

**Alberta Conservation Association
2008/09 Project Summary Report**

Project name: *Piping Plover Recovery Program*

Project leader: Lance Engley

Primary ACA staff on project:

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Partnerships:

Alberta Sustainable Resource Development

Alberta Tourism, Parks and Recreation

Cooperating landowners

Ducks Unlimited Canada

Government of Canada - Department of National Defense

Government of Canada - Habitat Stewardship Program for Species at Risk

TD Friends of the Environment Foundation

World Wildlife Fund Canada

Key findings

- We did population inventories on 25 water bodies and located 295 adults, suggesting the population of breeding pairs continues to increase since large scale recovery efforts began in 2002.
- Nest and fledging success per pair was slightly lower in 2008 compared with the averages since 2002. .
- We banded 20 fledged young which increases the total to 732 young banded since 2002. These banded young help us identify where the birds spend their winter and which lakes they return to during the breeding season.
- Fencing projects were completed on four lakes to protect breeding habitat from livestock.
- Over 43 km of shoreline habitat has been enhanced since 2002.

Abstract

The piping plover (*Charadrius melodus*) is a bluebird-sized shorebird listed as *Endangered* under Alberta's *Wildlife Act* and under Canada's *Species at Risk Act*. They rely heavily on gravel strewn beaches for nesting and rearing broods. Nest predation and habitat degradation have been identified as limiting factors for this species. Consequently, we apply predator exclosures to enhance their reproductive success and complete habitat enhancement activities to mitigate threats to breeding habitat. We also conduct annual surveys on core breeding lakes to monitor population numbers and movement, and to complement the international census conducted every five years across North America.

We carried out population inventories on 25 water bodies by walking along beaches between the water's edge and the inshore vegetation line. We sighted 295 adults on 22 lakes and located 123 nests of which 116 had exclosures applied around them. Overall nest success was 75.6% with an estimated 1.07 chicks per pair fledged. We banded 20 young plovers and re-sighted 79 banded in previous years.

We surveyed 25 lakes for habitat damage and prioritized enhancement needs. We constructed four fences to protect shoreline habitat from cattle, increasing this effort to 43 km of protected shoreline since 2002. We also conducted habitat assessments at 15 sites on six lakes that we have previously protected in order to monitor changes in habitat features over time.

Our work is done with the support of the Alberta Piping Plover Recovery Team, our funding partners and the many landowners throughout east-central and southern Alberta.

Introduction

The piping plover (*Charadrius melodus*) is an endangered bluebird-sized shorebird requiring gravel strewn beaches for nesting and rearing broods. We addressed threats facing plover populations through the application of predator exclosures over nests and the enhancement or protection of habitat. We also conducted surveys on core breeding lakes to monitor population fluctuations.

Primary objectives for this program were to exclose at least 80% of nests found, survey at least 25 core breeding lakes, complete at least three enhancement projects, and survey and monitor breeding habitat and previous habitat enhancement activities. All objectives were carried out in support of the *Alberta Piping Plover Recovery Plan 2005-2010* (Alberta Piping Plover Recovery team 2006).

Methods

We conducted adult surveys and nest searches by walking along select beaches approximately 2/3rd of the distance between the water's edge and inshore vegetation line (Goossen 1990). All sightings are entered into the provincial database.

We placed exclosures around all nests still in the laying or incubation stages, and checked these every 5-10 days until hatch to assess clutch size, abandonment, nest and fledging success. We thereafter banded young opportunistically using leg band combinations that allow us to determine which lake, and in what year, they were banded.

We estimated nest success following Mayfield (1961) using a 35 day laying and incubation period. Fledging success was calculated using a modified Mayfield approach (Flint et al. 1995) to estimate daily survival rate to 20 days. We estimated overall production per nesting attempt by multiplying nest success, average number of eggs per nest, proportion of eggs hatched, and fledging rate. We multiply overall production by the mean number of nesting attempts per pair to determine fledging rates per pair.

We assessed select shorelines for habitat damage and prioritized enhancement needs according to type, severity and size of damage, likelihood of continued damage and mitigation options available. We worked with landowners to mitigate future habitat damage on identified areas. If the area is designated federally as “critical habitat”, it is considered a high priority. We marked damaged locations with a GPS and took photos to monitor changes in habitat over time to help gauge the effectiveness of habitat enhancement activities.

Results

We surveyed 25 water bodies for piping plovers, with 295 adults sighted on 22 lakes. Of the 123 nests found, we fitted 116 with predator exclosures (94%). Mayfield nest success was 77.4% for exclosed nests, 23.3% for unexclosed nests and 75.6% overall. From 2002-2008, Mayfield nest success for exclosed and unexclosed nests was 82.1% and 53.2%, respectively (Figure 1).

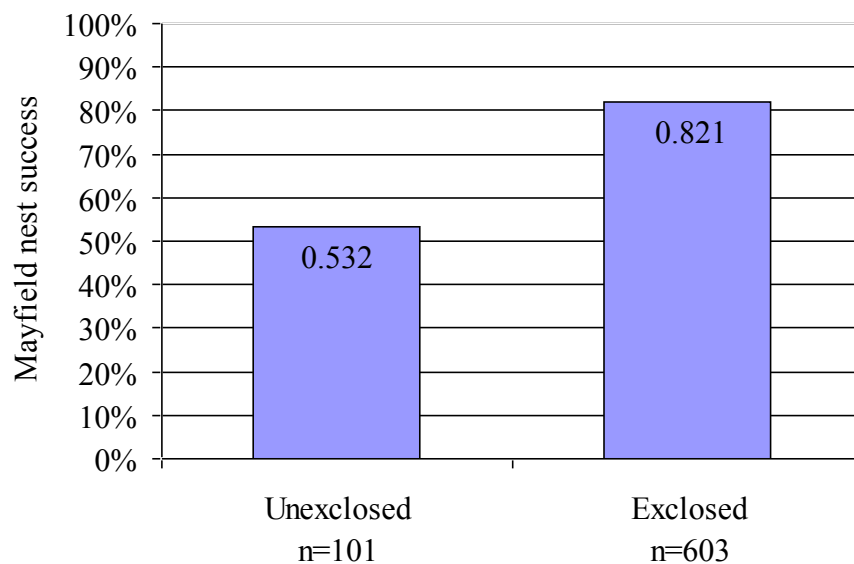


Figure 1. Mayfield nest success for exclosed and unexclosed piping plover nests in Alberta from 2002-2008.

Fledging success was 32.1% and overall production per nesting attempt was 0.89 chicks per nest. On average, using 10 years of Alberta data, each pair of plover produces 1.20 nests per year. Using 1.20 nests per pair as a multiplier, the overall fledging rate was 1.07 chicks per pair.

We banded 20 young plovers this year, identified 79 previously banded birds and were able to determine banding year and lake of origin for 34 birds.

We surveyed habitat on 25 lakes and completed fencing projects on each of Piper, Clark, Killarney and Reflex Lakes. These projects protected over eight kilometers of shoreline habitat (Figure 2). We also repeated an annual vegetation reduction project through grazing on Little Fish Lake.

We conducted habitat assessments at 18 sites on seven lakes and recorded contact with 37 landowners. Most sites are showing signs of improvement in habitat quality since enhancements were completed.

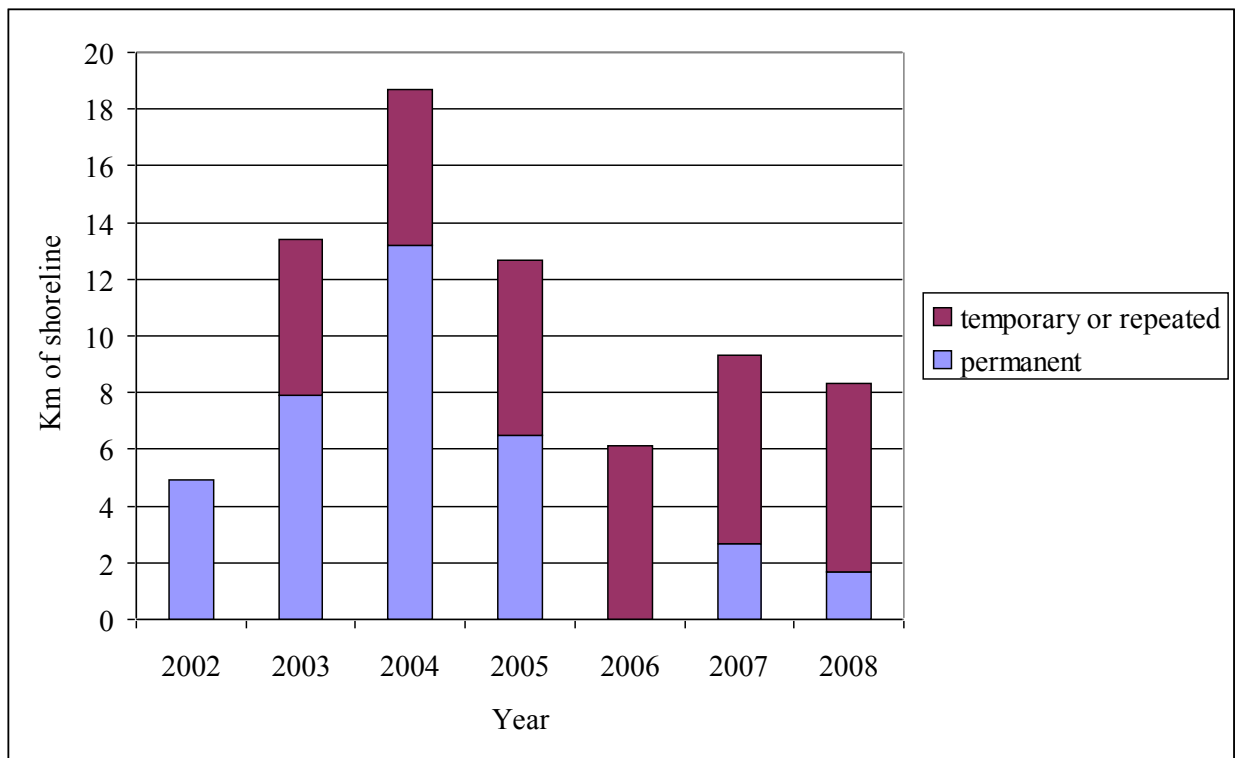


Figure 2. Kilometers of shoreline enhanced through temporary and permanent projects from 2002–2008.

Conclusion

While our count of piping plovers was higher in 2008 compared to 2007 (n=273), we surveyed three fewer lakes in 2008. The number of individuals sighted has shown a moderate increase over years since 2002, which provides evidence that our recovery efforts are working as we enhance reproduction through habitat improvements and nest exclosures.

Communications

- Annual plover newsletter was distributed to landowners.
- Field season report on exclosure application and population monitoring was distributed to funding agencies, colleagues and other interested parties. It was also posted on the ACA website.
- An update on the program was provided at both the Alberta Piping Plover Recovery Team meeting and the Prairie Piping Plover Recovery Team meeting.
- Interview and field day was conducted with World Wildlife Fund Canada and the program highlighted on their website: <http://wwf.ca/conservation/species/sarrfo/plover/>.
- Presentation given to the Central Alberta Chapter of TD Friends of the Environment Foundation.

Literature cited

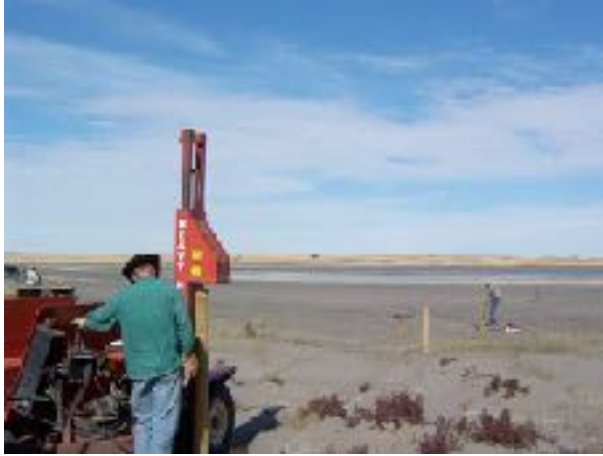
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ACA staff member, Alana Block, conducting piping plover survey. (Photo: Chrystelle Juignet)



Piping plover habitat. (Photo: Amanda Rezansoff)



Landowners building a cattle fence on Little Fish Lake. Left to right: Ed Gammie, Treacy Vogstad. (Photo: Dan Sturgess)



Sign at Little Fish Lake. (Photo: Dan Sturgess)