



NRPS

NEWSLETTER

Alberta Native Plant Council

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HABITAT OF CONCERN:

The Unsung Benefits of Wind Erosion - Stabilizing Sand Dunes Spell Trouble for Rare Plants

by C. Wallis

The results of a southern Alberta study of rare wildlife and plants in sandhill and sand plain habitats have just become available. These areas contain a concentration of significant features, including numerous rare, threatened, and endangered species of plants and animals. Several major sand plains have been almost completely cultivated and a major threat to the remaining habitats exists. While the exact mechanisms are unclear, it appears that large areas of once active sand have become stabilized over the last forty years. If current trends continue, rare native plants which now have dangerously low populations could be eliminated entirely.

The study area encompassed all sand plains and sandhills from the Red Deer River south to the United States boundary, west to Highway 2 and east to the Saskatchewan border. In addition, several areas in the Northern Fescue Grassland and Central Parkland north of the Red Deer River were investigated.

The western spiderwort (*Tradescantia occidentalis*) has been recommended for endangered status. This species is rare in Canada and is known to occur in only one active dune in the Pakowki Lake dune complex. The total Alberta population is estimated at less than 50 individuals. Collection of seed and research into the biology of this species may prove useful in attempts to establish other populations in the Pakowki Lake dunes.

The sand nut-grass (*Cyperus schweinitzii*) and annual skeleton-weed (*Lygodesmia rostrata*) are con-

sidered endangered or threatened in the Central Parkland and rare in the Grassland region. Active sand dunes in the Central Parkland are almost non-existent as they have undergone extensive stabilization over the last few decades.

Smooth goosefoot (*Chenopodium subglabrum*), sand verbena (*Abronia micrantha*) and low milk-vetch (*Astragalus lotiflorus*) have been recommended for threatened status.

A number of other rare plants occur in sandhills and sand plains in Grassland habitats which are not currently suffering from active modification (human or natural). Many of these species occur in habitats other than active sand or in sand dune types which are not experiencing stabilization. It is thought that habitats for these species are secure, at least over the short-term: nodding umbrella-plant (*Eriogonum cernuum*), Carolina whitlow-grass (*Draba reptans*), clammyweed (*Polanisia dodecandra*), prickly milk-vetch (*Astragalus kentrophyta*), bur-sage (*Franseria acanthicarpa*), yucca (*Yucca glauca*), Pursh's milk vetch (*Astragalus purshii*), silverleaf psoralea (*Psoralea argophylla*), obscure evening-primrose (*Oenothera andina*), green milkweed (*Asclepias viridiflora*), and downy paintbrush (*Castilleja sessiliflora*).

Thellungiella (*Thellungiella salsuginea*), previously noted only in the Wood Buffalo area in Alberta, was found in the springs at the Bindloss Depression. This habitat is currently fenced to keep cattle out.

Key sandy habitats which have highly significant resources or concentrations of features and are worthy of legislated formal protection include Dune Point (west of Bindloss), Empress Dunes, Lost River, Lower Bow Dunes, Pakowki Lake North, Bindloss Depression springs, Middle Sand Hills, Turin Dunes and Wolf Island Dunes.

There are different types of active sand ranging from finer silty sands to the rarest type, coarse gravelly sands. While many of the silty sand dunes do not ap-

pear to be stabilizing, most other types are. Examples of the problem include:

- from 1950 to 1987, there has been a 30 to 40% reduction in active sand at Dune Point with invasion by russian thistle into the gravelly sands
- a series of active dunes stretched virtually unbroken for 2 km along the South Saskatchewan River in 1950 -- today all these dunes are stabilized and there are only minor active blowouts
- the active sand surface of some dunes in the Pakowki Lake area has been reduced by 50 to 75%
- all 16 sand blowouts at Remount Community Pasture, which were active in 1950, are now stabilized
- of 51 blowouts active in 1950 in the Middle Sand Hills, only 20 are still active and, of these, 10 are partly stabilized and 7 are mostly stabilized (90% of the sand which was active in 1950 is now stabilized).

While the dynamics of dune destabilization are poorly understood, a consensus is emerging that it is a combination of fire and grazing during appropriate seasons that keeps blowouts active. Dunes have been stabilizing in the Middle Sand Hills where there have been repeated fires but little grazing; and in other areas where there has been grazing but few fires.

A current theory is that late summer or fall fires formerly created lush green areas the following spring. These green patches attracted large herds of grazing animals like bison and resulted in reactivation of the sand dunes. The sandhills were also apparently used as sheltering areas by bison during the winter and this could have been significant in keeping dunes active. Fire control and changes in grazing patterns have completely changed the factors which shape sand dune environments.

Alberta is not alone in this problem. Nebraska sandhill plants have been placed on the United States endangered species' list because of the loss of active sand habitats. Ironically, stabilization of the active sand was seen as good conservation practice. Land managers went to great lengths to stabilize active blowouts, extinguishing fires, modifying their grazing patterns and even placing old tires in the blowouts.

To reverse the trend, there must be a clear recognition of the value of actively eroding sands for rare plants and animals. Changes in grazing patterns and attitudes to the use of fire for grassland management are essential if the full range of environmental diver-

sity in Alberta's sandhills and sand plains is to be protected.

SPECIES OF CONCERN:

Cypripedium passerinum

With its large, golden-yellow pouch, the yellow lady's-slipper is the showiest of Alberta's native orchids. Although it is one of our most common orchids, it requires a specialized habitat and has a slow rate of reproduction, so concern for its future is justified. The Red Deer River Naturalists have shown such concern.

In the ditch along a stretch of Highway 2A between Olds and Bowden is a population of yellow lady's-slipper estimated at about 5,000 plants. Here they have found the required moist, open habitat to thrive. But plans to widen the highway threaten the population. Because the plants are growing in the ditch along the highway, the only options were to allow the population to be destroyed or to attempt to move as many of the plants as possible.

Mike McNaughton, who is both a member of the Red Deer River Naturalists and a member of the Alberta Native Plants Council organized an orchid transplant. He located a suitable habitat to move them to: an area in the Gatz Lake Sanctuary in the City of Red Deer. Yellow lady's-slipper once grew there but were eliminated, probably because of people picking them. Mike organized a work bee and about 500 plants were moved. How successful the move will be remains to be seen. With the cooperation of Alberta Transportation, another, larger effort to move more plants will likely be made in the spring.

FEATURE:

George Pegg: NATURALIST (1910-1988)

The botanical community was saddened by the passing of George Pegg last February at the age of 77. George had a long record of contribution to the knowledge of the flora of Alberta. Basically a self-taught naturalist, George spent nearly 70 years of his life on a small homestead near Glenevis, northwest of Edmonton. George's most notable contributions came when he became associated with Dr. E.H. Moss of the

University of Alberta at the time Dr. Moss was compiling information for his book *The Flora of Alberta*. The two made a good team and through George's efforts the Flora included over 100 species that it would not have without his contribution. Subsequently, George contributed range extensions of over 50 species. George was also the first to recognize the Mountain Park area south of Cadenham as a plant refugium. During his lifetime George established a most interesting botanical garden and arboretum around his farm, including a number of species perhaps unique in Alberta. Efforts are being made to preserve the garden and homestead as a provincial historic site. A steering committee has been formed to look into the possibility of forming a non-profit group to maintain the garden as a memorial to George's lifelong love of plants.

COUNCIL NEWS:

Alberta Native Plants Council Executive

Chairman: Dr. Peter L. Achuff (Department of Forest Science, University of Alberta)

Vice-Chairman: Cliff Wallis (Consultant, Naturalist)

Secretary: Lorna Allen (Biologist, Natural Areas Program)

Treasurer: Julie Hrapko (Botanist, Provincial Museum)

Director: Derek Johnson (Federation of Alberta Naturalist representative - Canadian Forestry Service)

Director: Shane Porter (Southern Director - Lethbridge Community College)

Director: Elisabeth Beaubien (Northern Director - Botany, University of Alberta)

Education and Information Committee

The Education and Information Committee will be working on the following projects:

a) A brochure will be produced for the May Species Count for distribution to Alberta naturalists. The brochure will include information on what the count is, the benefits of participation, how to participate, etc.

b) The committee will promote and organize a larger Edmonton area count for 1989.

c) The committee will approach the University of Alberta, Extension with a proposal to teach a spring Plant Ecology course.

The Education and Information Committee and the Edmonton Natural History Club have jointly sponsored the Edmonton Plant Study Group who have held a series of field trips and meetings including: Little Mountain natural area, led by Darryl Smith, on September 10; George Pegg garden, organized by Charlotte Smith, on September 14; monthly meeting with presentation on lichens, by Elisabeth John, on September 22; Big Lake area and Wagner Natural Area, led by Loney Dickson, on September 24; and monthly meeting with presentation on the 'daisy' family, by Patsy Cotterill, on October 27.

For further information, or if you would like to join the Edmonton Plant Study Group, or if you would like to join the Education and Information Committee, please call Elisabeth Beaubien (438-1462).

Conservation Action Committee

The following is a list of goals for the Conservation Action Committee of the Alberta Native Plants Council in 1988-1989:

a) COSEWIC Designation

Obtain threatened or endangered status designation by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) for four vascular plant species found in southern Alberta. These species are: *Abronia micrantha* (= *Tripterocalyx micranthus*), *Chenopodium subglabrum*, *Iris missouriensis* and *Tradescantia occidentalis*.

Activities to complete this goal include:

- determine procedure for COSEWIC designation (completed);
- prepare status reports for presentation to COSEWIC.

b) Landowner Agreements - *Iris missouriensis*

Obtain landowner agreements for long term protection of two populations of *Iris missouriensis* found on private lands in southwestern Alberta.

Activities to complete this goal include:

- review with Nature Conservancy appropriate procedures and mechanisms for obtaining protection of rare plant species on private lands;
- begin negotiations with two landowners whose properties contain populations of *Iris missouriensis*.

c) Big Sagebrush Natural Area Designation

Realize designation by the Alberta Government of a Natural Area or Ecological Reserve in southwestern Alberta to protect the largest population of *Artemisia tridentata* (big sage) found in Alberta and populations of several other rare/uncommon species.

Activities to complete this goal include:

- conduct a field trip to inform members of Alberta Native Plants Council and other interested public, of the area's significance and to encourage participants to bring this matter to the attention of their MLAs and the Ministers responsible Mr. LeRoy Fjordbotten (Minister of Forestry, Lands and Wildlife) and Mr. Norm Weiss (Minister of Recreation and Parks. (This field trip was completed on July 23.)
- develop or assist in the development of articles on the area for various newsletters and newspapers.
- make representations on the area to the Wilderness Areas and Ecological Reserves Advisory Committee.

d) Sand Dune Areas Study

Initiate investigation into the reasons for stabilization of several sand dune areas in southern Alberta over the last twenty years and the subsequent loss of habitat for several species dependent on active sites.

Activities to complete this goal:

- alert appropriate faculty in academic institutions of the problem through letters and/or slide presentations and ask their assistance in finding a graduate student interested in working on the problem;
- seek funding for study of problem;
- attend the 11th North American Prairie Conference in Lincoln, Nebraska to talk to a variety of prairie experts who may have an understanding of the problem. (This was done on August 7-11.)

e) Monitoring Threats to Cottonwood Forests

Monitor studies currently underway in Alberta and western North America on factors affecting cotton-

wood distribution and survival and assess threats of water development projects to cottonwood forests.

Activities to complete this goal:

- make regular contact with individuals at the Universities of Lethbridge, Calgary, and Edmonton who are conducting research on cottonwoods;
- prepare articles and letters as required to inform the Alberta Native Plants Council, other public, and those responsible for river basin management of threats to cottonwood forests in Alberta.

If you are interested in participating in these or other Conservation Action Committee activities please contact Cheryl Bradley, Chairman, Conservation Action Committee, 158 Westover Drive S.W., Calgary, Alberta, T2C 2S6 (246-9127).

Big Sagebrush Draws a Crowd

Last summer's trip to the candidate Big Sagebrush Natural Area drew over thirty plant enthusiasts from across Alberta. This exceptional area contains an unusual number of species of the Cordilleran, Great Plains and Palouse regions, as well as several Pacific species which range inland along a moist storm track following the 49th parallel. The variety of landscapes within the natural area allow an unusual diversity of plant communities.

After a brief walk through the disturbed river terrace vegetation, the group ventured into lush aspen forests waist high with Western Sweet Cicely (*Osmorhiza occidentalis*), and other herbs and grasses. From there the group scrambled up through a thin band of Lodgepole Pine to dry open slopes where Big Sagebrush (*Artemisia tridentata*) reaches its greatest abundance. The early summer flowering season was just past its peak, but a great number of species was still in bloom. Provincial rarities such as Big Sagebrush and Douglas Stonecrop (*Sedum stenopetalum*) were easily found (the latter is often misidentified due to an error in the first edition of Moss' *Flora of Alberta*). The discovery of *Erigeron flagellaris* in natural habitats on the site was a highlight of the trip, since this rare species was previously found on a single roadside disturbance in the Natural Area. Other provincially rare species were found throughout the day; Rough Red Paintbrush (*Castilleja hispida*) and Snowbrush (*Ceanothus velutinus*) were prominent in the moister meadows and aspen thickets where the group lunched.

In the afternoon everybody split into two groups, the more adventurous scrambling down a shaded ravine while others took a more leisurely route back to the cars. It would have taken days to explore the area and there was too little time to climb up to the cool fir forests, larch woodlands, high meadows and windswept ridges. The area contains a handful of plant species which are rare throughout Canada, as well as a large number which make up the Alberta list. Along with more common species, they add up to over 300 species in a surprisingly small area.

The Alberta Native Plant Council will continue to press for a high degree of protection and careful management of this exceptional area. If you would like to know more about the candidate Big Sagebrush Natural Area and its environs, please contact Matt Fairbairns, c/o Alberta Native Plants Council, Box 4524, Station SE, Edmonton, T6E 5G4.

NATIONAL AND INTERNATIONAL NEWS:

Nature Conservancy's Conservation Data Centre

The Nature Conservancy of Canada is initiating a program to establish Conservation Data Centres across Canada, as part of an international effort to cooperate and coordinate on data collection and dissemination efforts for biological species.

To date, similar centres have been established in 49 American states, nine Latin American countries and two South American countries. In Canada, the Nature Conservancy has initiated a centre in Quebec and is considering the establishment of one in Alberta.

A Conservation Data Centre is a centralized dynamic data bank that deals with information on the range of natural biological diversity within a discrete geographical area.

Flora of North America

The Canadian members of the Flora of North America project are looking for names of Canadian systemists and others with a professional interest in floristics. If you are supportive of this project please contact Dr. John G. Packer, Regional Coordinator for

Western Canada, Flora of North America Project, Department of Botany, University of Alberta, Edmonton, Alberta, T6G 2E9.

FIELD TRIPS/MEETINGS

Edmonton Plant Study Group

Plan on attending the next meeting of the Edmonton Plant Study Group. The next monthly meeting will include a presentation by Dr. George Scotter, author of Wildflowers of the Canadian Rockies, on the bright colours of the Heath family (Ericaceae). 7:30 pm, Lecture Room, Provincial Museum, Thursday, January 26.

For more information about the Plant Study Group, contact Elisabeth Beaubien at 438-1462.

Flowing to the Future

A major conference on rivers will be held at the University of Calgary May 11, 12 and 13, 1989. Entitled **Flowing to the Future**, the conference will examine the economic value, ecological complexity, cultural importance and recreational use of Alberta's rivers. The conference theme, "A river is more than just water", reflects a growing awareness in Canada that river management decisions are not the same as water management decisions, and that water management decisions can have major impacts on the health and value of free-flowing rivers.

A major feature of the conference will be a river-by-river review of the state of rivers and streams in the province. More than 20 organizations have now endorsed this conference. Major corporate sponsors include the Mountain Equipment Coop Ltd., whose financial support is ensuring that ten "State of the River" reports can be compiled by individuals in different parts of the province and presented.

Compilers all across Alberta are now at work assembling information on rivers as diverse as the Milk, the Bow, the North Raven, the Brazeau, the Little Smoky and the Slave.

For more information contact Kevin Van Tighem in Jasper at 852-5153 or DR. Tim Pyrch at the University of Calgary, 220-6752.

Prairie Conservation and Endangered Species Workshop

On January 27-29, 1989, at the Saskatchewan Museum of Natural History in Regina, Saskatchewan, this workshop will include a number of topics including: declining waterfowl populations and the North American Waterfowl Management Plan, soil and water conservation, drought and other agricultural issues that affect wildlife, one-half of Canada's endangered species that live on the prairies, World Wildlife Fund's Prairie Conservation Action Plan, economics, and, 40 working sessions plus posters, displays and live endangered species. The workshop is co-hosted by the Saskatchewan Natural History Society and the Canadian Plains Research Centre. For further information please contact: WORKSHOP, Saskatchewan Natural History Society, Box 4348, Regina, SK, S4P 3W6, (306) 780-9273.

SPECIAL PLACES:

Wagner Natural Area

The Wagner Natural Area, technically a rich calcareous peatland or mire, has held the interest of Ed-

monton area naturalists since at least the early 1950's. Its rich diversity of flora and fauna has made it an important area for amateur naturalists as well as students and professional biologists.

Wagner is located four miles west of Edmonton city limits on Highway 16X. In 1987, it was designated a Natural Area under the *Wildemes Areas, Ecological Reserves and Natural Areas Act*. A group of public volunteers, called the Wagner Natural Area Society, have organized to manage and protect the site in cooperation with the Alberta Government.

The site has many fascinating features, including a large number of orchid species. Without a doubt, wet peatland areas are the most productive habitat for orchids in Alberta and Wagner has many wet to moist habitats. Fifteen of Albertas 26 species of orchids have been found at Wagner. The best time of year to see these species is late June or early July. Many species are difficult to find due specialized habitat requirements. If one does not go to the exact ecological niche required by the orchid, one cannot expect to find the plant.. As well, many orchids are small and inconspicuous.

The site is under constant threat due to surrounding developments and increasing use by public visitors. However, the Wagner Society hopes that the area will long be a fascinating spot to visit.

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