

**Alberta Conservation Association
2007/08 Project Summary Report**

Project name: Alberta Piping Plover Predator Exclosure and Population Monitoring Program

Project leader: Lance Engley

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Partnerships:

Alberta Employment and Immigration
Alberta Sustainable Resource Development
Alberta Tourism, Parks and Recreation
Environment Canada
Mountain Equipment Co-op
TD Friends of the Environment Foundation
World Wildlife Fund Canada

Key findings

- Population inventories were carried out on 28 waterbodies with 273 adults located on 21 lakes. The population trend has increased steadily since large scale recovery efforts began in 2002.
- Nest success (88.0%) and fledging success (52.8%) were particularly strong this year allowing greater numbers of chicks fledged than commonly seen over the past 10 years.
- Thirty eight young plovers were banded this year, while 58 re-sightings of individuals occurred from bandings in previous years. A total of 712 young have been banded since the program began.
- Most wintering ground re-sightings of Alberta banded birds occur along the gulf coast of Texas.

Introduction

The piping plover (*Charadrius melodus*) is a bluebird-sized shorebird that relies heavily on gravel strewn beaches for nesting and rearing broods. Nest predation continues to be a significant limiting factor for this endangered species, and as a result, we use predator exclosures to enhance their reproductive success (Alberta Piping Plover Recovery Plan 2005-2010). In addition, we conduct annual surveys on core breeding lakes to better gauge population numbers and movement, and to complement the international census conducted every five years across North America.

The primary objectives for this program are to exclose at least 80% of piping plover nests found, survey a minimum of 25 core breeding lakes and achieve a fledging rate of 1.25 chicks per pair.

Methods

Adult surveys and nest searches are conducted annually during the nesting period (15 May - 30 June). We walk along beaches at select lakes approximately 2/3rd of the distance between the water's edge and inshore vegetation line, and stop periodically to scan for plovers (Goossen 1990). Location and number of plovers are recorded and entered into a provincial database at the end of the field season.

We place exclosures around all nests found (Richardson 1997), and mark the location with a GPS unit. We check nests every 5 - 10 days for approximately 35 days through incubation to assess clutch size, abandonment, and number of chicks hatched. We consider nests successful if at least one egg hatches.

We capture young opportunistically with hand nets and mark individuals with leg band combinations to allow re-sightings over years. Young are commonly banded near fledgling age to minimize potentially adverse affects from handling on survival.

We estimate Mayfield nest success (1961) using daily survival rates (DSR) over the laying and incubation period to 35 days (i.e., DSR^{35}).

Fledging success is calculated with a modified Mayfield approach (Flint et al. 1995), to estimate DSR to 20 days. We estimated overall production per nesting attempt (OPN) by combining nest success, average number of eggs per nest, the proportion of eggs hatched, and the fledging success rate.

Results

We surveyed 28 waterbodies in 2007, with 273 individual adult piping plovers sighted on 21 lakes. Of the 109 nests found, we fitted 104 with predator exclosures (95%). We calculated nest success to be 87.8% for exclosed nests, 100.0% for unexclosed nests and 88.0% for overall combined nests. This value for unexclosed nests may be misleading given the relatively small sample of these with known fate. Nest success from 2002-2007 was 56.7% for unexclosed nests and 83.3% of exclosed nests (Figure 1).

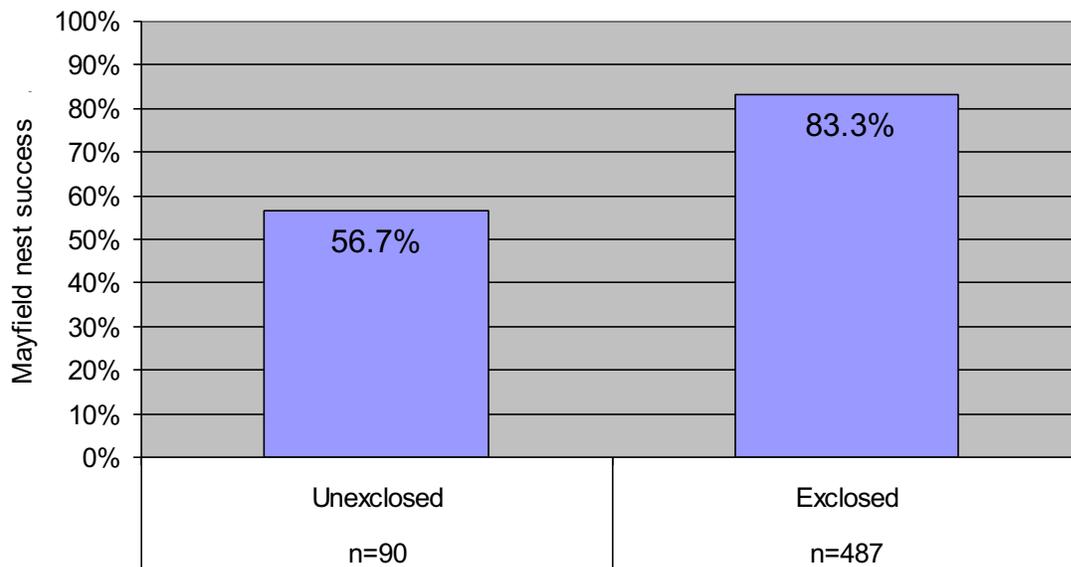


Figure 1. Mayfield nest success for exclosed and unexclosed piping plover nests in Alberta from 2002-2007.

Fledging success was 52.8% and overall production per nesting attempt 1.68 chicks per nest. Ten years of Alberta data indicates that pairs produce an average of 1.2 nests per pair. Using 1.2 as a multiplier, the overall fledging rate was calculated to be 2.02 chicks per pair.

We banded 38 young plovers this year. We re-sighted 58 adult piping plovers that were previously banded either in Alberta or another jurisdiction. Of these, 15 could be traced back to their banding year and lake of origin.

Conclusion

Despite the fact that fewer Alberta lakes were surveyed in 2007 than 2006, the aggregate number of individuals found is similar between years. This may suggest that plovers grouped themselves on fewer lakes in 2007 compared to 2006, or more likely that adult numbers were slightly higher in 2007. Strong fledging numbers coupled with annual counts of adults over the past six years provides evidence that our effort to reduce predation during reproduction is benefiting population numbers.

Our work is done in partnership with many landowners that support this work throughout east central Alberta. With their support, our intention is to continue this work to fulfill our commitment to the recovery plan for this species over the next three years (Alberta Piping Plover Recovery Plan 2005-2010).

Communications

- Annual piping plover newsletter was distributed to landowners.

- Field season report was distributed to funding agencies, colleagues and other interested parties. It was also posted on the ACA website.
- Field season presentation was given at Alberta Piping Plover Recovery Team meeting.
- An update on the program was provided at the Prairie Piping Plover Recovery Team meeting.

Literature cited

Flint, P.L., K.H. Pollock, D. Thomas and J.S. Sedinger. 1995. Estimating prefledging survival: allowing for brood-mixing and dependence among brood mates. *Journal of Wildlife Management* 59: 448-455.

Goossen, J.P. 1990. Prairie piping plover conservation: second annual report (1989). Unpublished report, Canadian Wildlife Service, Edmonton, Alberta. 20 pp.

Mayfield, H.F. 1961. Nesting success calculated from exposure. *Wilson Bulletin* 73: 255-261.

Rezansoff, A., R. Schmelzeisen, L. Engley and D. Prescott. 2006. Alberta Piping Plover Predator Exclosure and Population Monitoring Program. Unpublished report, Alberta Conservation Association, Edmonton, Alberta. 41 pp.

Richardson, I. M. 1997. Guidelines for the use of predator exclosures to protect piping plover (*Charadrius melodus*) nests. Alberta Environmental Protection, Wildlife Management Division Report, Edmonton, Alberta. 21 pp.



ACA staff conducting piping plover survey. Left to right: Roy Schmelzeisen, Kathryn Romanchuk, Adam Lemay-Gaudet. (Photo: Christine Kent)



Piping plover habitat. (Photo: Christine Kent)