by the German occupation of Austria. He was called up to the army in 1941.

Working as a mechanic after the war brought some income, but his heart was elsewhere. He climbed and guided and for several summers carried supplies to the summit hut on the Hochkonig, four loads

a week, averaging 86 kilos (189 pounds) each. He also devoted time to his other love, skiing. He raced and jumped, placing fourth on the Austrian team. In competitions in 1954 he placed second 12 times.

That was the year Pfisterer came to Edgewater, British Columbia, where some other men from his home village had settled. He worked as a mechanic in the sawmill and skied when he could, but until the summer of 1955 he wasn't sure if he would stay in Canada. At the end of a season of horse wrangling and guiding in Glacier National Park, he and his boss Bill Harrison rode home to Edgewater. After a strenuous trip over Rogers Pass they rode up to a hunting lodge at Kootenay Crossing: "The Grand Glacier was behind there, hanging down. And the wind blew through the horses' tails and manes, and I was so impressed by the mountains and the whole scenery, that that's when I decided that's my place. That's when I decided I'm gonna stay in Canada."

A Norwegian who ran a ski and sport shop in Kimberly befriended Pfisterer and gave him equipment to start a shop in Jasper in the fall of 1956. "I had everything going for me. I didn't have any money, I never run a business before, and I couldn't speak English."

Pfisterer supplemented his business by teaching skiing to local children and eventually became coach to the Alberta team. (Over the years his students won 12 Canadian championships and four scholarships.) During the summers he kept busy guiding climbers. "My bread and butter mountain was Cavell," says Willi. Sometimes he would guide clients up there two or three times a week. He also sought out and tackled all the mountains he could find that offered a special challenge. In 1959, he climbed about 60 different peaks.

Pfisterer's skills became widely known, and if park wardens in Jasper were called to a rescue, they hired him to take charge. Soon he was involved as an instructor at seasonal climbing and skiing schools for park wardens; then he joined the Parks Service in Rogers Pass. In the summer he worked with the wardens, and in winter he did avalanche control: "You learn respect for nature in that place. It was an incredible opportunity to learn hands-on snow science."

credit: Harry Rowed





Park wardens practising mountain rescue techniques

credit: Canadian Parks Service

He never asked park wardens to do anything he wasn't able to do himself.

He never asked park wardens to do anything he wasn't able to do himself. "I never let others go first on avalanche slopes. I have a better feeling then if something goes wrong, and it always warned me at the right time. It's one of the reasons that I'm still alive."

The national park rescue teams have saved many lives, but the images of those found too late haunt them – images of broken bodies, limbs blackened by the cold. Indeed, the wardens themselves have had close calls. Pfisterer remembers the time that a 10-man team was coming down from the east ridge of Canada's highest mountain, Mount Logan in the Yukon. One man slipped and pulled another off with him.

"They fell 2,000 feet down a chute. Both survived. It was my first accident over all them years."

In a tragic twist of fate, the man who spent a lifetime developing a world-renowned alpine rescue team and saving countless lives, lost his only son in an

avalanche. Fred Pfisterer, 24, working as a helicopter skiing guide in the Monashee Range near Blue River, British Columbia, died in an avalanche on March 23, 1987, and "all I could do was close the eyes of my only son," said Pfisterer in a voice filled with emotion.

There will always be accidents, he says, no matter how careful one is. "I firmly believe there are some people, if their time is up, their time is up."

In his retirement, Willi shows no signs of slowing down. Last summer, he headed north to work a gold claim in the Yukon; then he winterized his new home near Tete Jaune Cache in British Columbia. This spring, the lure of gold took him back to the Kluane area – he now has seven claims there.

But while launching himself into the future, Pfisterer never forgets the past. At his farewell tribute in Jasper last year, he said, "Every mountain is a memory, every creek and every corner is a memory of some sort. Memories are a paradise nobody can evict you from." ■

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When Parks alpine expert Walter Perren died in 1967, Willi Pfisterer and Peter Fuhrmann were hired as regional alpine specialists, based in Jasper and Banff respectively. The two developed, over the last 20 years, one of the world's finest alpine rescue teams. Thanks to them, a group of well-trained park wardens now attends to the safety of visitors to the mountain national parks throughout western and northern Canada.

Pfisterer spent as much time as he could climbing and teaching climbing. One of his keenest students was former prime minister Pierre Elliott Trudeau, who had never climbed a mountain before. Willi started him on Mount Colin in Jasper National Park. Trudeau did exactly as instructed and caught on quickly. The two got along well, keeping up a steady banter of insults and wisecracks. "I trust you, but what if this rope breaks?" Trudeau shouted on the Colin climb. "Don't worry," said Pfisterer, "I got a better one at home."

Cowboy Climbers

In just over 30 years, the Parks Service mountain rescue staff has grown from numbers that could be counted on one hand to a capable, experienced, world-recognized team that responds to an average of 100 calls a year to assist climbers and skiers in the mountain parks.

Much of the credit goes to Swiss guide Walter Perren and his successors Willi Pfisterer and Peter Fuhrmann.

The Parks Service has always been responsible for rescues in the national parks, but until the mid-50s, members of the Alpine Club or Swiss guides working for the Canadian Pacific Railway attended most mountaineering accidents.

The pressing need for more expert Parks mountaineers became clear in 1954, when four Mexican climbers and their guide slid over a precipice on Mount Victoria, near Lake Louise, falling 600 metres to their death. Three terrified companions were rescued by a CPR team, led by the noted Swiss guide Ernest Feuz. But Feuz was then 65, and would retire the next year – upon which the services of the CPR guides would end.

Accordingly, Walter Perren was hired to set up a mountain climbing and rescue program for park wardens, a job that boiled down to making mountaineers out of cowboys. At the time, most park wardens could ride a bucking bronc and tie a diamond hitch, but mountain climbing was unknown territory. At the first rescue training school in June 1955, however, Perren's call of encouragement to reluctant climbers below him was soon a familiar refrain: "It's chust a liddle bit up."

After Perren died of leukaemia in 1967, Peter Fuhrmann and Willi Pfisterer were hired as regional alpine specialists, Fuhrmann based in Banff and Pfisterer in Jasper. Over the next 20 years, these two accomplished European mountaineers completed Perren's work in developing a proficient alpine rescue team and a strong public safety program in the mountain national parks.



Gros Morne Proclaimed World Heritage Site



Western Brook Pond, Gros Morne National Park

Gros Morne National Park, in western Newfoundland, is the tenth Canadian site on UNESCO's World Heritage List.

Gros Morne National Park, in western Newfoundland, is the tenth Canadian site on UNESCO's World Heritage List. His Royal Highness The Prince Edward was invited to be the guest of honour at a World Heritage ceremony at the park on June 10.

Gros Morne, established in 1973, is an outstanding example of major stages in the earth's evolutionary history, making it a mecca for geologists. Moreover, its fresh-water fjords, waterfalls and mountains give it a dramatic natural beauty. The combination of these scenic and geological features makes it an area of acknowledged universal value.

Although it is relatively small (1,805 km²), the park presents a wide range of scenery. Barren rocky ridges and tundra-like slopes contrast with forested

foothills and boggy coastal plains, and the park includes sandy beaches, rugged coastline and towering, land-locked fjords. It is home to a rich variety of wildlife, including moose, woodland caribou and arctic hare.

The area also has a long human history. Maritime Archaic Indians inhabited the region from about 2500 BC, establishing a heritage of settlement that continues today in the fishing communities near the park.

Gros Morne welcomes nearly 50,000 visitors a year. Whether they stay for a few hours or several days, they can find excitement or tranquil solitude, as they choose. They can hike through wild, uninhabited mountains and camp alone by the sea; or



It is home to a rich variety of wildlife, including moose, woodland caribou and arctic hare.

take a boat ride under the towering cliffs of a fjord carved out by glaciers; or swim in the Atlantic off a fine sandy beach. In winter, cross-country skiing and snowshoeing are popular activities.

For scientists, Gros Morne's special attraction is its portrayal of plate tectonics, illustrating the events that took place when the ancient continental margin of North America was destroyed by plate movement. The park also clearly displays the effects of the grinding action of glaciers on Newfoundland's ancient Long Range Mountains.

The UNESCO World Heritage List is established under the 1972 World Heritage Convention, an agreement that the world's cultural and natural heritage transcends national boundaries and must be preserved for future generations. Canada, represented primarily by the Canadian Parks Service, played a major part in drafting and helping to implement the convention.

Gros Morne joins other outstanding cultural and natural areas on the World Heritage List, such as the Great Barrier Reef in Australia, the Pyramid fields from Giza to Dahshur in Egypt, Chartres Cathedral in France, Yellowstone National Park in the United States, and the Old City of Dubrovnik in Yugoslavia.

The nine other Canadian sites on the list are: L'Anse aux Meadows National Historic Park in Newfoundland; Wood Buffalo National Park, Alberta and Northwest Territories; Nahanni National Park Reserve, Northwest Territories; Dinosaur Provincial Park, Alberta; Kluane National Park Reserve, Yukon; the Canadian Rocky Mountain national parks; Anthony Island, British Columbia; Head-Smashed-In Buffalo Jump, Alberta; and the Historic District of Quebec City. ■

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Bonne Bay and the Tableland area of Gros Morne National Park



His Royal Highness The Prince Edward (left) and Environment Minister Tom McMillan admire World Heritage plaque at Gros Morne National Park

credit: The Western Star, Corner Brook



Heritage Day 1988



The Minister with the 1987 Parks Heritage Award recipients. Left to right: Eldon Johnson (Saskatchewan Archaeological Society), René Bureau, Mayor Angus Read (Society for the Restoration of Victoria Hall), Patricia Foran, Steven Offer, the Honourable Tom McMillan, Mayor Elsie Wayne (City of Saint John), Dr. David Baird, Elizabeth Pacey.

Heritage Day, the third Monday in February, was celebrated in dozens of different ways and places across Canada this year.

In Quebec City, restaurants presented menus featuring recipes from the late 17th century, such as those served in the Chateau St. Louis when the Governor of New France occupied that historic residence. In Langley, British Columbia, families gathered around a bonfire in a park for an evening of West Coast Indian legends, followed by games and star gazing. At Dunnville, Ontario, several hundred people visited displays of traditional crafts, including butter making, quilting, rug hooking and spinning, set up around a Christmas tree hung with homemade, turn-of-the-century decorations.

Although not a national holiday, Heritage Day has snowballed in importance over the past 15 years.

Altogether, thousands of people took part in activities sponsored by federal, provincial and municipal governments, the Heritage Canada Foundation, and by many local historical and conservation societies, multicultural associations, museums, schools and newspapers.

Although not a national holiday, Heritage Day has snowballed in importance over the past 15 years. It originated in 1973, when the Heritage Canada Foundation proposed to the federal government that a day to celebrate the nation's history be observed annually in mid-February. Since 1979, the Foundation and various Members of Parliament have urged that it be declared a national holiday, and public interest in the matter has been growing.

At first, in the mid-1970s, celebrations of Heritage Day were limited; there were various federal, provincial and municipal declarations of support for conservation, and some local events. Over the following decade, heritage-related activities in mid-February have become increasingly numerous and imaginative. They now include such events as period dinners at heritage hotels, antique and craft fairs, stagecoach and sleigh rides, guided tours through historic rural and downtown areas, essay and poster competitions, and displays of native drumming and dancing.

This year, the highlight of federal heritage activities was a ceremony in Saint John, New Brunswick, at which Environment Minister Tom McMillan honoured persons and organizations responsible for outstanding contributions to the preservation of Canada's heritage, and signed a cost-sharing agreement for the restoration of the city's historic market.





Federal Environment Minister Tom McMillan and Robert Boyce, Chairman of the Saint John Preservation Review Board, admire the arched timber truss-work of the Saint John City Market's roof

"We all have a role to play in preserving those places and those things that give us a sense of ourselves – our history."

In presenting the awards, Mr. McMillan said, "We all have a role to play in preserving those places and those things that give us a sense of ourselves – our history. If you see a part of our past being torn down or paved over, speak up! There are people who will hear. If you don't, there are many parts of our heritage that will not survive into the 21st century."

The growing public support for Heritage Day is reassuring proof that Canadians are, indeed, speaking up for the past and helping to make it a part of our present and our future. ■

Information:
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The federal government will contribute \$1 million to the restoration of Saint John's 19th-century City Market, a fine example of Second Empire architecture. One year after its completion in 1876, the building survived a great fire that devastated much of the city. It is now one of only two 19th-century market buildings in Canada that have continuously served their original function. (The other is in Saint-Hyacinthe, Quebec.)

The Minister presented Parks Heritage Awards to eight individuals and organizations who had made exceptional efforts to conserve Canada's natural or cultural heritage. One recipient was the community of Saint John – the first time a Canadian city has been so honoured. The others were Dr. David Baird, of Ottawa; René Bureau, Quebec City; Elizabeth Pacey, Halifax; Steven Offer, M.P.P., Mississauga North; Patricia Foran, Toronto; the Saskatchewan Archaeological Society; and the Society for the Restoration of Victoria Hall, Cobourg, Ontario.



Saint John's historic City Market



Environment Week 1988

During Environment Week this year, from May 30 to June 5, thousands of Canadians across the country took part in special projects to make Canada cleaner and healthier.

The theme of Environment Week 1988 was "Our Common Future" – the title of the report released last year by the World Commission on Environment and Development.

That report conveys an urgent warning: the future of our planet, and of humanity itself, is at risk. Rapid population growth, coupled with the consumer-oriented habits of developed nations, are exhausting the natural resources that support human life. In the words of the Commission's chairperson, Gro Brundtland, the world is caught in a "downward spiral of poverty and environmental degradation."

*Just as our actions are
jeopardizing the planet's
future, our actions can
likewise protect it.*

But the report also offers a message of hope: just as our actions are jeopardizing the planet's future, our actions can likewise protect it. We can save the world, and ourselves, if we become more aware of the effects of our activities and promote methods of development, consumption and waste disposal that minimize environmental damage.

Environment Week translated that message into specific ideas that everyone could act on. At the national level, brochures and media announcements encouraged Canadians to help clean up and preserve our natural resources by such means as recycling glass and cans, tuning up the car, picking up litter, and talking to community representatives about environmental issues.

In addition to that Canada-wide effort, special projects were sponsored in every province and territory by more than 250 government and non-government organizations. For example:



- In New Westminster, British Columbia, school groups and scouts painted a fish symbol on storm drains, to remind residents that household chemicals poured down the sink may damage marine life.
- In Regina, Saskatchewan, cyclists took part in a tour of the city's environmental "hot spots."
- In Ontario's Chepstow area, visits were arranged to farms that successfully use ecologically sound agricultural methods.
- At Ste-Flavie in Quebec, a local group organized a salmon enhancement program for the lower St. Lawrence River.
- In Nova Scotia's Musquodoboit region, schools and youth groups constructed and installed approximately 200 nesting boxes for ducks.
- Prince Edward Island held a one-day, island-wide hazardous waste collection.
- In Whitehorse, a Yukon conservation society held an Environment Week treasure hunt with clues leading to sites important to wetland protection, waste disposal, wildlife biology and other environmental concerns.

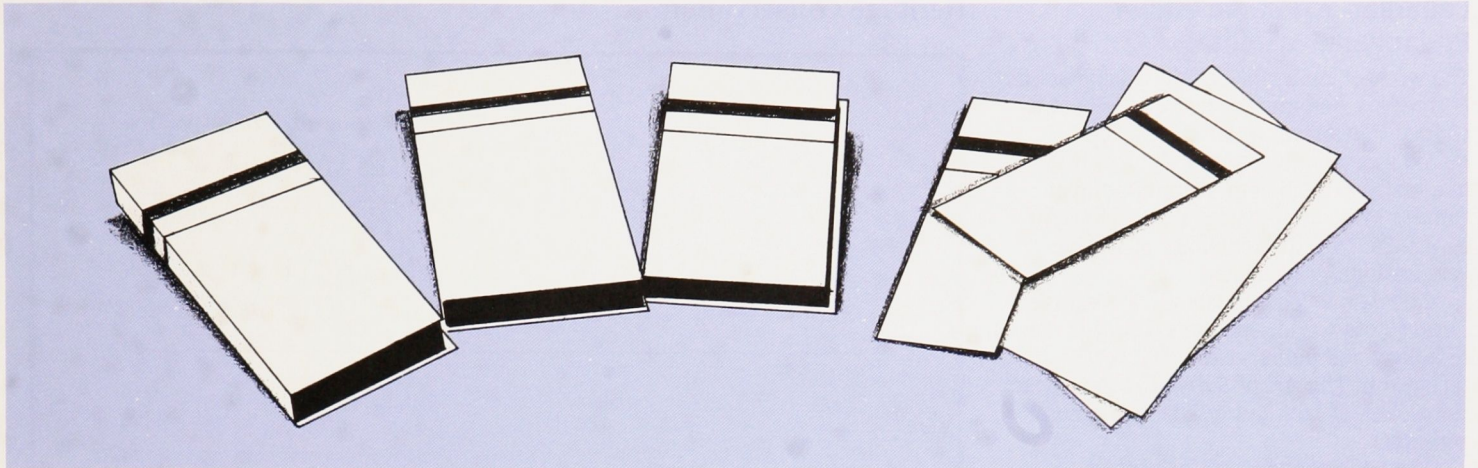
*Our common future depends
on our environment; and
our environment depends
on us.*

This year's Environment Week activities were more numerous and varied than ever before. In every part of Canada, interest and involvement are growing – and that gives us all hope for the future. For our common future depends on our environment; and our environment depends on us.

In her foreword to *Our Common Future*, Gro Brundtland writes of "our children's fundamental right to a healthy, life-enhancing environment." That right, she continues, can be protected only if people co-operate, nationally and internationally, in "furthering the common understanding and common spirit of responsibility so clearly needed in a divided world." The success of Environment Week shows that Canadians are taking those words to heart and putting them into practice. ■

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Update Reviews



Report on Chlor-Alkali Industry

Mercury levels in fish have dropped sharply near Canada's five chlor-alkali plants, according to Environment Canada's *Status Report on Compliance with the Chlor-Alkali Mercury Regulations, 1984-85*.

The study attributes significant reductions in mercury discharges to the enforcement of federal and provincial regulations and to corrective measures by industry. These efforts resulted in modifications at some plants and closure at others. The report also attributes the reopening of some commercial and sport-fishing areas to the drop in contamination levels.

Chlor-alkali plants, which produce chlorine and caustic soda, may allow mercury to escape in their wastewaters, solid wastes and atmospheric emissions. Mercury discharges into water have been regulated by Environment Canada since 1972 under Section 33 of the *Fisheries Act*, while mercury emitted into the air has been regulated since 1978 under the *Clean Air Act*. Once the *Canadian Environmental Protection Act* becomes law, atmospheric emissions of mercury will be regulated under the new Act.

To obtain a copy of the report, contact the Industrial Programs Branch, Conservation and Protection Service, Environment Canada, Ottawa, Ontario K1A 0H3. ■

New Studies in Climate Change Digest Series

Since January, Environment Canada has released five more studies in its Climate Change Digest series on the implications of the "greenhouse effect" for Canada's economy.

The series is one element of the department's Climate Change Program, which draws on the expertise of government, industry and universities to provide early warning of future climate-related problems.

The following studies have been published this year:

- CCD 87-04 *Effects of a One Metre Rise in Mean Sea-Level at Saint John, New Brunswick and the Lower Reaches of the Saint John River*
- CCD 88-01 *The Implications of Climate Change for Agriculture in the Prairie Provinces*
- CCD 88-02 *Preliminary Study of the Possible Impacts of a One Metre Rise in Sea Level at Charlottetown, Prince Edward Island*
- CCD 88-03 *Implications of Climate Change for Downhill Skiing in Quebec*
- CCD 88-04 *Economic Perspectives on the Impact of Climate Variability and Change: A Summary Report.*

Two earlier publications in the Climate Change Digest series dealt with the effects of climate change on agriculture in Ontario (CCD 87-02) and on navigation and power generation in the Great Lakes (CCD 87-03).

Copies of these reports may be obtained, free of charge, from the Climate Program Office, Canadian Climate Centre, Environment Canada, 4905 Dufferin Street, Downsview, Ontario M3H 5T4. ■

Acid Rain Sensitivity Map

Almost half of Canada is highly sensitive to acid rain, according to a map published by Environment Canada.

The map and accompanying fact sheet summarize, for the first time on a national scale, the susceptibility of land and inland waters to acidification. The map shows low, moderate and high ability of soil and bedrock to neutralize acidity. It indicates the sensitivity of lakes and rivers by analyzing the surrounding land base's ability to neutralize acid.

The provinces most susceptible to acidification, by percentage of sensitive surface area, are Quebec (82 per cent), Newfoundland (56 per cent) and Nova Scotia (54 per cent).

Acid Rain: A National Sensitivity Assessment is part of a continuing series of "state of the environment" reports released by Environment Canada. It may be obtained from the Ecological Research and Integrated Programs Division, Lands Branch, Conservation and Protection Service, Environment Canada, Ottawa, Ontario K1A 0H3. ■



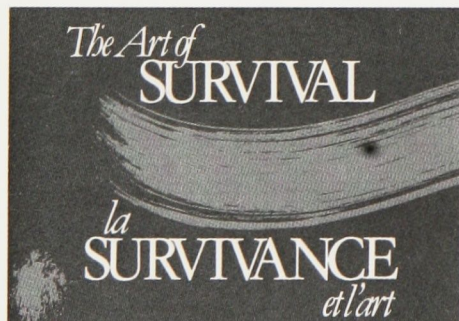
Canadian Artists in Aid of Endangered Wildlife

The work of Canada's leading wildlife artists is showcased in an impressive new book entitled *The Art of Survival*. The book reproduces paintings and sculptures featured in a major exhibition at Toronto's Royal Ontario Museum last winter as a highlight of Wildlife '87, the centenary of wildlife conservation in Canada.

Canada's wildlife artists are among the finest in the world, and our country is rich in animal and bird species. The works included in *The Art of Survival* demonstrate the wealth of both our artistic and natural resources.

The book contains 19 four-colour reproductions, each in a two-page spread, representing each of the artists who provided works for the exhibition: Robert Bateman, Fenwick Lansdowne, George McLean, Ron Parker, Glen Loates, Michael Dumas, Liz Lesperance, Terry Andrews, Jean-Luc Grondin, Chris Bacon, Paul Burdette, Brenda Carter, Audrey Casey, Donald Curley, Susan Menzies, Osuitok Ipeelee, Allan Sakhavarz, Terence Shortt and Richard Stanley.

The Art of Survival does more than display the achievements of our top wildlife artists; it will also help to protect wildlife in jeopardy. A portion of the revenue from the sale of each book will be donated to the Endangered Species Recovery Fund.



The book is available in soft cover at \$11.95 or hard cover at \$21.95. There is also a special limited, numbered edition of 200, signed by each artist and the designer, at \$1,500 each. Orders, including an additional \$2.00 per copy for mailing and handling, should be sent to Canadian Wildlife Associates, 145 Columbia Street West, Waterloo, Ontario N2L 3L2. ■

Heritage Conservation

HERITAGE CONSERVATION

THE NATURAL ENVIRONMENT

E. Neville Ward
with Beth Killham



A comprehensive new report on the protection of Canada's natural heritage has been released. *Heritage Conservation – The Natural Environment*, prepared by E. Neville Ward with Beth Killham, provides a national overview of plans and programs for land conservation.

The report begins by outlining the international conventions and programs that help to protect Canada's natural heritage within a world context. Then follows a description of lands protected federally by Environment Canada and the National Capital Commission. The main section deals with natural heritage legislation, policies and programs of each province and territory.

Finally, the report reviews the programs of six of the many non-government organizations that work to protect Canada's national heritage.

The publication also summarizes data on all formally protected areas in Canada, as of January 1987. Details include the name, area, designation (park, reserve, etc.) and year of establishment.

The book was prepared by Environment Canada's Lands Branch and published by the University of Waterloo's Heritage Resource Centre. It can be ordered for \$12.50 from the University of Waterloo Press, University of Waterloo, Waterloo, Ontario N2L 3G1. ■

