PARLBY CREEK BUFFALO LAKE

WATER MANAGEMENT PROJECT REVIEW BOARD

Presentation by Martha Kostuch

May 22, 1991

Terms of Reference

The Terms of Reference for this review board does not include consideration of the need for the project or the alternatives to the project. Nor do the Terms of Reference include a review of the overall economics of the project.

There are serious information deficiencies which make a thorough review of the environmental impacts of this project impossible at this time.

The environmental impact assessment is incomplete because it does not include detailed plans to mitigate the impacts of the project, to monitor the predicted impacts or to respond to unpredicted negative impacts.

The Department of the Environment is in a conflict of interest position.

Federal Government Involvement

It is clear from the Environmental Impact Assessment Document that this project will have impacts on at least two areas of federal decision making responsibility, navigable waters and fisheries, and on at least two other areas of federal responsibility, migratory birds and endangered species.

This proposal must therefore be subjected to the Federal Environmental Assessment Review Process and approvals must be obtained under the Navigable Waters Protection Act and the Federal Fisheries Act.

Need for the Project

The need for the project has not been established.

The benefits for recreational activities and for cottage owners are questionable.

The project makes no economic sense.

The project may negatively impact other communities in central Alberta.

Inter-basin Transfer

The real reason for this project is to serve as part of the government's plan for inter-basin transfer of water.

The Saskatchewan-Nelson Basin Study details plans to divert water from the Red Deer River to Buffalo Lake, to dam the lake at Tail Creek and eventually to divert water from the Battle River into Buffalo Lake.

Environmental Effects

It is difficult to assess the impacts of the project on rare plants, fisheries and wildlife because of the missing information.

The mitigation program for fisheries for the first four phases of channelization of Parlby Creek have failed. The proposed operating plan would exclude spawning in dry years when pumping would not be done.

The project would have negative impacts on the endangered Piping Plover.

Recommendations:

The Government of Alberta should drop its proposal to divert water from the Red Deer River to Buffalo Lake.

If the government does not drop the proposal theen the following should occur:

1. The Department of the Environment should withdraw as project proponent.

2. The people within the Department of the Environment who proposed this project should be fired or at least transferred to another department.

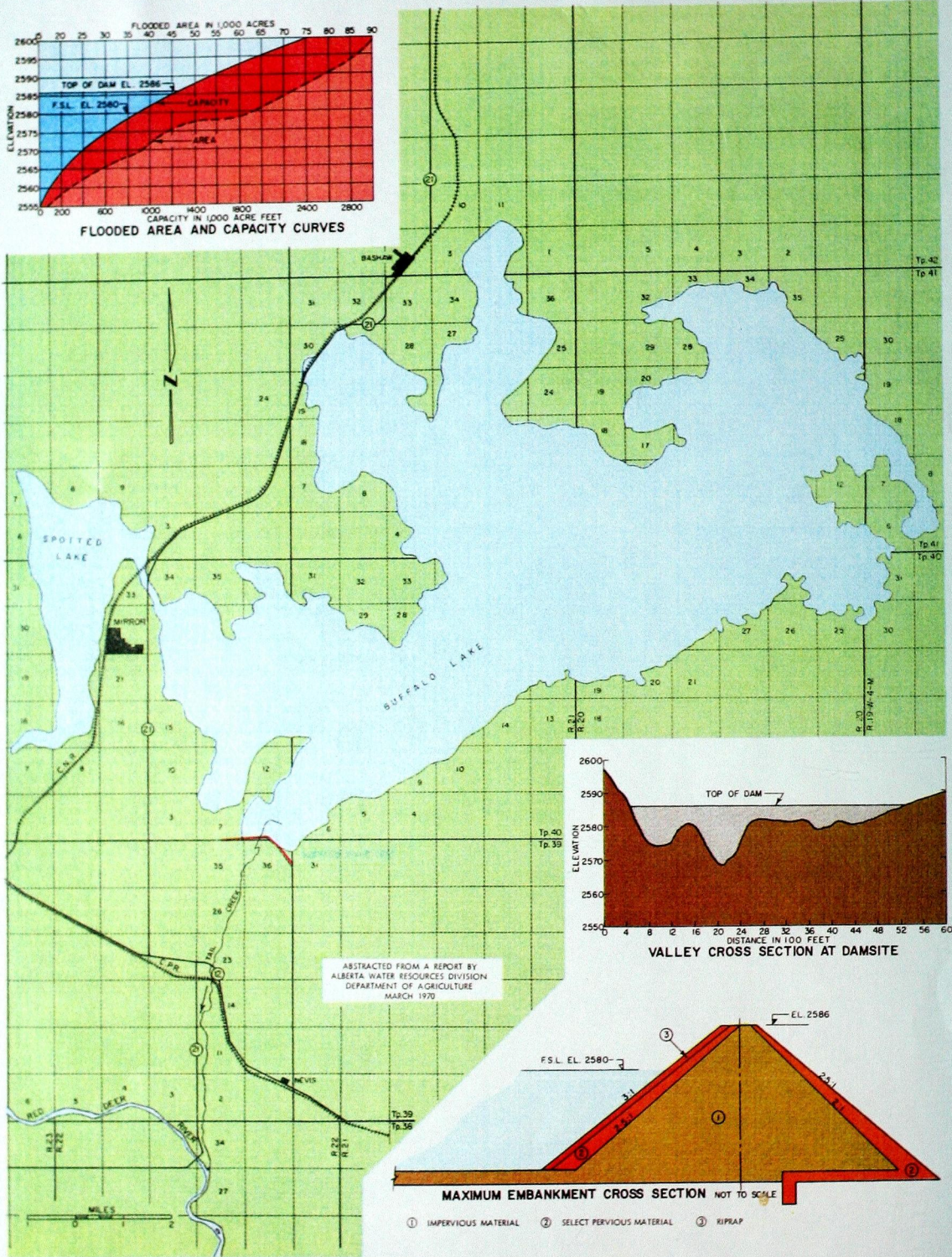
3. The Terms of Reference for the Review Board should be expanded to include the need for the project, the alternatives to the project and the overall socio-economic impacts of the project.

4. This review should be put on hold until the missing information has been supplied. In addition, the proponent should supply their detailed plans to mitigate the impacts, their plans to monitor the impacts and their contingency plan to respond to unpredicted impacts.

5. This review should be put on hold until the Government of Alberta has successfully mitigated the impacts of the first four phases of the Parlby Creek Channelizaion.

6. In order to avoid unnecessary duplication, the Government of Alberta should consider co-operating with the Federal Government in a joint review of the proposal.

FLOODED AREA AND CAPACITY CURVES



VALLEY CROSS SECTION AT DAMSITE

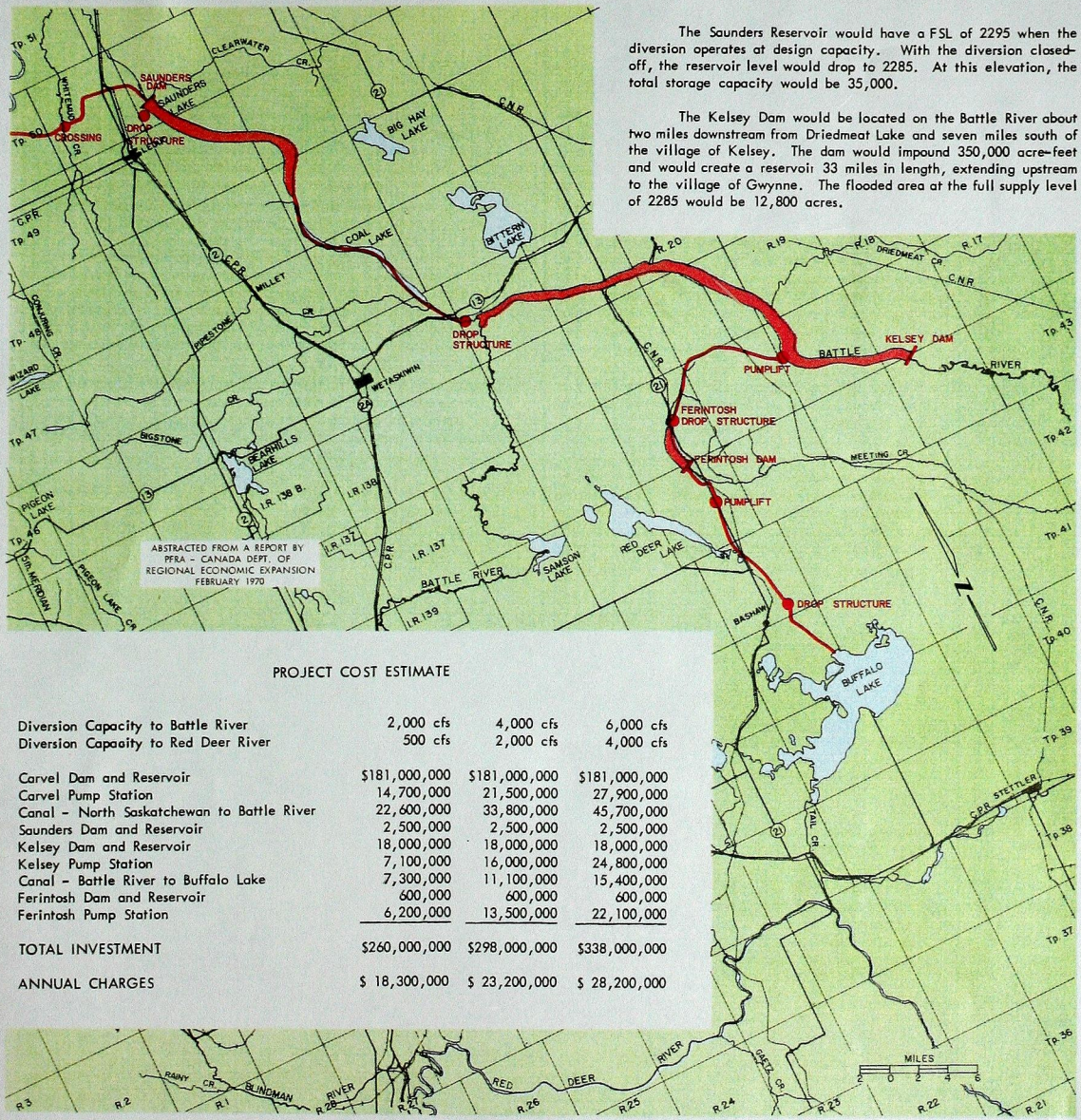
ABSTRACTED FROM A REPORT BY
ALBERTA WATER RESOURCES DIVISION
DEPARTMENT OF AGRICULTURE
MARCH 1970

MAXIMUM EMBANKMENT CROSS SECTION NOT TO SCALE

① IMPERVIOUS MATERIAL ② SELECT PERVIOUS MATERIAL ③ RIPRAP

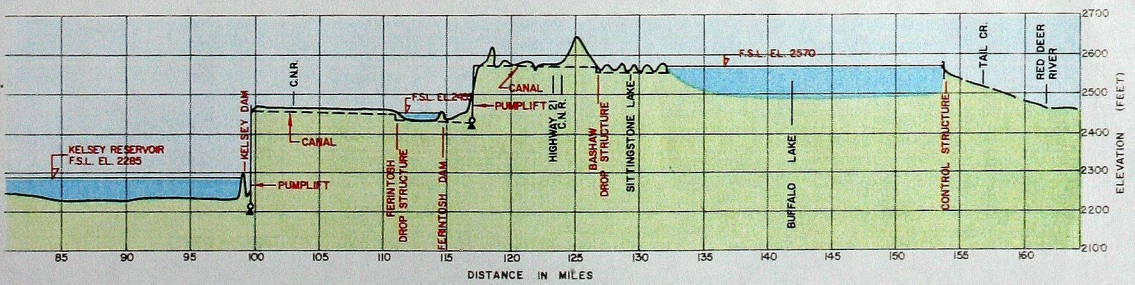
The Saunders Reservoir would have a FSL of 2295 when the diversion operates at design capacity. With the diversion closed-off, the reservoir level would drop to 2285. At this elevation, the total storage capacity would be 35,000.

The Kelsey Dam would be located on the Battle River about two miles downstream from Driedmeat Lake and seven miles south of the village of Kelsey. The dam would impound 350,000 acre-feet and would create a reservoir 33 miles in length, extending upstream to the village of Gwynne. The flooded area at the full supply level of 2285 would be 12,800 acres.

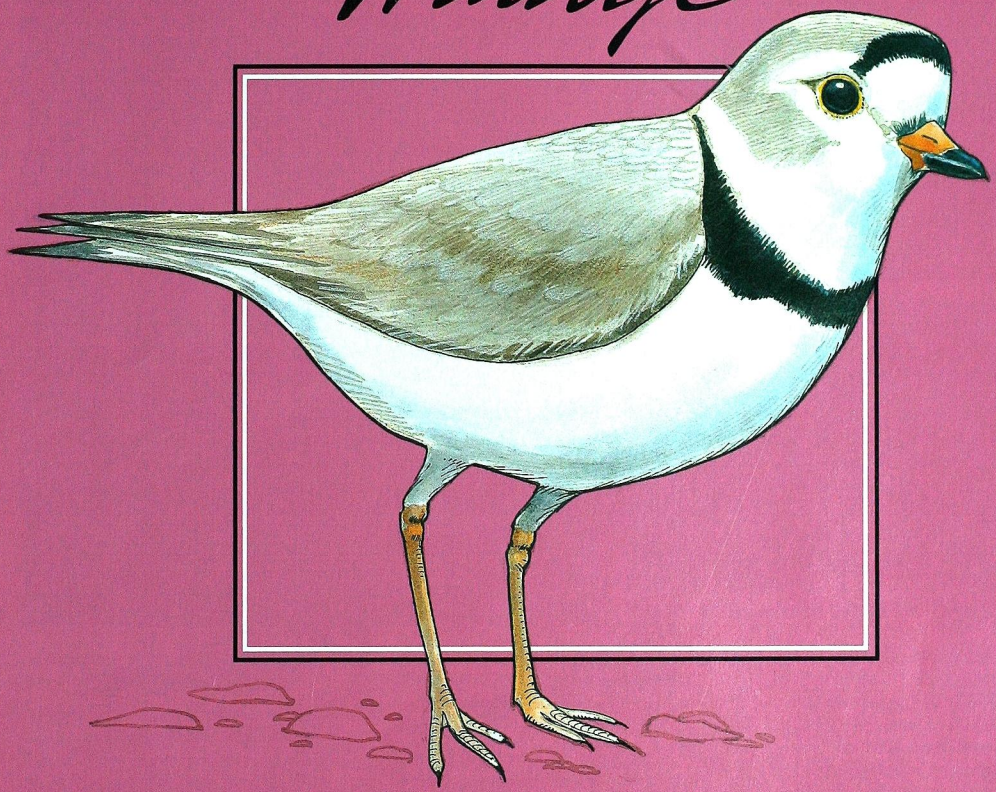


PROJECT COST ESTIMATE

Diversion Capacity to Battle River	2,000 cfs	4,000 cfs	6,000 cfs
Diversion Capacity to Red Deer River	500 cfs	2,000 cfs	4,000 cfs
Carvel Dam and Reservoir	$181,000,000	$181,000,000	$181,000,000
Carvel Pump Station	14,700,000	21,500,000	27,900,000
Canal - North Saskatchewan to Battle River	22,600,000	33,800,000	45,700,000
Saunders Dam and Reservoir	2,500,000	2,500,000	2,500,000
Kelsey Dam and Reservoir	18,000,000	18,000,000	18,000,000
Kelsey Pump Station	7,100,000	16,000,000	24,800,000
Canal - Battle River to Buffalo Lake	7,300,000	11,100,000	15,400,000
Ferintosh Dam and Reservoir	600,000	600,000	600,000
Ferintosh Pump Station	6,200,000	13,500,000	22,100,000
TOTAL INVESTMENT	$260,000,000	$298,000,000	$338,000,000
ANNUAL CHARGES	$ 18,300,000	$ 23,200,000	$ 28,200,000



Alberta's THREATENED Wildlife



Piping Plover

This small plover depends on undisturbed natural shorelines to nest and raise its young

Alberta
FORESTRY, LANDS AND WILDLIFE
Fish and Wildlife

PIPING PLOVER

Status

Piping Plovers are considered a vulnerable species in Alberta. The limited amount of information known about these birds suggests that they occur rarely and locally within the province. Any decline in the population could easily change the status of this species to threatened or even endangered.

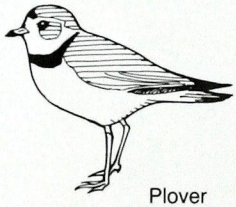
There are three distinct geographic locations where Piping Plovers breed in North America: the Great Lakes region, the northern Great Plains, and the Atlantic coast. Historically, the total population size has been erratic with a major decrease in the late 1800's and a general increase in the 1920s. In 1945, the population again began to decline and has never recovered. The most recent population surveys (1989) estimate 2000 pairs of Piping Plovers in North America of which about 700 are in Canada.

In 1978 the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) designated Piping Plovers as "threatened" in Canada. In response to the continued population decline, this designation was changed to "endangered" in 1985. Breeding populations in the Great Lakes region have decreased rapidly and have disappeared in the last ten years. The population has also decreased in the Atlantic and prairie regions.

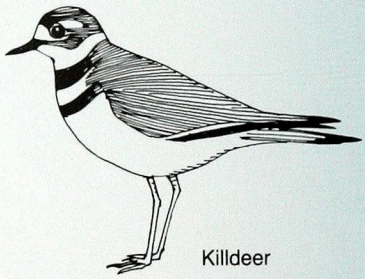
In Alberta, the population of Piping Plovers has been low but relatively stable. Because of the small population size, the potential for significant decline is high. Piping Plovers breed locally along lakes and sloughs in the aspen parkland and northern fescue prairie in east central Alberta. During a survey in 1986, biologists found approximately 100 breeding pairs and 88 non-breeding birds at 28 different sites. Most of the breeding birds were found near Provost, Hanna, and Medicine Hat. The historic breeding range of Piping Plovers extended as far north and west as Miquelon Lake, Beaverhill Lake, and Gull Lake, but there are no nesting records from these lakes since the mid-1970s.

Description

Piping Plovers are small, stocky shorebirds which look like a pale Semi-palmated Plover or a washed-out Killdeer with only one chest stripe. The head, back, and wings of Piping Plovers are pale brown to grey and highlighted with black and white. The identifying field marks are a black stripe across the forehead from eye to eye, a long white eyestripe, and a single black neckband (in some birds the band is not complete across the breast). Their brown back is about the same colour as dry sand and Piping Plovers are extremely well camouflaged on sand or pebble beaches. The dark head and chest bands usually are absent on wintering birds. Adult males and females are similar in size and colour.



Plover



Killdeer

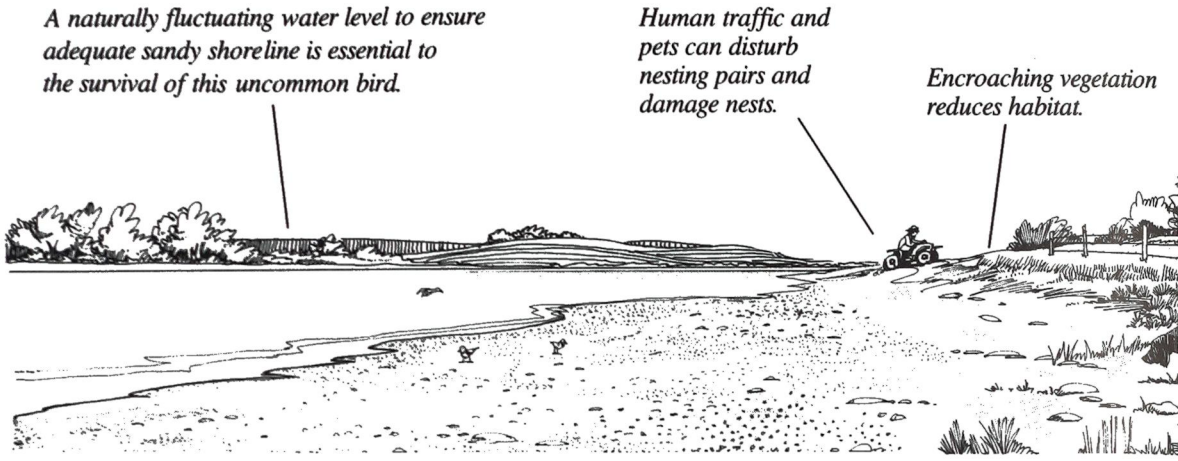
Habits

The habits of Piping Plovers are fairly well known. They are migratory shorebirds that use isolated beaches and sandflats in central and eastern North America. In Alberta, they prefer alkali shorelines of prairie lakes and sloughs (those with heavy concentrations of mineral salts). The beaches in areas used by Piping Plovers are usually open and clear of vegetation.

Piping Plovers are present in Alberta from late April to early August. Most of our birds probably winter in the southern and southeastern United States along the Gulf of Mexico, particularly coastal areas of Texas. Some birds also overwinter in Mexico and a few Caribbean islands. Piping Plovers captured near Hanna have been observed in Texas, Florida, and Alabama.

Some Piping Plovers return to the same breeding area. The proportion of adult birds that return to the same nesting area may be high on the prairies because of the small amount of suitable habitat.

Breeding pairs are often clustered in suitable lake shore habitat. In Alberta, at least 30 adult birds nested on one lake in 1989. Each pair defends a territory around the nest. The nest may be defended by direct attack or by "luring" the danger away.



Reproduction

In Alberta, Piping Plovers nest in bare areas of sand, small pebbles, or gravel. The nest is a small shallow pocket that the adults scrape out and usually line with small pebbles. The pebbles may keep the eggs away from wet sand and provide drainage after a rainstorm.

In May, the female usually lays four eggs that are cream-coloured with a few small dark spots. The dark spots help to camouflage the eggs among the pebbles lining the nest. Females lay one egg every other day and both adults take turns incubating the eggs for approximately 28 days. Sharing the incubation allows each bird time to catch and eat its own food. The young birds hatch in early June and can fly by mid July. Most have left the nesting grounds by early August.

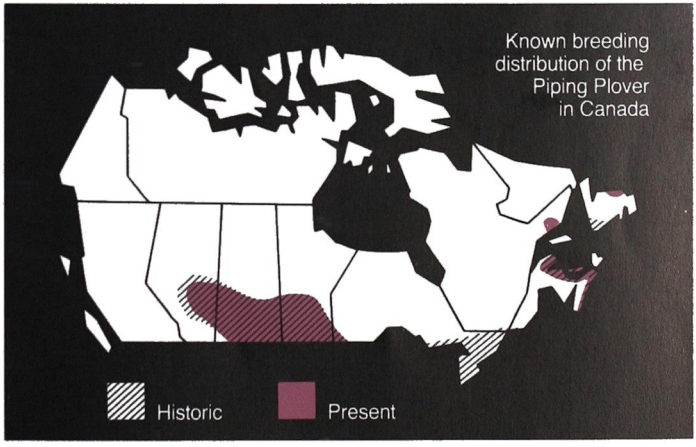
A breeding pair usually tries to re-nest if their nest is lost before mid June. If the nest is lost after this time, the adults often abandon their territory. Late season re-nesting produces young birds which have to compete for food and space with thousands of shorebirds migrating south from the Arctic.

Food

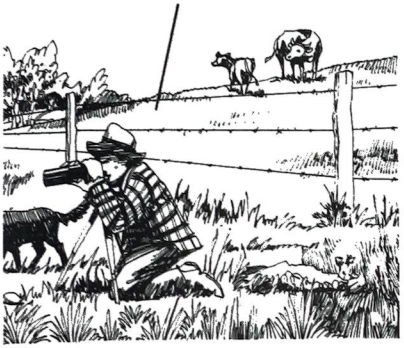
Very little is known about the specific food habits of Piping Plovers in Alberta. They feed along the shoreline close to their nest. Adult birds are seen close to the water's edge most often in the morning and afternoon. They wander back and forth and seem to be eating small insects, and they occasionally take a few grasshoppers. Unlike some shorebirds, Piping Plovers do not probe deeply into the sand. Instead, they seem to pick their food from the surface as it is washed up or exposed by the water. Springs and groundwater seepage areas seem to be key sites for feeding, particularly in drought years.

Piping Plovers are not as active as some other shorebirds. Compared to the hyper-active sandpipers, Piping Plovers look quite slow and methodical as they search for food.

In the wintering areas, Piping Plovers often feed on tidal sandflats



Fencing is necessary to prevent domestic animals from pock marking the damp shoreline.



away from the Gulf shore. As the tide goes out, the birds search for insects on the wet sand.

Limiting Factors

Over much of their geographic range, Piping Plovers are in direct competition with people for open sand or pebble beaches, particularly in June and July when young birds are active. The birds cannot possibly compete. Increased recreational activities and development of eastern lakes and coastal areas have disturbed Piping Plovers on their prime nesting habitats. Human activity on a beach can result in adult birds being unable to start a nest or being forced to abandon their nest or young. In addition, the birds respond to disturbance by using distracting behavior to lure danger away from the nesting area. This may leave the eggs or young unprotected for long periods of time.

In Alberta, only a few beaches used by Piping Plovers have been developed for recreation (for example Buffalo Lake, Little Fish Lake and, perhaps, Gull Lake). At other locations, the lakes are often isolated and the water too salty and shallow for development. However, disturbance of Piping Plovers by motorized off-highway vehicles remains a problem in these areas.

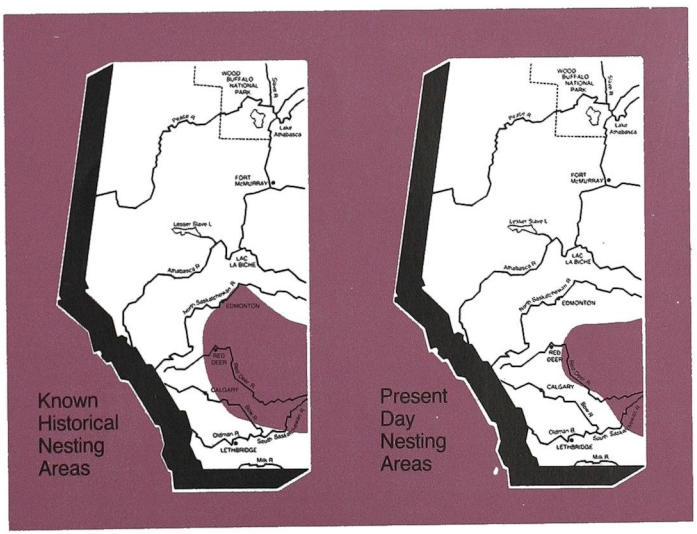
Agricultural development around lakes and sloughs has reduced the amount of habitat available for nesting Piping Plovers. Sloughs that are drained and cultivated are no longer suitable for any of the shorebird species. At some beaches, nests or young birds have been trampled and destroyed by cattle. Downy chicks may also have difficulty climbing out of the deep holes left by the heavy animals. Problems with livestock occur more often at locations where the salt content of the water and sand is lower.

Predation may also be a problem for Piping Plovers particularly in areas subject to human disturbance. Eggs and young birds are killed by a variety of predators including gulls, skunks, cats, dogs, raccoons, foxes and crows. Many of these predators are well-adapted to living with or close to people, and their numbers are increasing in the aspen parkland and northern prairie (the prime habitat for Piping Plovers). In some areas Piping Plovers are more successful when they nest near a colony of terns. Terns are very territorial and drive away any predators close to their nests.

Loss of habitat in wintering areas is an increasing problem for all Piping Plover populations. Wintering birds need beaches and sandflats, both of which are becoming less suitable in the Gulf states. Increasing agricultural, industrial, and urban activities cause a direct loss of beaches. Indirectly, these activities disrupt water patterns and result in sandflats unsuitable for Piping Plovers.

Management and Outlook

In the late 1980s, the Alberta Fish and Wildlife Division funded surveys of the population of Piping Plovers and the habitat available to them in the province. Using this information, a Management Plan for Piping Plovers in Alberta has been prepared. This plan reviews the biology, population status and distribution of Piping Plovers in Alberta, and outlines the variety of actions which will be implemented



Courtesy - C. Wershler

Courtesy - C. Wershler

Courtesy - C. Wallis

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Habitat destruction along unfenced shoreline.

to maintain this species at viable levels.

Alberta also uses participants in the National Piping Plover Recovery Team. This Team is coordinated by the Canadian Wildlife Service, and has established a national goal and objectives necessary to maintain this species in Canada. The national population goal is to reach and maintain a population of at least 2670 adult Piping Plovers in Canada for at least 5 years. This will require an increase in the number of Piping Plovers throughout their range.

In Alberta, the Canadian Wildlife Service has put coloured bands on Piping Plovers in the Hanna region. This program provides information about movements and reproductive success of the marked birds. If you see a banded Piping Plover (or a marked bird of any species), the Fish and Wildlife Division would appreciate receiving information about the sighting.

The outlook is good for Piping Plovers to maintain a low but steady breeding population in Alberta. The species is easily disturbed but adapts well to changing conditions (a natural requirement for species which nest and feed in an ever-changing habitat!). Adult birds may use modified natural or artificial areas. Methods of removing vegetation and dumping gravel on a saline lake to increase nesting habitat are being evaluated. These methods could be used on lakes and sloughs with low recreational or agricultural value.

The key to success in maintaining Piping Plovers in Alberta is to protect their nesting areas from disturbance. There is little we can do about the weather and water levels. However, we can protect the birds against human disturbance at critical times in their breeding season. Inquisitive naturalists looking for the "rare Piping Plover" may become a problem. The public must be made aware of the species' needs by posting signs near the breeding sites or placing notices in local newspapers. In extreme cases it may be necessary to prevent access by people (and their pets) on breeding beaches during the nesting season of Piping Plovers.

Cooperation among government agencies and an informed public will go a long way to protecting this vulnerable member of our natural community.

This is one of a series of information brochures on Alberta's management of threatened wildlife.

For further information on Piping Plovers contact your local Alberta Fish and Wildlife Office or write to:

Alberta Fish and Wildlife Division
Nongame Management Program
9945 - 108 Street
Edmonton, Alberta
T5K 2G6

or

The Canadian Wildlife Service
2nd floor, 4999 - 98 Avenue
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