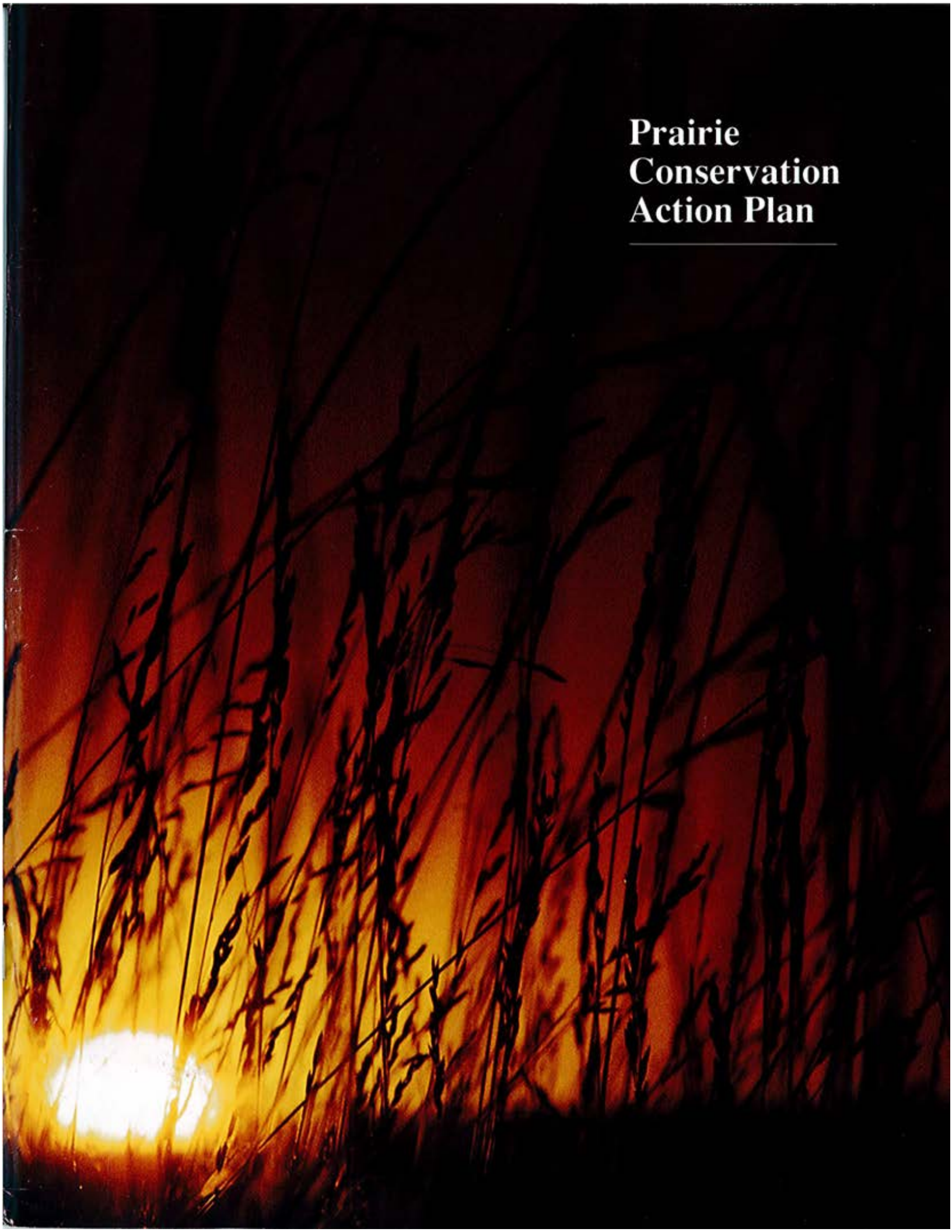
Prairie Conservation Action Plan



"Within one human lifetime, the prairies have passed from wilderness to become the most altered habitat in this country and one of the most disturbed, ecologically simplified and over-exploited regions in the world. The essence of what we risk losing when the grasslands are destroyed is not a species here or a species there, but a quality of life, the largeness and wildness that made this country remarkable."

Adrian Forsyth

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Prairie Conservation Action Plan

1989 - 1994

'Let's Leave Some Wild in the West'

WWF
World Wildlife Fund Canada
Fonds Mondial Pour La Nature Canada

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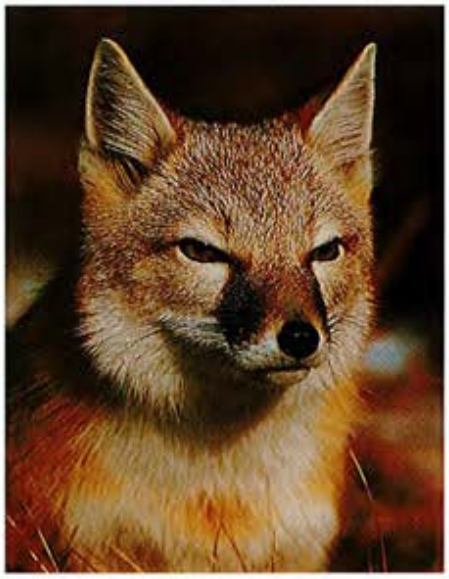

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Western blue flag

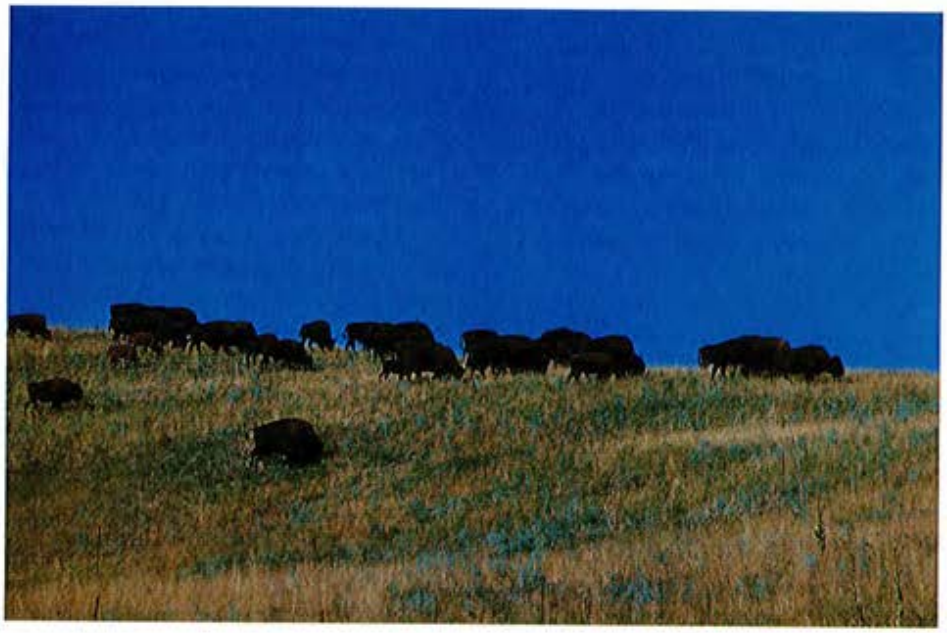
Wild West - A Vision for Prairie Canada

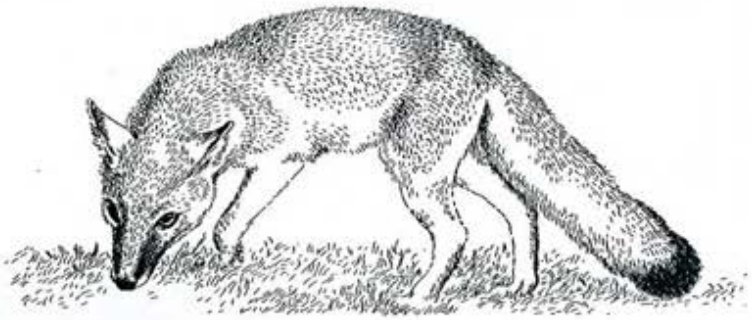
In only 100 years, the Canadian prairies - grasslands and parkland - have been so radically transformed by human activity that they have become one of the most endangered natural regions in Canada.

Little native prairie remains in its natural state, and what remains is rapidly disappearing. The diversity of prairie landscapes and of their wildlife is steadily being depleted. Native ecosystems continue to be severely damaged; some have been entirely eliminated.

Canadians need to ensure that native prairie, with its wild plants and animals, survives in the west and is conserved for its intrinsic values, from which this and future generations can benefit. We need to view the prairie in a new way, a way that values its richness and diversity as the foundation of sustainable economic activities.

Time is critical; within the next five years action must be taken to ensure the survival of prairie ecosystems. Prairie ecosystems, both representative and unique areas, must be saved. Recovery plans should be prepared for all threatened and endangered species. Cooperative action by agencies and individuals responsible for land use and resource decisions is mandatory if prairie wild places and wildlife are to remain a fulfilling part of our heritage. Commitment is needed **now**. We must leave some **Wild** in the **West**.





Piping Plover — endangered

Background

The Canadian prairies have been transformed to produce food to feed the nation and to earn export dollars. This economic achievement has not been accomplished without cost. In the process agriculture, and to a lesser degree urbanization and industrialization, have transformed more than 80% of the native prairie landscape.

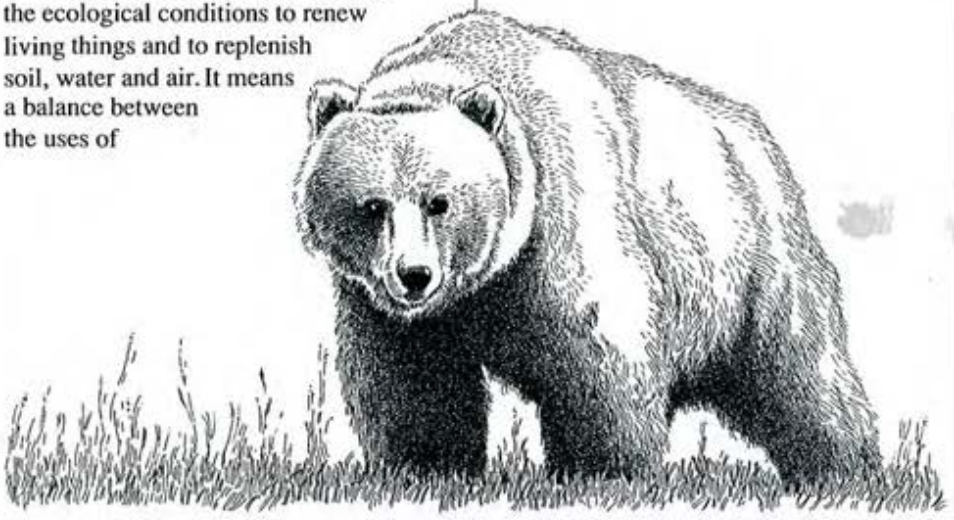
Almost all of the remarkable tall-grass prairie is gone. One of the few samples remaining - a mere 10 hectares (25 acres) - is ringed with buildings within the city of Winnipeg! Some 90% of the fescue grassland has been plowed, and much of the remaining 10% has been significantly modified by livestock grazing and haying. Approximately 24% of the mixed prairie, and 25% of the aspen parkland remains in the native state. About 1.2 million hectares (3 million acres or 40%) of wetland habitat in the same region have been converted to agricultural use.

Such quantitative data do not convey the full extent of the loss. Quality has also suffered, as the best and most fertile ecosystems were the first to disappear. The areas of tall-grass, parkland and mixed prairie that remain are, with few exceptions, on marginal lands, those considered relatively unfit for agriculture. And now even they are under siege.

Loss of habitat is the most critical issue for wildlife on the Canadian prairies. The potential for species extinctions has become a matter of serious concern. Nine Canadian species have been lost in the last 200 years, several of these from the prairies: the swift fox, black-footed ferret and the Passenger Pigeon. Several subspecies - including the plains wolf and the plains grizzly - no longer exist. Where once millions of plains bison roamed, only a few fenced herds remain - reminders of the loss of the Wild in the West.

More than one third of the birds and mammals designated on the 1988 list of the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) are from the prairie provinces (see list on page 24). Most occur in the shrinking ecosystems of the grasslands and parklands. The situation may be much worse, for the status of many other prairie species is unknown. Certainly more wild animals and plants will join the endangered list if action is not taken immediately to conserve what remains of the native wildlands.

Conservation means maintaining the ecological conditions to renew living things and to replenish soil, water and air. It means a balance between the uses of land for economic activities and for the natural processes of renewal and replenishment. In the grassland region the balance has been lost and the potential for conservation is perilously close to the edge. It is time to redress past failures and mistakes, bringing a measure of protection to what remains of the native landscape.



Spear grass, mixed prairie

Threats to Prairie Species and Ecosystems

The character and economy of the prairie provinces have been built upon the foundation of agriculture, and a sound and productive agricultural system will continue to be vital to the interests of all Canadians. Likewise, lands will necessarily be designated for industrial, business and residential activities. But such land uses, important though they are, degrade the landscape when they monopolize it.

A lack of conservation and protection is contributing to environmental problems that appear as loss of water and soil quality and loss of biological diversity. Prairie ecosystems and their living species have not been sufficiently valued.

Plants and animals are endangered because of changes in their habitats, usually resulting from unwise agricultural practices and policies. Even lands of marginal value continue to be plowed and otherwise developed, when their obvious "best use" is as unchanged ecosystems for the preservation of biological diversity. Without long-term planning, anticipated climatic change could aggravate an already serious condition by encouraging the agricultural use of marginal lands.

In addition to habitat destruction by agriculture, by transportation corridors, and by residential and industrial construction, other more subtle pressures are at work. Threats to native plants and animals are posed by introduced exotic "weed" species that compete for space in the native landscapes. Over-exploitation by grazing and hunting adds to the stress on remnant ecosystems. Relatively new, but exceedingly dangerous, are the various airborne and waterborne chemical pollutants dispersed from surrounding agricultural and industrial areas.

Unchecked, the trend is toward the loss of ecological complexity and loss of resiliency. This can only be reversed by an active effort to maintain what remains of native ecosystems and to restore at least part of what has been lost.

"Without habitat, there is no wildlife. It's that simple."

Wildlife Habitat Canada

Agriculture changes the landscape

Alkaline lake

Why Must We Conserve Native Species and Ecosystems?

The World Conservation Strategy emphasizes the importance of each nation conserving the species and ecosystems within its borders. The reasons are many, both ethical and practical. As civilized, conscientious people who greatly value the bounty of their environment, Canadians in general recognize the obligation to preserve and conserve those parts of the natural world that, once lost, cannot be recreated.

In addition to their intrinsic values, native ecosystems and the species in them are often useful to us. Wildlife, for example, provides much in the way of economic, esthetic and recreational value to Canadians. A 1981 Statistics Canada survey showed that a large majority (84%) of Canadians enjoy some form of wildlife-related activity. About $4.2 billion was spent in 1981 on these activities, excluding fishing, trapping and forestry. Over 82% of the people surveyed expressed their support for preserving endangered species. Wildlife-related recreation, tourism and hunting contribute more than a billion dollars per year to the economy of the prairie provinces alone.

Preserving genetic diversity on which agriculture and other industries depend is also important. Native plant species are

Ferruginous Hawk — threatened

the prime source for new strains of domesticated grains and other plant crops. Native species are highly valuable for their inherent natural adaptations to severe environmental conditions such as drought, and for their natural resistance to many insect pests. Yet very little is known about the value that prairie species may hold for future foods, forage crops, pharmaceuticals and other products.

Species and their habitats are two sides of the same coin; together they comprise the living elements of ecosystems.

Ecosystems are life-support systems; they provide the essential resources needed for all life to survive. Because we depend on healthy ecosystems, we must protect both species and habitat. It is in our own interest to do so.

Prairie Canada is an ecologically important part of North and South America. Many species of birds spend less than half of their time in the prairies, but it is here that they breed and multiply. Waterfowl and hawks spend most of their year around the Caribbean and south to Argentina. Arctic shorebirds and boreal forest songbirds depend on foraging in the prairies during their migration. We should remember this global relationship as we use the prairies.

Living things are an important part of the world we live in - they are economically and scientifically important, but

White-fringed orchid, tall-grass prairie — rare

"The preservation of biological diversity is both a matter of insurance and investment - necessary to sustain and improve agricultural, forestry and fisheries production, to keep open future options, as a buffer against harmful environmental change, and as the raw material for much scientific and industrial innovation - and a matter of moral principle... We cannot predict what species may become useful to us. Indeed we may learn that many species that seem dispensable are capable of providing important products, such as pharmaceuticals, or are vital parts of life-support systems on which we depend. For reasons of ethics and self-interest, therefore, we should not knowingly cause the extinction of a species."

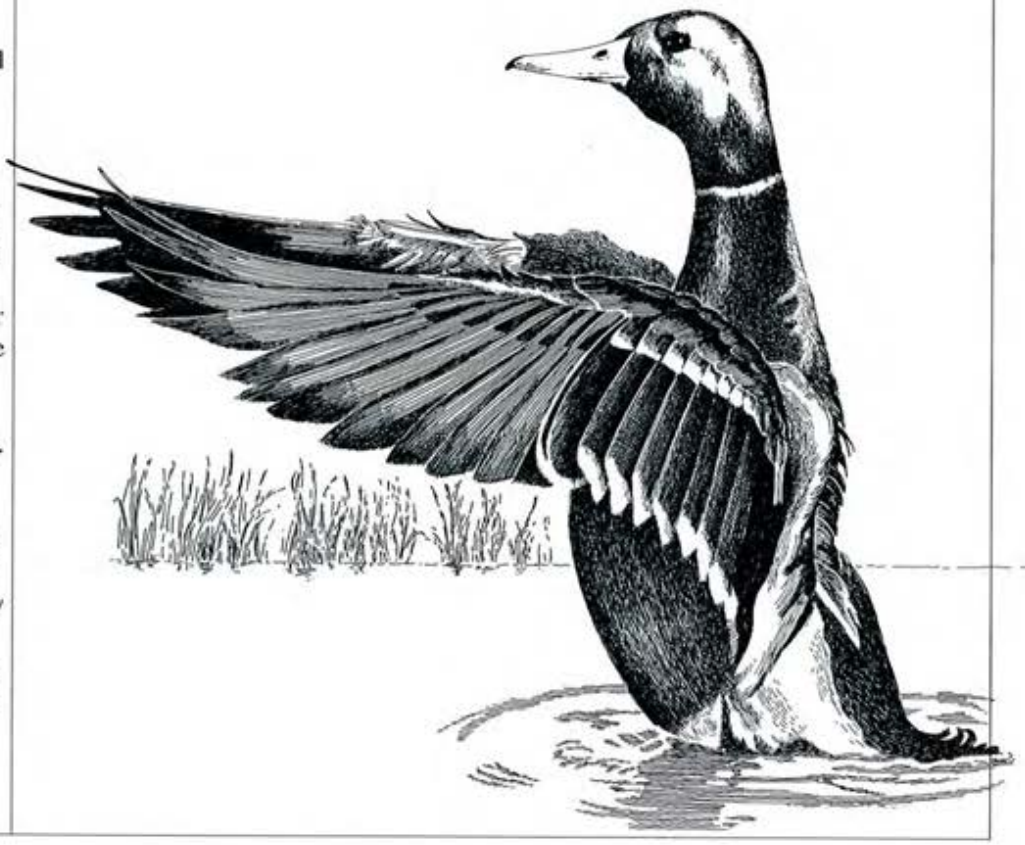
World Conservation Strategy

also convey much in the way of beauty, inspiration, recreation, culture and spiritual value. They affect our quality of life, and help define who we are as Westerners and Canadians. If more of us become stewards of the native prairie, treating species and habitats with care and respect, then native prairie will continue in Canada.

Since wildlife and wild places affect our quality of life, the values that they enshrine must be taken into consideration by governments and citizens when making everyday decisions and formulating policy.

The benefits of economic and other activities that are detrimental to wildlife and wild places must be carefully weighed against the loss of benefits and values that wildlife and wild places can give to us now and in the future.

In short, if we want wildlife (species), a healthy environment (ecosystems), and the economic benefits that flow from them, then we must act now to conserve native prairie and wildlife habitat.



Conservation Strategies

The World Conservation Strategy (WCS) was introduced in 1980 by the International Union for the Conservation of Nature and Natural Resources (IUCN), the United Nations Environment Programme (UNEP) and World Wide Fund for Nature, formerly known as World Wildlife Fund (WWF International). The WCS document represents the thinking of nearly 500 scientists, government officials and businessmen world-wide regarding what must be done to sustain life on earth.

Three global objectives for living resource conservation are identified in the World Conservation Strategy:

Weidemeyer's Admiral butterfly

1. Maintain essential ecological processes and life-support systems (such as soil regeneration and protection, the recycling of nutrients, and the cleansing of waters), on which human survival and economic development depend.

2. Preserve biological diversity (the range of genetic material in the world's organisms), on which depend the functioning of many of the above processes and life-support systems, the breeding programs necessary for the protection and improvement of cultivated plants, domesticated animals and microorganisms, as well as much scientific and medical advancement, technical innovation, and the security of the many industries that use living resources.

3. Ensure the sustainable use of species and ecosystems (notably fish and other wildlife, forests and grazing lands), which support thousands of rural communities as well as major industries.

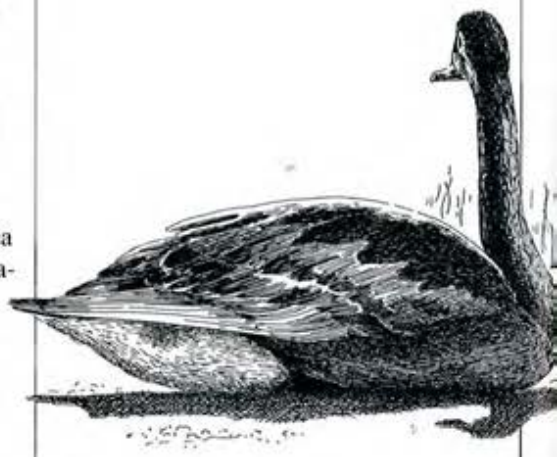
These global objectives must be realized at the national, regional and local levels of every country. Already 80 countries including Canada are drafting conservation strategies. We must "think globally, and act locally." Canada has officially endorsed the World Conservation Strategy. Provincial conservation strategies, patterned after the WCS, are being prepared in several provinces, including Alberta and Manitoba. In 1986, World Wildlife Fund Canada (WWF Canada) launched the **Wild West** program to act on the WCS objectives at the regional and local level in prairie Canada.

The World Conservation Strategy identifies the Canadian prairies as an area of international significance for conservation. We still have an opportunity in prairie Canada to protect significant representative samples of grassland and parkland ecosystems, which are among the most exploited and endangered ecosystems in the world.

What is Being Done Now ?

All across prairie Canada, individuals, groups and governments are involved in programs to preserve prairie wildlife and their habitat. Ecological Reserves, Natural Areas, Critical Wildlife Habitat, and Wildlife Management Areas specifically preserve native habitat, as do protected parts of provincial parks. Another important program is the North American Waterfowl Management Plan (NAWMP) which concentrates efforts to protect wetlands and associated uplands for waterfowl. The NAWMP is sponsored by government as well as such non-government groups as Ducks Unlimited and Wildlife Habitat Canada, which also protect prairies through other projects. Many private landowners protect parts of their land in its native state as their own contribution to wildlife conservation.

The prairie provinces are following the lead of the World Conservation Strategy by developing provincial conservation strategies. In addition, important work is occurring provincially to classify the landscape and its wildlife so that we will know more accurately what lands we have to protect in all parts of the prairies.



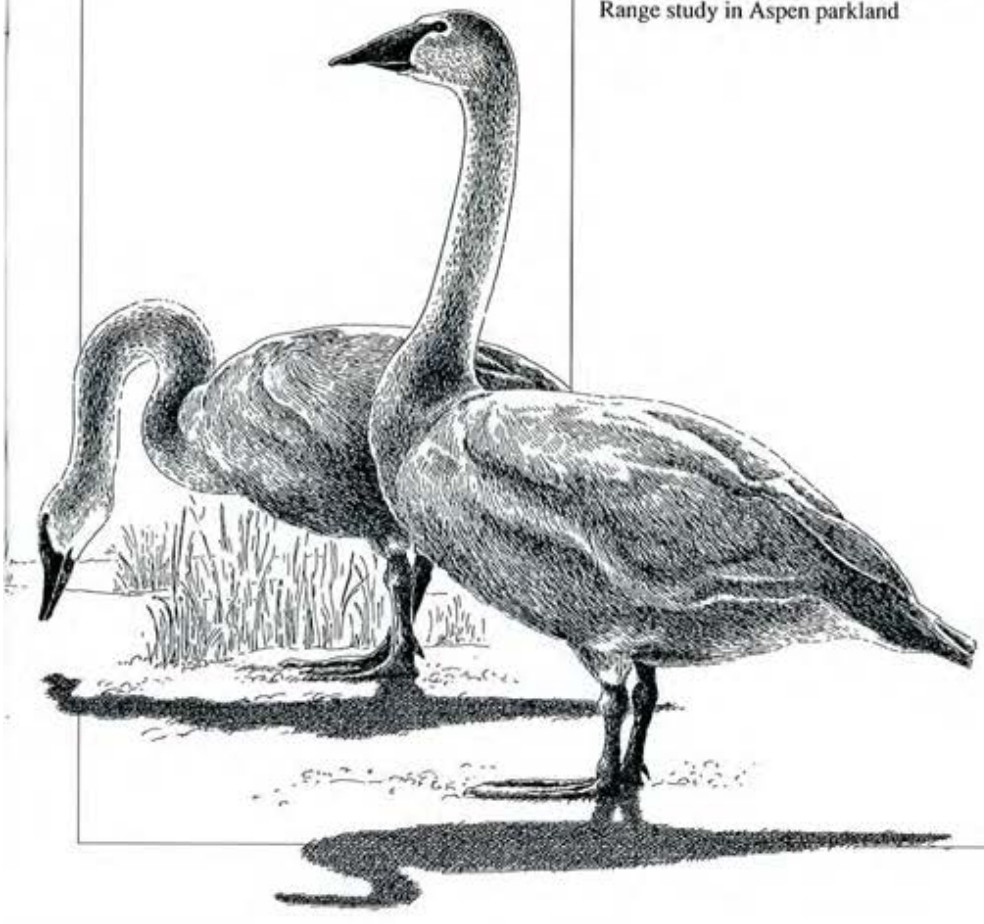
The Wild West Program

Endangered species are classified by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The status assigned each wildlife species helps to direct the efforts to protect them. Efforts to preserve endangered species in the prairies include the protection of critical habitat, breeding endangered species in captivity and releasing them to the wild.

If a species is not yet extinct, there is still hope. Native prairie can recover if given a chance, but we must help. Every remaining prairie wetland is precious, each aspen forest is critical, and every tract of native grassland is a national treasure. Through cooperative action we may still have time to conserve the prairie, a vital part of our natural heritage.

Cooperative action with landowners

Range study in Aspen parkland



The **Wild West** program was initiated by WWF Canada in response to a growing public concern about our native prairies. **The conservation of biological diversity found on the Canadian prairies was the primary objective of the Wild West program.**

The program was conceived in 1985. A discussion paper on the need for a prairie conservation program was circulated and received unanimous approval in western Canada from government officials, farmers, naturalist groups, wildlife federations, business, and university experts. The program was formally initiated after further discussion at the Workshop on Endangered Species in the Prairie Provinces held at the Provincial Museum of Alberta in Edmonton in January, 1986. The workshop was attended by 90 speakers and 400 participants; 4600 members of the public visited the museum that weekend to hear plenary talks and view the special displays.

In April 1986 a steering committee was formed of individuals representing diverse agencies and organizations in the west, and **Wild West** was launched. The program had three main components:

1. To draft a Prairie Conservation Action Plan for endangered and threatened habitats and species (this document).

2. To mount demonstration projects for the recovery of endangered species. More than 90 such projects were supported.

3. To increase public awareness of what can be done to conserve prairie wildlife and habitats, through cooperative conservation projects with other agencies and private landowners. Nearly 500 landowners have been involved with **Wild West** projects.

How was this Plan Drafted ?

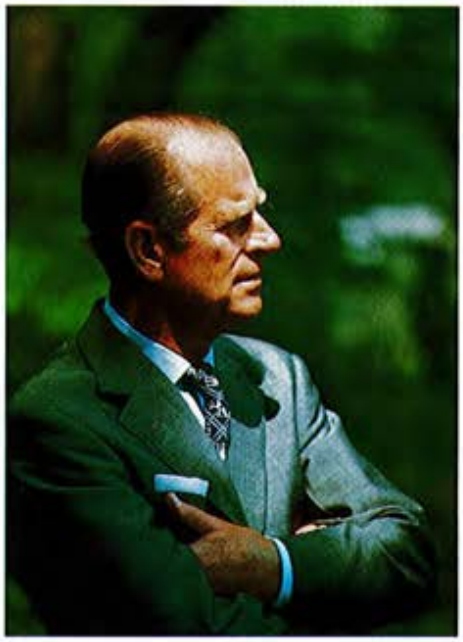
Although it has been coordinated by a small committee of 20 individuals, many hundreds of people have been involved in drafting the Prairie Conservation Action Plan.

In 1987, a prospectus was published and circulated to over 5000 interested groups and individuals for direction on what should be included in the plan. Drafts have been reviewed by the entire **Wild West** Steering Committee, which represents landowners, academics, government officials and leaders of western-based conservation organizations. The steering committee met frequently in all three prairie provinces, and discussed the guiding principles of **Wild West** with provincial Cabinet ministers.

In 1987, His Royal Highness Prince Philip, president of World Wide Fund for Nature, chaired a meeting of the federal and provincial ministers with representatives of 40 conservation groups, to discuss conservation priorities for western Canada. Final drafts of the plan were widely circulated outside the steering committee for additional comment.

In short, every step has been taken to ensure that this document represents the considered thinking of diverse interests from a regional, national and international perspective.

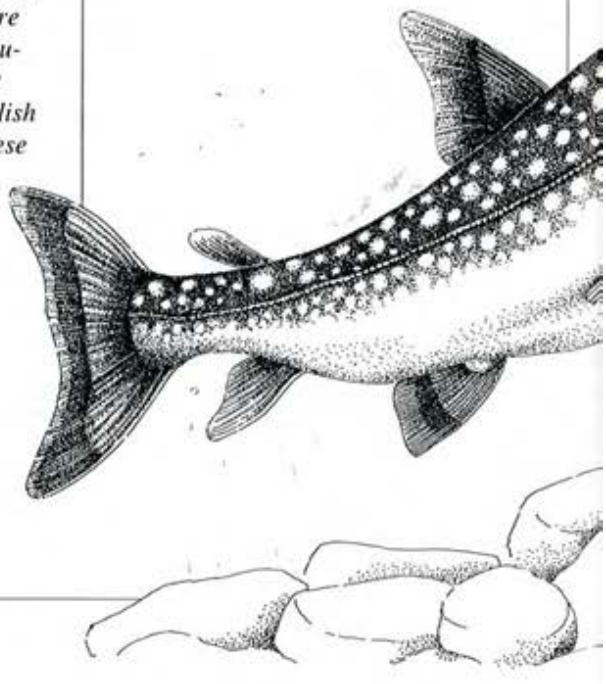
Pincushion cactus, mixed prairie



Prince Philip

"There are those who know and understand the serious consequences for the future health of this planet if ecosystems are wantonly destroyed; and there are those who have the power or the influence or the resources to prevent that destruction...The solution is to establish two-way communication between these groups."

HRH The Duke of Edinburgh
President, WWF International
Regina, 1987.

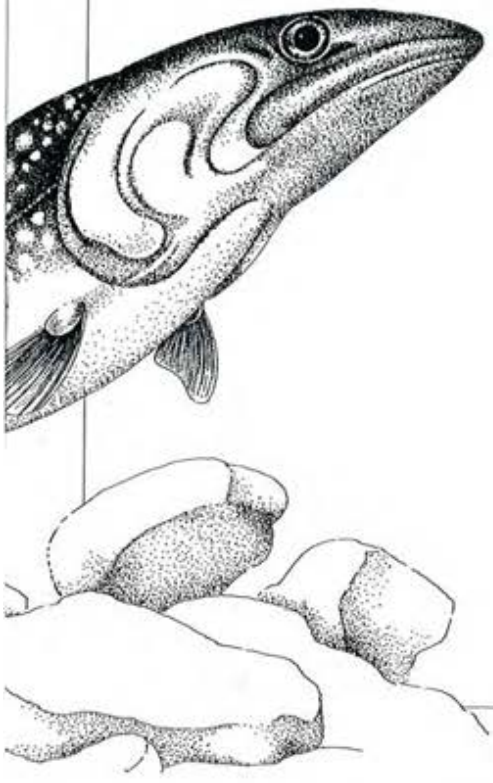


Purpose and Scope of this Action Plan

The purpose of the Prairie Conservation Action Plan is to influence policy and attitudes so as to conserve the biological diversity found in the Canadian prairies. The Action Plan should be implemented by federal, provincial and municipal government agencies, private conservation organizations and individuals. It is every person's responsibility. Cooperative action is essential.

The goals and recommended actions that follow represent a consensus of opinion on what needs to be done within the next five years to conserve prairie ecosystems and wildlife.

These goals and actions provide a blueprint for prairie-wide conservation and management efforts, against which actions over the next five years can be measured.



Goals

1. Identify the remaining native prairie and parkland.

2. Protect at least one large, representative area in each of the four major prairie ecoregions.

3. Establish across the three prairie provinces a system of protected native prairie ecosystems, and where possible, connecting corridors. This system should include representative samples of each habitat subregion.

4. Protect threatened ecosystems and habitats by preparing and implementing habitat management and restoration plans.

5. Protect and enhance the populations of prairie species designated nationally or provincially as vulnerable, threatened, endangered or extirpated, by implementing recovery and management plans.

6. Ensure that no additional species become threatened, endangered or extirpated.

7. Encourage governments to more explicitly incorporate conservation of native prairie in their programs.

8. Encourage balanced use of private lands that allows sustained use of the land while maintaining and enhancing the native biological diversity of the prairies.

9. Promote public awareness of the values and importance of prairie wildlife and wild places.

10. Promote research relevant to prairie conservation.

Mountain bluebird

Goal 1

Identify the remaining native prairie and parkland.

Native prairie is uncultivated grassland or parkland that retains the original plant species of the ecosystem. In order to protect native prairie, we must know where the remaining prairie is, what biological diversity is present, and who owns or manages the native prairie sites.

Various inventories of the grassland and parkland region have been undertaken in the past. These inventories include the Canadian Wildlife Service migratory bird habitat inventory, the Parks Canada systems land survey for the prairie region, provincial surveys for potential Ecological Reserves and Natural Areas, and the International Biological Program. Ducks Unlimited Canada has undertaken extensive surveys of mainly wetland prairie habitats. Background inventory reports were prepared for the **Wild West** program, based on data compiled by the provincial governments of Alberta, Saskatchewan and Manitoba and by the Canadian Wildlife Service.

River breaks

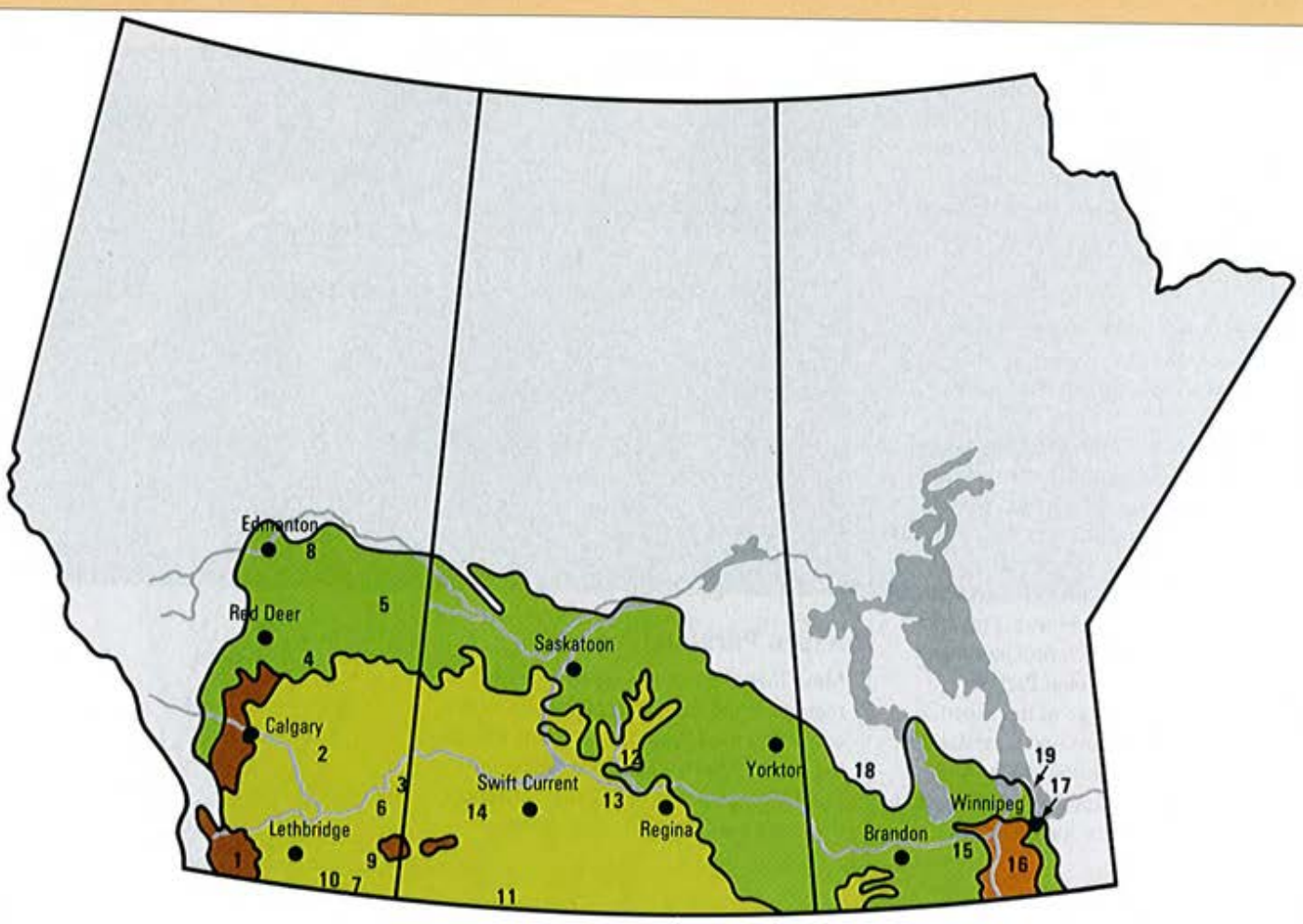
Diverse prairie reserve

Action: By 1990, the three prairie provincial governments in cooperation with the federal government and non-government organizations should identify the remaining native prairie (grasslands and parkland - including flora, fauna, landscapes and cultural elements) at the habitat subregion level, especially on upland sites. These inventories could be achieved by cooperative studies on ecologically significant areas undertaken by local authorities, provincial land management agencies and non-government organizations - inventories such as the Ecologically Significant Area study completed for the Oldman Regional Planning Commission in Alberta.

Action: These inventories should be made available to all user groups, and particularly to regional and municipal planning authorities and private landowners, for integration with local land use, development, zoning, and recreational planning activities.

Action: Federal and provincial agencies should provide opportunities for wildlife and land managers to participate in seminars and workshops on identification and management of native prairie ecosystems.

Ecoregions of the Prairies



Large, representative ecoregion areas should be protected in and around the numbered sites.

1. Ross Lake Ecological Reserve*
2. Handhills Ecological Reserve
3. Dune Point Area
4. Rumsey Ecological Reserve*
5. Wainwright Dunes Ecological Reserve
6. Canadian Forces Base Suffield
7. Lost River Ranch/Milk River
8. Elk Island National Park
9. Onefour Research Station
10. Kennedy Coulee Ecological Reserve*
11. Grasslands National Park
12. Last Mountain Lake Cooperative Wildlife Area
13. Stalwart National Wildlife Area
14. Webb National Wildlife Area
15. Canadian Forces Base Shilo
16. Tall-grass Sites
17. St. James Living Prairie Museum
18. Riding Mountain National park
19. Oak Hammock Marsh (W.M.A.)

*candidate

- Mixed Prairie
- Tall-grass Prairie
- Fescue Prairie
- Aspen Parkland

Goal 2

Protect at least one large, representative area in each of the four major prairie ecoregions.

Ecoregions (or ecological regions) are broad climatic regions characterized by general vegetation patterns and soil development. There are four major ecoregions in the prairies, classified according to their predominant vegetation types: tall grass prairie; mixed prairie; fescue prairie; and aspen parkland.

We must strive to ensure that at least one large representative area in each ecoregion is protected. Ideally, each province should have representative protected areas for each of its prairie ecoregions. A representative area would include all of the significant features typical of the ecoregion - flora, fauna and landforms.

At present there are fewer than a dozen small provincial parks in any of the prairie ecoregions except aspen parkland. Elk Island National Park in Alberta and Riding Mountain National Park in Manitoba lie at the edge of the aspen parkland belt. The proposed Grasslands National Park in the Frenchman River area of southern Saskatchewan is the first large protected area of mixed prairie.

Aspen Parkland ecoregion

More than 80% of the aspen parkland regions in the Canadian plains have been converted to agricultural use. The remaining areas of native parkland are being rapidly fragmented by grazing, tree clearing, road building and subdivisions.

Action: Large reserves of aspen parkland should be established in Alberta. One site that requires provincial protection in Alberta is the Rumsey Block, the largest remaining representative site of aspen parkland left in the world. In addition, the Wainwright Dunes Ecological Reserve, Canadian Forces Base Wainwright and the surrounding David Lake-Ribstone Creek area should be managed to maintain a large block of aspen parkland. These areas contain a number of rare plant species and uncommon animal species.

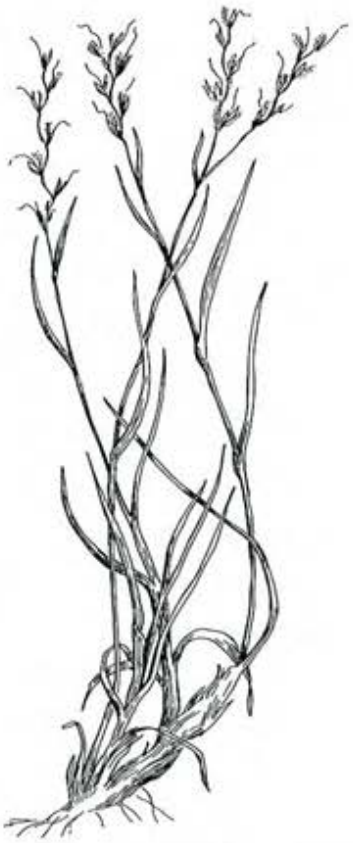
Action: The Canadian Forces Base Shilo in Manitoba contains a significant parcel of parkland still remaining in a natural state, although 20% is dominated by Eurasian vegetation. Cooperative conservation efforts between the Department of National Defense and the Manitoba Department of Natural Resources should ensure protection of the flora and fauna in the Shilo base.

Action: Any remaining large tracts of aspen parkland in Saskatchewan and Manitoba must be identified and conserved.

Tall-grass Prairie ecoregion

Tall-grass prairie in North America has been nearly eliminated. Less than 1% of the original area remains relatively undisturbed. Only a few small sites remain in Manitoba; these occur on less productive soils or on the fringes of the original tall grass range. Two of these sites, totalling together less than 50 ha, have some degree of protection: the St. James Living Prairie Museum (a Winnipeg city park) and Oak Hammock Marsh (part of the Oak Hammock Wildlife Management Area). Several more have been identified through the **Wild West** program.

Oak Hammock Marsh tall-grass prairie, Manitoba

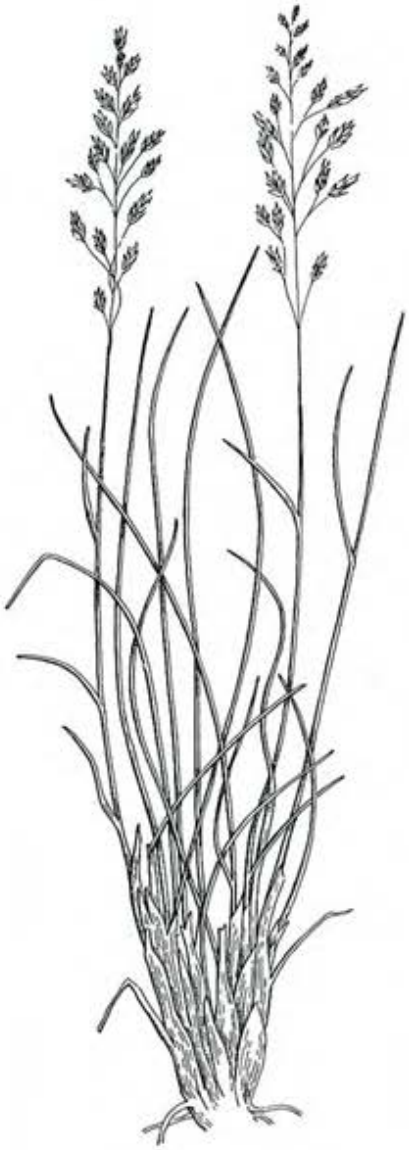


Action: All of the remaining tall-grass prairie sites in Manitoba should be identified, and steps taken to ensure their lasting protection.

Action: Industry should be encouraged to return unused tracts of tall grass prairie to a natural state. Landscaping plans should include the use of native species wherever possible.

Fescue Prairie ecoregion

Native northern fescue grassland, found almost entirely in Alberta, has been reduced to 27% of its original area owing to cultivation. Much of this is heavily grazed by cattle, and continues to be broken and converted to tame pasture or cropland. This area includes the Handhills Ecological Reserve.



Fescue grassland, Alberta

Golden bean

Action: The few native fescue sites remaining in the black soil zone in Saskatchewan and Manitoba should be protected.

Action: At least one large representative area of northern fescue grassland should be protected. The most significant area of this type is in the Little Fish Lake Handhills-Wintering Hills area of Alberta, where the fescue site is contained within the mixed prairie zone. The endangered Piping Plover breeds here. Protection should be given to the native fescue prairie adjacent to the Handhills Ecological Reserve.

Action: The proposed ecological reserve in the Ross Lake area of southern Alberta should be established. This foothills area is representative of the fescue grassland subregion, and is the habitat for several rare plants including thoroughwax, tufted hymenopappus, nodding microseris and harefooted locoweed.

Mixed Prairie ecoregion

Mixed prairie is so named because it includes both mid and short grasses. This is the most extensive grassland region found in North America. A variant of the mixed prairie ecoregion in Canada that occurs under dry conditions or intense grazing is termed "shortgrass prairie".

The area of uncultivated mixed prairie is declining rapidly. Some 23% of the rangeland still existing in 1956 had been plowed by 1981. Much of the remaining rangeland exists in areas unsuitable for cultivation. At the same time, greatly increased grazing pressure on the remaining rangeland has changed the plant composition in all types of habitats. About 24% of the original mixed prairie remains in its native state. Several provincial parks and natural areas exist within the mixed prairie zone, but further protection is necessary, especially in southern Saskatchewan, where the opportunity exists to establish and expand the first national park entirely within a prairie ecoregion.

Milk River Valley, Alberta

Action: The federal and Saskatchewan governments should resolve all outstanding issues hindering the final establishment of Grasslands National Park. The park area holds outstanding value as a conservation area. It contains one of the richest remaining assemblages of prairie species. It is the last home for the black-tailed prairie dog in Canada, and the best site for any possible reintroduction of the black-footed ferret. Grasslands National Park will publicly acknowledge the value of native grassland wildlife, habitats and ecosystems unique in North America, to the benefit of all Canadians and the world.

Action: A large area of relatively undisturbed native prairie exists within the Canadian Forces Base Suffield in Alberta. Cooperative conservation efforts between the Department of National Defence, Environment Canada and Alberta Forestry, Lands and Wildlife should be continued to increase protection of the flora and fauna in the Suffield Base. Major portions of the Suffield Base should enjoy significant conservation status.

Action: The Dune Point area in Alberta contains a rare riparian woodland and sand dunes, which harbor several rare plants and Ord's kangaroo rat. This area should be protected.

Action: The Lost River portion of the federal Onefour Research Station and the Milk River area in Alberta are home to several rare and endangered plants and animals such as the short-horned lizard, Mountain Plover, pronuba moth and soapweed. Parts of these areas have been proposed as natural areas and ecological reserves and should be given permanent protection.

Goal 3

Establish across the three prairie provinces a system of protected native prairie ecosystems, and where possible, connecting corridors. This system should include representative samples of each habitat subregion.

Areas not yet protected

Habitat subregions are unique ecosystems within an ecoregion. The boundaries of these subregions are defined by criteria such as soil type, annual precipitation, and dominant vegetation types. Habitat subregions are practical units for ecologically-based land use planning and management.

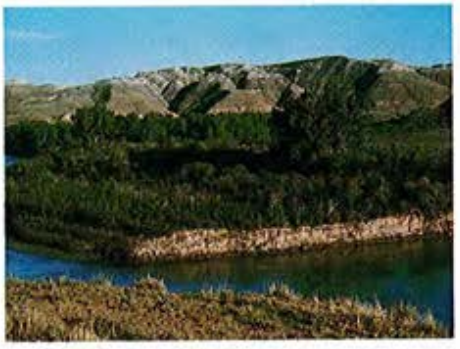
Each ecosystem has its own special characteristics - and actual or potential benefits for humanity. In order to preserve fully the biological diversity of the prairies, we must protect representative examples of each habitat subregion. Representative examples would include all the significant typical features of the subregion: its flora, fauna and landforms. In addition, unique and unusual features should be protected. A systems approach to ecological planning can ensure that the full range of biological diversity left on the Canadian prairies is conserved.

A system of small ecosystem reserves across the prairies would complement the large ecoregion reserves in each province, and together ensure the protection of native prairie habitats and their biological diversity. These reserves may be established by government or through cooperative agreements with landowners. Where possible, this system of native prairie reserves should be connected by habitat corridors such as riparian habitats and pasture land. Small wildlife populations in isolated prairie areas often suffer from genetic drift, local declines and lost diversity; a network of corridors will reduce the effect of fragmentation of the prairies.

Riparian habitats (rivers, streams and their edges) are extremely productive systems. Due to water and land management practices, they have become some of the most threatened ecosystems in arid and semi-arid regions of the world. Construction of dams, for example, can affect hundreds of kilometers of productive riparian habitat. Cottonwoods have declined by 50% in just 20 years below the St. Mary's dam in southern Alberta. In the prairies, studies indicate that without remedial action, the major riparian cottonwood habitats will disappear by the end of the next century.

Areas already protected

The existing protected areas in the prairies could be incorporated into a system of protected native prairie ecosystems, such as national parks, provincial parks, national wildlife areas, migratory bird sanctuaries, natural areas, ecological reserves, Prairie Farm Rehabilitation Administration (PFRA) pastures, provincial grazing reserves, community pastures, and urban or regional parks. Protected areas can have various uses, including grazing, tourism, hunting, fishing, and other forms of recreation. The overall objective of establishing and managing a system of protected ecosystems is to establish balanced land use and sustainable use of resources, while preserving biological diversity.



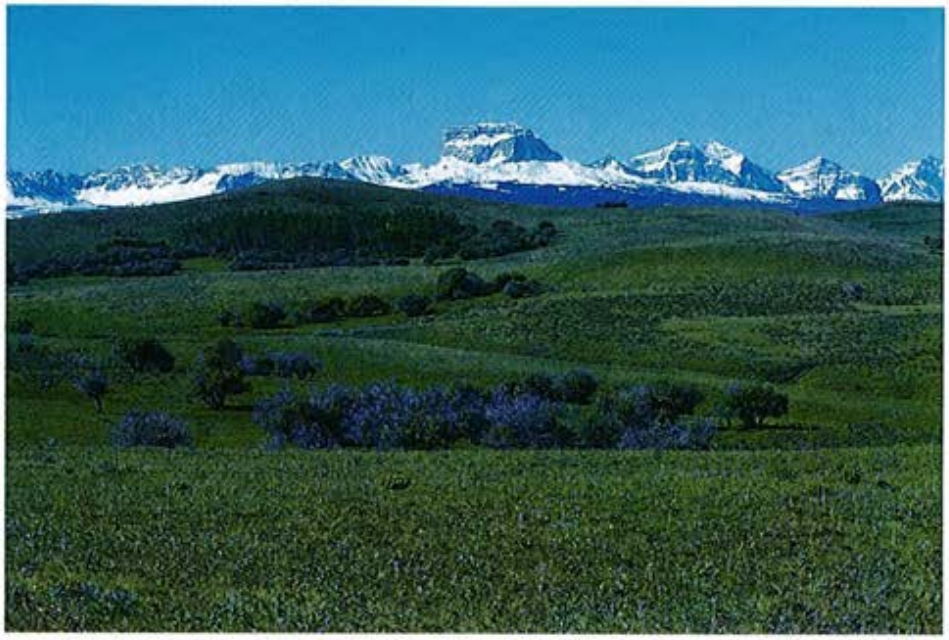
Productive river ecosystem.

Lake Francis tall-grass prairie

Action: By 1990, each province should identify currently protected areas that can serve as ecosystem reserves, and should incorporate this concept into the management of the sites.

Action: By 1990, each province should identify habitat subregions where areas should be protected for ecosystem reserves.

Action: To maintain biological diversity and native prairie, by 1994 there should be conservation of at least 10% of each habitat subregion. This can be accomplished through a variety of techniques, such as legislation, tax incentives, taxation policy, easements, landowner agreements and purchases, to encourage the maintenance of public lands in native



Foothills fescue prairie

"We have custody of unique biotas and habitats, we have a responsibility for their care and management, including the maintenance of adequate examples of all of them in their pristine condition."

Ian McTaggart Cowan

condition. A system of reserves will allow continued use of lands for grazing, recreation and other purposes while maintaining native wildlife.

Action: By 1990, the federal and provincial governments, in cooperation with national and provincial non-government organizations, should develop and implement extension programs to assist rural landowners to conserve native prairie.

Action: Funds should be provided through public and private partnerships to secure native habitats on private lands through mutually satisfactory leasing agreements that permanently protect land, or outright purchase where necessary.

Action: Native prairie that is public land should not be sold if needed in the system of protected areas. Non-native prairie areas could be traded for significant habitat.

Action: The federal and provincial governments should revise agricultural policies, such as the grain quota marketing system, that are detrimental to wildlife and habitat retention. Incentives for the retention of native habitat and its wildlife should be promoted, as they are in the PFRA permanent cover program for marginal land. Taxation policies should encourage landowners to leave lands in a natural state.

Action: Within the next five years, habitat management plans for riparian ecosystems should be developed.

Action: All native prairie on Wildlife Management Area lands should be identified and maintained.

Goal 4

Protect threatened ecosystems and habitats by preparing and implementing habitat management and restoration plans.

Because we have lost much of our native prairie and because we must maintain healthy, functioning ecosystems, we need provincial and federal commitment to manage and restore habitats wherever possible.

Habitat management and restoration plans are a practical means of protecting ecosystems. For each of the major prairie habitats in the grasslands and parkland, we need to develop comprehensive habitat conservation strategies. These should include: identification of the remaining habitat; a statement of the current threats and management problems; a definition of agency roles and responsibilities with respect to the lands in question; land conservation targets including identification of areas for formal protective designation; an assessment of management plans required; an outline of priorities for action; a budget; and a timetable for implementation.

Provincial and national parks serve a dual mandate of protection and recreation. A long-term strategy of park management should recognize that incremental development not only may destroy native prairie, but will decrease the quality of nature-oriented recreation in the parks.

Saving key habitat blocks and species complexes will maximize benefits to and from wildlife, while minimizing the costs of protection. The first priority both in preserving biological diversity and in protecting ecosystems should be to protect and manage areas of native habitat. Habitat management and restoration plans should ensure a long-term commitment to habitat management.

Sand hills

Action: Native prairie should be conserved and, when necessary, restored, to maintain biological diversity. For example, some sites are being lost to shrubs and trees owing to lack of fire, and should be managed accordingly. Other sites might be planted with varieties of native prairie flora.

Action: By 1992, public land management agencies should develop management plans for significant remnants of native prairie - grasslands and parkland. The plans should include long-term protective mechanisms and a diversity of water management, grazing, mowing and prescribed burning strategies that will perpetuate the full range of natural life in these regions. Multiple use areas such as parks, agricultural lands and Canadian Forces bases should include a conservation and protection mandate in their long-term plans.

Action: To the extent possible, native prairie plants should be re-established on land disturbed by industrial or agricultural activities where those activities have ceased, such as mine sites and abandoned railway rights-of-way.

Goal 5

Protect and enhance the populations of prairie species designated nationally or provincially as vulnerable, threatened, endangered or extirpated, by implementing recovery and management plans.

Every species designated as vulnerable, threatened or endangered, and their habitats, must be protected. Extirpated species and their habitats should be restored. Otherwise they are at risk of being lost entirely. The state of these species indicates that there are serious problems in the way prairie ecosystems are being affected by people. The most effective way of protecting these species is to protect their habitat; and by protecting habitat, we begin to protect ecosystems.

Species recovery is vital to preserve biological diversity and maintain ecosystems. Recovery plans should focus on solutions to the major limiting factors, including loss of habitat, availability of key food items and causes of mortality.

Small white lady's slipper — endangered

Action: In order to effectively initiate, coordinate and implement recovery actions for endangered and threatened species, a standardized set of guidelines for recovery plans should be developed and approved by the provincial and national wildlife agencies, and by non-government organizations such as WWF Canada, through the committee for the Recovery of Nationally Endangered Wildlife (RENEW).

Action: By 1994, the federal and provincial wildlife, fisheries and environment ministers should ensure that recovery plans are prepared and implemented for all prairie species currently designated as threatened or endangered by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

Action: The wildlife directors of the three prairie provinces and the Canadian Wildlife Service should create an endangered species committee to provide a focus for the management of threatened and endangered prairie species, and to coordinate the implementation of recovery efforts.

Action: Species extirpated from the Canadian prairie should be reintroduced when and where practical.

Action: Recovery plans should be developed and implemented by government in cooperation with national, provincial and local non-government organizations. Non-government organizations should be represented on RENEW and recovery teams.

Action: The prairie provinces should participate in the Endangered Species Recovery Fund announced in 1987 by WWF Canada and Environment Canada.

Action: Legislation is needed at provincial and national levels which will give one department or agency the mandate to coordinate conservation activities for all species provincially and federally, respectively.

Rare, Threatened, Endangered and Extirpated Prairie Species

As determined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), 1988:

Ecoregion M	F	T	P	Species	Status	Action Required	Remarks
				Mammals			
X				Black-tailed Prairie Dog	R	H	
X		X		Plains Pocket Gopher	R	H	
X		X	X	Swift Fox	X	I	— Recovery plan needs to be approved and implemented
X		X		Prairie Long-tailed Weasel	T	S/R	
X				Black-footed Ferret	X	S	— searches needed; follow-up reported sightings
	X		X	Wood Bison	T	I	— Recovery plan completed
				Birds			
		X	X	Trumpeter Swan	R	I	— North American Recovery plan complete, needs approval in Canada
		X	X	Cooper's Hawk	R	H	
X		X		Ferruginous Hawk	T	S/M/R	— Recovery plan in preparation
		X	X	Peregrine Falcon *(Anatum)*	E	I	— Recovery plan approved, reintroductions underway
X		X	X	Greater Prairie Chicken	E	R	— small remnant population in southern Saskatchewan
X		X	X	Whooping Crane	E	I	— Recovery plan approved
X	X	X	X	Piping Plover	E	M/R/I	— Recovery plan in preparation
X				Mountain Plover	E	R	— peripheral species in Canada
X		X	X	Eskimo Curlew	E	R	— searches needed for migrants
X		X		Burrowing Owl	T	M/R	— Recovery plan in preparation
X		X	X	Eastern Bluebird	R	H	
X		X	X	Loggerhead Shrike	T	S/M/R	— Status report in preparation: Manitoba
				Fish			
		X	X	Bigmouth Shiner	R	H	— in Canada, found only in southern Manitoba
		X	X	Silver Chub	R	H	— in Canada, found only in southern Manitoba
X				Shorthead Sculpin	T	S/M	— Milk River, Alberta population
				Plants			
		X	X	Small White Lady's Slipper	E	R	
		X	X	White Fringed Orchid	R	H	
X				Soapweed	R	H	

Ecoregion
M — Mixed Prairie
F — Fescue Prairie
T — Tall-grass Prairie
P — Aspen Parkland

Status
R — Rare
T — Threatened
E — Endangered
X — Extirpated

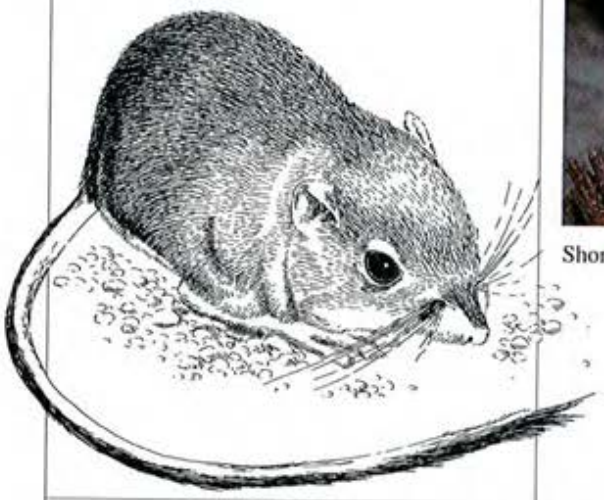
Action Required
S — Status Report
R — Recovery Plan
M — Management Plan
H — Habitat Protection
I — Implement Recovery Plan

Goal 6

Ensure that no additional species become threatened, endangered or extirpated.

A species not covered by COSEWIC may be locally threatened or endangered within a province, or in several provinces; therefore, protection must extend beyond the mandate of RENEW.

We need to plan to prevent species from becoming threatened or endangered, not wait until they are so classified. The most important way of doing this is to conserve habitat.



Short-horned lizard

Action: In order to share current research data on non-designated but potentially threatened or endangered species, a forum should exist for experts from the three prairie provinces to meet at least once every three years. The 1986 Endangered Species in the Prairie Provinces Workshop in Edmonton could be the model for such a forum. Provincial and federal wildlife and agriculture agencies, along with non-government conservation groups, provincial museums, and prairie universities and colleges should be included. Such a forum should carefully and specifically monitor progress against this Prairie Conservation Action Plan.

Action: Wildlife management agencies should determine the priority habitat needs of all prairie plant and animal species, and ensure that those habitats are adequately represented in the system of protected areas outlined in goal 3.

Action: The federal and provincial governments should develop Endangered Species Acts to specifically protect endangered species and their habitats.

Action: Each province should identify any additional species that may be vulnerable, threatened or endangered, and work with COSEWIC to prepare status reports or designate them under provincial authority.

Action: By 1994, the Canadian Wildlife Service and provincial wildlife agencies should identify important prairie staging and production areas for shorebirds, ensure that these lands are protected from harmful developments, and list the most important of these areas as International Shorebird Reserves.

Action: The Department of Agriculture should ensure that chemical applications, particularly the use of herbicides and insecticides for weed, insect and rodent control, do not endanger any native plants and animals.

Prairie Conservation Action Plan Species of Concern

The following are prairie species in jeopardy that require conservation action, as determined by experts from the three prairie provinces and supported by the **Wild West** Steering Committee. The species may be threatened, declining or of local concern, but their status has not been reviewed by COSEWIC. This list does not establish priorities for provincial management programs.

Ecoregion M	F	T	P	Species	Scientific Name	Action Required	Remarks
				Birds			
X		X	X	American While Pelican	*Pelecanus erythrorhynchos*	S	— monitor status
X				White-faced Ibis	*Plegadis chihi*	S	
		X	X	Turkey Vulture	*Cathartes aura*	S	
X	X	X		Golden Eagle	*Aquila chrysaetos*	S	
X	X	X	X	Prairie Falcon	*Falco mexicanus*	S	
X				Sage Grouse	*Centrocercus urophasianus*	S	
X	X	X	X	Long-billed Curlew	*Numenius americanus*	S	
X		X	X	Upland Sandpiper	*Bartramia longicauda*	S	
X		X	X	Willet	*Catotrophorus semipalmatus*	S	
X	X	X	X	Red Knot	*Calidris canutus*	S	— protect staging habitat
X	X	X	X	Sanderling	*Calidris alba*	S	— protect staging habitat
X		X		Marbled Godwit	*Limosa fedoa*	S	
X		X		American Avocet	*Recurvirostra americana*	S	
		X	X	Barred Owl	*Strix varia*	S	
	X		X	Pileated Woodpecker	*Dryocopus pileatus*	S	
X		X	X	Sprague's Pipit	*Anthus spragueii*	S	
X	X	X	X	Baird's Sparrow	*Ammodramus bairdii*	S	— status report in preparation for Manitoba
				Fish			
X	X		X	Bull Trout	*Salvelinus confluentis*	S	
X				Western Silvery Minnow	*Hybognathus argyritis*	S	— only in South Saskatchewan & Milk Rivers
				Mammals			
X				Ord's Kangaroo Rat	*Dipodomys ordii*	S	— status report in preparation
X				Western Harvest Mouse	*Reithrodontomys megalotis*	S	
	X	X	X	Prairie Vole	*Microtus ochrogaster*	S	
X	X	X	X	American Badger	*Taxidea taxus*	S	— declining across prairies
		X	X	Cougar	*Felis concolor*	S	
X		X	X	Mule Deer	*Odocoileus hemionus*	R	— extirpated in Manitoba
				Reptiles/Amphibians			
X				Plains Spadefoot Toad	*Scaphiopus bombifrons*	S	
X			X	Great Plains Toad	*Bufo cognatus*	S	
X	X	X	X	Northern Leopard Frog	*Rana pipiens*	S/M	
X		X		Western Painted Turtle	*Chrysemys picta*	S/M	
X				Short-horned Lizard	*Phrynosoma douglassi*	S	
X				Northern Prairie Skink	*Eumeces septentrionalis*	M	— status report in preparation for Manitoba
X				Western Hognose Snake	*Heterodon nasicus*	S/M	— status report in preparation for Manitoba
X	X			Bullsnake	*Pituophis melanoleucus*	S	
X				Eastern Yellow-belly Racer	*Coluber constrictor flaviventris*	S	
X				Prairie Rattlesnake	*Crotalus viridis viridis*	S	

Ecoregion
M — Mixed Prairie
F — Fescue Prairie
T — Tall-grass Prairie
P — Aspen Parkland

Action Required
S — Status Report
R — Recovery Plan
M — Management Plan

This list of plant species of concern represents the current state of knowledge of rare vascular plants of the prairies. The large number of prairie plant species can only be maintained by preserving the native plant communities which also provide habitat for all other prairie wildlife.

Family	Species	Province
Ophioglossaceae	*Botrychium lanceolatum lanceolatum*	A, S
	B. lunaria	S
	B. matricariaefolium	S, M
	B. multifidum	S
Polypodiaceae	*Pellaea glabella occidentalis*	S, M
	Woodsia oregana	S, M
Salicaceae	*Populus angustifolia*	S
Urticaceae	*Laportea canadensis*	S
	Parietaria pensylvanica	A
Polygonaceae	*Eriogonum cernuum*	A, S
	Polygonum confertiflorum	S
	P. scandens	S
	P. watsonii	A
Chenopodiaceae	*Atriplex aptera*	S
	A. canescens	A
	A. powellii	A, S
	A. truncata	A, S
	Chenopodium dacoticum	A, S
	C. incanum	A
	C. subglabrum	A, S
	C. watsonii	A
	Suaeda moquinii	A, S
Amaranthaceae	*Amaranthus tuberculatus*	M
Nyctaginaceae	*Abronia micrantha*	A
	Mirabilis nyctaginea	A
Portulacaceae	*Claytonia lanceolata*	S
	Montia linearis	A, S
Caryophyllaceae	*Arenaria congesta lithophila*	S
	Minuartia rubella	S
	Sagina decumbens decumbens	S
	Spergularia marina	A
Ranunculaceae	*Clematis occidentalis grosseserrata*	S
	C. virginiana	M
	Hepatica americana	M
	Myosurus americana	M
	M. aristatus	A
	Ranunculus inamoenus	S
	Thalictrum occidentale	S
Papaveraceae	*Sanguinaria canadensis*	M
Capparidaceae	*Polanisia dodecandra*	A, M
Cruciferae	*Cardamine bulbosa*	M
	Halimolobos virgata	S
	Hutchisia procumbens	S
	Rorippa tenerrima	A
Crassulaceae	*Penthorum sedoides*	M
	Sedum lanceolatum	S
Saxifragaceae	*Lithophragma bulbifera*	S
	L. glabrum	A
Rosaceae	*Crataegus douglasii*	A, M
	Potentilla diversifolia	S
	P. finitima	M
	P. gracilis flabelliformis	M
	P. paradoxa	A
	P. plattensis	M
	Prunus americana americana	S
	P. pumila	S
	Spiraea lucida	S
Leguminosae	*Amorpha fruticosa angustifolia*	M
	Astragalus aboriginum	M
	A. gilviflorus	M
	A. kentrophyta	A, S
	A. lotiflorus	A, M
	A. neglectus	M
	A. purshii	A, S
	A. racemosus racemosus	S
	A. spatulatus	S
	A. vexilliflexus	S
	Lotus purchianus	S
	Lupinus pusillus	S
	Oxytropis besseyi	S
	O. lagopus	A
	O. sericea	M
	Petalostemon villosum	S
	Thermopsis rhombifolia	M
Geraniaceae	*Geranium richardsonii*	S
	G. viscosissimum	S
Polygalaceae	*Polygala alba*	S
	P. verticillata	S, M
Celastraceae	*Celastrus scandens*	S
Euphorbiaceae	*Euphorbia geyeri*	M
Rhamnaceae	*Ceanothus herbaceus*	M
	C. velutinus	A
Elatinaceae	*Elatine triandra*	A, M
Cistaceae	*Hudsonia tomentosa*	M
Violaceae	*Viola pedatifida*	s
Loasaceae	*Mentzelia decapetala*	M
Cactaceae	*Coryphantha vivipara*	M
Onagraceae	*Boisduvalia glabella*	A, S
	Camissonia andina	S
	C. breviflora	S
	Epilobium peniculatum	M
	Oneothera andina	A
	O. breviflora	A
	O. flava	A
	O. serrulata	A
Haloragidaceae	*Myriophyllum pinnatum*	S
Umbelliferae	*Bupleurum americanum*	A
	Cryptotaenia canadensis	M
	Lomatium cous	A, S
	L. dissectum multifidum	S
	L. orientale	S, M
	Musineon divericatum	M
	Osmorhiza chilensis	A

Family	Species	Province
	O. longistilis	A
	Perideridia gairdneri borealis	S
Monotropaceae	*Monotropa hypopitys*	A
	Pterospora andromeda	A
Ericaceae	*Chimaphila umbellata occidentalis*	S
Primulaceae	*Androsace occidentalis*	A
	Cenunculus minimus	S
	Dodecatheon conjugens	S
	Lysimachia quadriflora	M
Gentianaceae	*Gentiana andrewsii dakotica*	S
	G. aquatica	S
Asclepiadaceae	*Asclepias lanuginosa*	M
	A. syriaca	S
	A. verticillata	S
	A. viridiflora	A
Polemoniaceae	*Linanthus septentrionalis*	S
	Phlox alyssifolia	S
Boraginaceae	*Cryptantha kelseyana*	S
	C. minima	S
	Heliotropium curassavicum	M
	Lithospermum ruderale	S
	Mertensia lanceolata	A, M
	Onosmodium molle occidentale	S
	Plagiobothrys scouleri	M
Verbenaceae	*Verbena hastata*	S
	V. urticifolia	S
Labiatae	*Hedeoma hispidum*	A
	Scutellaria lateriflora	S
	Teurcrium canadense occidentale	S
Scorphulariaceae	*Agalinis aspera*	M
	A. tenuifolia	M
	Besseya wyomingensis	S
	Castilleja cusickii	A
	C. sessiliflora	A
	Mimulus glabratus	S, M
	M. guttatus	A, S
	Penstemon eriantherus	A
	P. nitidus	M
	P. procerus	M
	Rhinanthus crista-galli	S
	Veronica catenata	A
	V. serpyllifolia humifusa	S
	Veronicastrum virginicum	M
Orobanchaceae	*Conopholis americana*	M
	Orobanche ludoviciana	M
	O. uniflora	S
Lentibulariaceae	*Pinguicula vulgaris*	S
	Utricularia cornata	S, M
Plantaginaceae	*Plantago elongata elongata*	M
	P. patagonica	S, M
Rubiaceae	*Galium aparine*	M
Caprifoliaceae	*Viburnum lentago*	S

Family	Species	Province
Lobeliaceae	*Downingia laeta*	A
Compositae	*Ambrosia acanthicarpa*	M
	Anaphalis margaritacea	S
	Antennaria anphaloides	S
	A. corymbosa	A, S
	A. dimorpha	A, S
	A. neglecta attenuata	S
	A. plantaginifolia	M
	A. russellii	S
	A. umbrinella	S
	Arnica fulgens	M
	Aster campestris	A
	A. pauciflorus	A
	A. sericeus	M
	A. umbellatus	A, S
	Bahia oppositifolia	S
	Bidens frondosa	A
	Boltonia asteroides recognita	M
	Cirsium discolor	M
	C. scariosum	A
	C. undulatum	M
	Coreopsis tinctoria	M
	Crepis atrabarba	A, S
	C. occidentalis	A, S
	Erigeron caespitosus	M
	E. radicatus	S
	Franseria acanthicarpa	A
	Helianthus tuberosis subcanescens	S
	Heliopsis helianthoides scabra	S
	Hieracium albiflorum	S
	Hymenopappus filifolius	A, S
	Hymenoxys acaulis acaulis	S
	Lactuca floridana	M
	Lygodesmia rostrata	A
	Machaeranthera tanacetifolia	A
	Microseris cuspidata	S, M
	Prenanthes alba	S
	P. sagittata	A
	Psilocarphus elatior	A
	Senecio hydrophyloides	A
	S. pauperculus thompsoniensis	S
	Solidago riddellii	M
	Stephanomeria runcinata	A, S
	Thelesperma marginatum	A
	Townsendia exscapa	M
	Veronia fasciculata corymbosa	M
Najadaceae	*Ruppia maritima occidentalis*	A, M
Lilaeaceae	*Lilaea scilloides*	A, S
Alismataceae	*Alisma gramineum*	M
	Sagitaria rigida	M
Gramineae	*Alopecurus alpinus glaucus*	S
	Andropogon gerardi	S

Family	Species	Province
	A. hallii	M
	Aristida longiseta	A, S, M
	Bouteloua curtipendula	S
	Buchloe dactyloides	S, M
	Bromus altissimus	A
	Calamagrostis rubescens	S
	Danthonia unispicata	A, S
	Elymus glaucus	S
	E. hystrix	M
	Eragrostis hypnoides	S
	Festuca idahoensis	S
	F. obtusa	M
	F. occidentalis	A
	Hordeum brachyantherum	S
	H. pusillum	A
	Muhlenbergia asperifolia	A
	Munroa squarrosa	A, S
	Oryzopsis canadensis	A, M
	O. hymenoides	M
	O. micrantha	A, M
	Panicum leibergii	S
	P. perlongum	M
	P. virgatum	S
	P. wilcoxianum	S, M
	Phleum commutatum americanum	S
	Poa cusickii	M
	P. fendleriana	M
	P. nevadensis	A
	Puccinellia lemmonii	S
	Schedonnardus paniculatus	A, M
	Sitanion hystrix	S
	Spartina pectinata	A
	Stipa richardsonii	M
	Trisetum cernuum	A
	T. spicatum	S
	T. wolfii	S
	Vulpia octoflora	A
Cyperaceae	*Carex assiniboinensis*	S
	C. crawei	A
	C. crinita crinita	M
	C. granularis	S
	C. gravida	S
	C. hoodii	S
	C. hookerana	M
	C. hystricina	A
	C. laxiflora blanda	M
	C. livida	M
	C. macloviana	M
	C. nebraskensis	A
	C. petaseta	S
	C. raynoldsii	S
	C. stricta elongata	M

Family	Species	Province
	C. woodii	M
	Cyperus schweinitzii	A, S
	C. squarrosus	A
	C. strigosis	S, M
	Eleocharis compressa	S
	E. engelmanni	S
	E. ovata	A, S, M
	E. parvula anachaeta	S
	E. parvula parvula	S
	Rhynchospora capillacea	M
	Scirpus nevadensis	A, M
	S. pallidus	S
	S. rufus	S, M
Araceae	*Arisaema triphyllum*	M
Commelinaceae	*Tradescantia occidentalis*	M
Pontederiaceae	*Heteranthera dubia*	M
Juncaceae	*Juncus ensifolius*	S
	J. nevadensis	A, S
	J. stygius americanus	S
	J. tracyi	S
Liliaceae	*Allium cernuum*	S
	A. geyeri	A, S
	A. tricoccum	M
	Polygonatum canaliculatum	S
	Smilacina racemosa	S, M
	Streptopus amplexifolius americanus	S
	Trillium cernuum	S
	Uvularia sessilifolia	M
	Yucca glauca	A, S
Amaryllidaceae	*Hypoxis hirsuta*	S
Iridaceae	*Iris missouriensis*	A
Orchidaceae	*Arethusa bulbosa*	S, M
	Calopogon tuberosus	M
	Calypso bulbosa	S
	Corallorhiza striata	S
	Cypripedium arietinum	M
	C. candidum	S, M
	C. reginae	S
	Goodyera oblongifolia	S
	Liparis loeselii	S
	Listera borealis	S
	Malaxis monophyllos brachypoda	M

Goal 7

Encourage governments to more explicitly incorporate conservation of native prairie in their programs.

The current status of wildlife in prairie and parkland Canada reflects 100 years of land and resource use decision-making. The agencies and institutions responsible for making policy regarding land and resource use in many cases have not adequately considered the importance of maintaining natural habitats and wildlife. Protection of wildlife and habitat should be incorporated in all land use planning and decision-making.

Federal and provincial wildlife agencies also must be supported in their efforts to contribute wildlife and conservation expertise to all resource and land use decisions. A commitment by all agencies and individuals to actively incorporate habitat and wildlife considerations in their decisions is fundamental to ensuring a future for prairie wildlife.

Shortgrass prairie

Tall-grass prairie and Parkland

Action: Federal and provincial governments should ensure that all economic, social and environmental programs support the goals of the World Conservation Strategy.

Action: Provincial and federal governments should encourage all agencies and departments with land and resource use decision-making responsibilities that can affect ecosystems and wildlife to apply the principles of integrated resource management, such as shared decision-making, consultation before action, cooperative planning and information sharing.

Action: The recommendations on integration of environment and economy put forth in the Report of the National Task Force on Environment and Economy should be implemented in the prairies.

Action: By 1990, each province should develop a strategy for incorporating information on endangered, threatened and vulnerable species and habitats into the decisions of all land management and planning agencies, such as the provincial wildlife, natural resource and agriculture agencies, and regional and municipal planning boards.

Yucca — a rare lily of the prairies

"Conservation means managing resources so they will continue to support the human family. Envisaged is a state of harmony between people and the natural treasures around them....What greater challenge than that of bringing wise and generous guardianship to the natural heritage?"

Honorable J.W. Grant MacEwan

Action: Regional and municipal planning commissions should set objectives to protect wildlife and wildlife habitat on both private and public lands within their jurisdiction. A target of at least 10% of the land should be maintained, and all major ecosystems within the jurisdiction should be represented. These commissions should immediately undertake inventories of the native habitat within their boundaries, to identify the species, ecosystems and ecologically sensitive sites. Provincial managers of public lands should agree to these regional planning objectives.

Action: Agricultural field personnel, district agriculturalists and wildlife biologists should receive training in the value and preservation of native prairie and its wildlife.

Goal 8

Encourage balanced use of private lands that allows sustained use of the land while maintaining and enhancing the native biological diversity of the prairies.

Over 75% of the prairies is owned and managed privately, so the cumulative impact of the land use practices of private landowners upon the well-being of prairie wildlife and their habitats is significant. Some land use practices are influenced by government legislation, regulations and subsidies. A land ethic that encourages balanced land management for economic and ecological purposes needs to be promoted among landowners through government incentives and advice. As the conservation of three-quarters of the prairies depends on the actions of individual landowners, ecological agriculture, which integrates the best agricultural techniques with conservation techniques, should be encouraged.

Government funds should be spent on programs that encourage conservation, not destruction of native habitat, for example, the grain quota marketing systems should be changed to qualify native prairie as quota acres.

Marginal farmland should be protected

Action: Federal and provincial agriculture agencies should revise their policies and legislation to encourage conservation of native prairie while maintaining or expanding agricultural productivity. Farmers should be provided with incentives to conserve rather than plow native prairie.

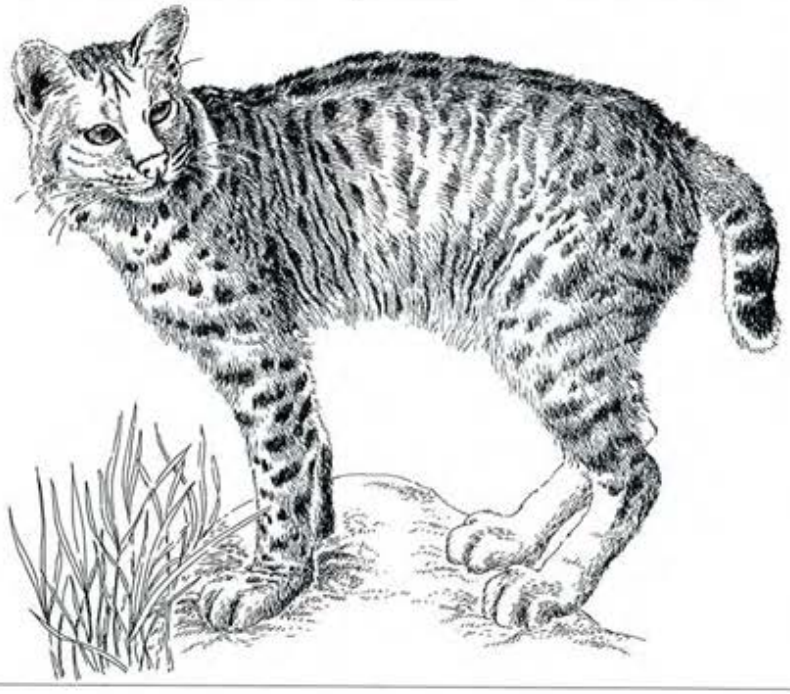
Action: Taxes on marginal land or any land that supports native wildlife and habitat must not penalize the landowner for keeping the land "out of production". Such taxes should be removed and tax notices should indicate this.

Prickly pear cactus

"Conservation is a state of harmony between men and land. We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."

Aldo Leopold

Action: Non-government conservation organizations and government agencies should encourage and support landowners' decisions to maintain native wildlife and habitats; for example, through landowner support and acknowledgement programs. Non-agricultural land is not "wasteland"; rather, it is often critical to the maintenance of wildlife populations.



Goal 9

Promote public awareness of the values and importance of prairie wildlife and wild places.

Canadians show great interest in supporting wildlife-related activities, including conservation programs. Greater public awareness of the loss of native prairie wildlife and wild places will result in greater public support for prairie conservation initiatives. One benefit of promoting appreciation of wildlife is enhanced tourism and therefore economic benefits from wildlife and wildlife habitat.

Prairie for tomorrow

Wildlife benefits people

Action: Federal, provincial and municipal governments should fund interpretive programs in parks, nature centres and zoos to encourage appreciation of the many values of native prairie species and habitats.

Action: Federal and provincial wildlife agencies and non-government organizations should promote and support volunteer involvement in wildlife surveys and wildlife habitat enhancement projects.

Action: World Wildlife Fund Canada and other organizations should provide films, books, posters and other public education media concerning prairie wildlife and wild places.

Action: The provincial fish and wildlife agencies, education departments and school boards should actively promote wildlife education materials such as Operation Lifeline (WWF Canada) and Project Wild. By 1992, Operation Lifeline should be available to all primary schools in the prairie provinces.

Action: Environmental education, including wildlife conservation, should be incorporated into the school curriculum. All schools should be encouraged to grow natural gardens or to care for a nearby natural area.

Educational opportunities for tourists

"The task as I see it is to begin to think ecosystems, from the BIG ONE shown in satellite pictures - the Eco-sphere, the Home-sphere - down to the small landscapes that it comprises; those that regionally and locally support all existence. These enfolding land-and-water systems, used and abused by humanity, are more than resources; they are part of the miraculous world ecosystem that brought life into being, sustains it, and renews it."

J. Stan Rowe

Action: By 1990, national and provincial non-government groups, and federal and provincial fish and wildlife and agriculture agencies, should initiate a prairie-wide landowner program focusing on the values and means of protecting wildlife habitat. Information should be made available to enable farmers and ranchers to identify, enjoy, understand and manage wildlife on their land.

Action: At least one university and one college in each of the prairie provinces should provide courses in prairie conservation, and wildlife and wildland interpretation.

Action: Small native prairie areas in and near towns and cities should be recognized, preserved and used for educational, recreational and inspirational purposes whenever possible - for example, Nose Hill in Calgary and the St. James Living Prairie Museum in Winnipeg.

Action: Provincial wildlife and tourism agencies should work closely together to identify accessible sites of important prairie wildlife and habitats. Such areas should have sufficient protected status to prevent their degradation, and yet provide sufficient flexibility to allow enjoyment of non-consumptive wildlife activities by Canada's national and international visitors.

Action: Federal, provincial and municipal governments should support urban wildlife programs to ensure that residents of cities and towns have opportunities to observe and enjoy prairie species.

Goal 10

Promote research relevant to prairie conservation.

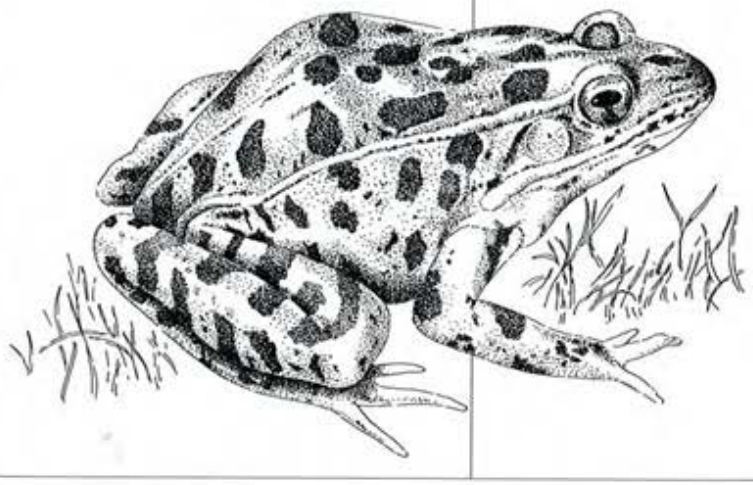
Peregrine Falcon — endangered

The agriculture industry in prairie Canada is based largely on the cultivation, propagation and husbandry of non-native species. We should recognize the potential productivity of native prairie flora, fauna and ecosystems; otherwise we will continue to see the conversion of native prairie landscapes, with the attendant loss of biological diversity.

Research and practical demonstration projects are needed to develop conservation farming technology, which would encourage sustainable agricultural production and sustainable use of native prairie. Applied grassland research and conservation programs should be developed. Research subjects should include:

- uses of protected natural areas as ecological benchmarks and sources of scientific information to diversify the economy of western Canada;
- understanding of the relationships between species and habitats;
- productivity of native prairie ecosystems;
- management techniques for ecosystems and species;
- comparison of the broad benefits of native ecosystems to converted systems;
- management and use of native plants for agriculture;
- culture and management of native plants for biotechnology and recreation; and
- advantages and techniques of using native plants in reclamation projects.

Applied grassland research is needed to develop methods to best conserve native prairie resources on a sustained-yield basis. Opportunities exist to build this applied research and conservation program: for example, the Canadian Plains Research Center (University of Regina) was established in 1973 to encourage and facilitate study of the natural and social sciences of the region; governments maintain agricultural research stations across the prairie region; Agriculture Canada has announced creation of a national biotechnology centre based in the West; and a proposal exists to establish two cooperative wildlife research institutes in western Canada.



Rare plant inventory

Piping Plover habitat

Applied grassland research

Action: By 1989, a prairie-wide committee should be designated to identify which centre is most appropriate to direct and encourage applied research on native prairie ecosystems. The research should address broad concepts of natural resource use and conservation. The centre should bring together government, industry and researchers to work on a cooperative basis. Funding to support the select committee should come from federal and provincial agriculture agencies, industry, and private conservation organizations.

Action: By 1990, this committee should prepare a broad set of guidelines identifying research topics and requirements in the areas of biotechnology, plant breeding, propagation, cultivation, soil science, crop science, forage science, animal science, reclamation, rehabilitation, and species recovery.

Action: By 1992, at least one grassland research station should be designated in each prairie ecoregion as the founding network for a grasslands research and conservation program. These could possibly be located at existing agricultural research stations.

Accomplishing the Goals

The conservation goals identified in this Prairie Conservation Action Plan should be accomplished through:

1. a **commitment** by westerners and other Canadians to ensure a place for wildlife and wild places in the west;

2. cooperative action between industry, government, non-government organizations and individuals; and

3. ongoing **monitoring of progress** to ensure action.

The 1989 Prairie Conservation and Endangered Species Workshop, to be held in Regina, Saskatchewan, and subsequent conferences every three years, will provide an opportunity for all land-use and wildlife-related groups and individuals to contribute their knowledge, to make commitments to this prairie-wide conservation initiative, and to evaluate progress. A significant part of the 1989 workshop will be sessions devoted to implementing the Prairie Conservation Action Plan. World Wildlife Fund Canada will reconvene the Wild West Steering Committee in 1990 and as needed thereafter to further review progress.

Through commitment, cooperative action and monitoring of progress, we will leave some Wild in the West.

A future for prairie wildlife

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Definitions

The following are definitions of some of the terms used in this report.

Aspen parkland ecoregion
An ecoregion developed on dark brown to black chernozemic soils. Characteristic vegetation includes rough fescue in grassland portions and trembling aspen in the forested areas. This ecoregion has a well-developed shrub and herbaceous layer. Rainfall is distributed evenly through the summer months, providing water for abundant pothole wetlands.

Community The populations of different species interacting with each other in a particular habitat.

COSEWIC Committee on the Status of Endangered Wildlife in Canada, which is composed of representatives of federal, provincial and territorial governments, World Wildlife Fund Canada, Canadian Nature Federation and Canadian Wildlife Federation.

De-listed A species previously designated by COSEWIC whose national status has improved so that it is no longer considered rare, threatened, endangered or extirpated.

Ecoregion A broad area with a representative climate, general vegetation patterns and soil development; the basic components are: lithology (composition and structure of rocks), geological structure, and climatic-vegetation-soil patterns.

Ecosystem A complex of living and non-living forms within a given area.

Endangered Any native species that is threatened with immediate extirpation or extinction throughout all or a significant portion of its range, owing to the actions of people.

Environment The external factors influencing organisms. The environment is composed of many factors, including non-living physical factors such as temperature and light, and living factors, for example, predators.

Extinct Any native species that no longer exists anywhere.

Extirpated Any native species of fauna or flora that no longer exists in the wild in Canada, but survives elsewhere.

Fauna All species of vertebrates and invertebrates.

Fescue grassland ecoregion An ecoregion developed mainly on shallow black chernozemic soil. Rough fescue dominates the native vegetation. Other characteristic species include: june grass, yellowbean, chickweed and sticky geranium. Rainfall occurs mainly in early summer, causing a late season moisture deficit. Precipitation is approximately 30 mm less during the growing season than in the mixed prairie ecoregion.

Flora All species of plants.

Habitat The place where an animal or plant lives.

Habitat subregion A region characterized by distinctive patterns of topography, geology, landforms, soils, vegetation and aquatic forms.

Indigenous A species native to Canada.

Management plan A set of actions to ensure that a particular species or habitat does not become rare, threatened or endangered.

Mixed prairie ecoregion An ecoregion developed on brown and dark brown chernozemic soils. This ecoregion is so named because of the occurrence of both mid and short grasses. The taller grass species (spear grass, porcupine grass and wheat grass) comprise the majority of the vegetative cover over most of the mixed prairie ecoregion. In the driest situations and under heavy grazing regimes, the shortgrass species (low sedge, June grass and blue gramma) predominate, creating a mixed prairie variant called "short grass prairie".

Native prairie An area of unbroken grassland or parkland dominated by non-introduced species.

Population A group of organisms of the same species within a given area.

Rare Any native species that is vulnerable and, because of its biology, occurs in low numbers or restricted areas.

Recovery plan A set of actions for a particular threatened, endangered or extirpated species, aimed at increasing its numbers so that it can be de-listed.

Recovery team A group of individuals who prepare and implement a recovery plan for a given species.

Species A unit used to classify living things, describing any groups that share general physical characteristics, and which theoretically can mate and produce fertile offspring.

Tall-grass prairie ecoregion An ecoregion developed on dark-brown chernozemic soils. Characteristic vegetation is a meter or more tall and dominated by big bluestem, needle grass, and little bluestem. Tall-grass prairie receives more annual precipitation than the other prairie ecoregions.

Threatened Any native species that is likely to become endangered if the factors affecting its vulnerability are not improved.

Vulnerable Any species that exists in low numbers or in very restricted areas where status could worsen unless remedial actions are taken.

Wildlife All native species of plants and animals, including all invertebrates and vertebrates.

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