

Alberta Conservation Association 2010/11 Project Summary Report

Project Name: *Piping Plover Recovery Program*

Wildlife Program Manager: Doug Manzer

Project Leader: Lance Engley

Primary ACA staff on project:

Lance Engley, Velma Hudson, Amanda Rezansoff, Dan Sturgess, Charmaine Trottier and Stefanie van Huystee

Partnerships

Alberta Summer Temporary Employment Program
Alberta Sustainable Resource Development
Alberta Tourism, Parks and Recreation
Canadian Wildlife Service
Co-operating landowners
Department of National Defence
Ducks Unlimited Canada
Government of Canada Habitat Stewardship Program for Species at Risk
TD Friends of the Environment Foundation

Key Findings

- Conducted population inventories on 26 waterbodies and located 233 adult piping plovers. The number of piping plovers in Alberta increased in 2010 compared to 2009, and the long-term trend has shown an increase in plover numbers since large-scale recovery efforts began in 2002.
- Completed fencing projects on four lakes to protect breeding habitat from livestock and predators. Two of these followed wildlife-friendly guidelines and two were temporary fences.
- Enhanced over 48 km of shoreline habitat since 2002.
- Estimated we have produced 1,014 fledged piping plover chicks from the 930 nests exclosed since 2002.

Introduction

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

Our primary objectives for this program in 2010/11 were to exclose at least 90% of nests found, survey 25 or more core breeding lakes, complete at least four 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 2010 – 2020* (Alberta Piping Plover Recovery Team 2010).

Methods

We conducted adult surveys and nest searches by walking along select beaches approximately two-thirds of the distance between the water's edge and inshore vegetation line (Goossen 1990). We placed exclosures around all nests in the laying or incubation stages, and checked these nests every 5 – 15 days until hatching to assess clutch size, abandonment, nest and fledging success. We then 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. We calculated fledging success 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 assessed select shorelines for habitat damage and prioritized enhancement needs according to type, severity and size of damage, likelihood of continued damage, and available mitigation options. We then worked with landowners to mitigate future habitat damage on identified areas and used wildlife-friendly fencing techniques (Paige 2008) where possible.

We modified our existing habitat monitoring system from a qualitative approach to a more objective quantitative ranking system. We assessed habitat quality by measuring cover of vegetation, water, and surficial damage caused by cattle and vehicles within 50-m² plots across nesting habitat. This approach helped us better assess the effectiveness of our habitat enhancement activities.

Results

In 2010/11, we surveyed 26 waterbodies for piping plovers, with 233 adults sighted on 21 lakes. Of the 121 nests found, we fitted 117 with predator exclosures (96.7%). Mayfield nest success was 80.1% for exclosed nests, 100.0% for unexclosed nests and 80.3% overall. This value for unexclosed nests may be misleading given the small sample size with known fate (n = 1). From 2002 – 2010, Mayfield nest success for exclosed and unexclosed nests was 80.2% and 48.5%, respectively (Figure 1). Fledging success was 45.4% and overall production per nesting attempt was 1.34 chicks per nest. Since 2002, we estimated we have produced 1,014 fledged piping plover chicks from the 930 nests that have been exclosed.

Figure 1. Mayfield nest success for exclosed and unexclosed piping plover nests in Alberta from 2002 – 2010.

We banded four young plovers this year, recorded 23 previously banded birds, and determined banding year and lake of origin for 11 of these individuals.

We surveyed habitat on 26 lakes and completed fencing projects on each of Clark, Handhills, Piper and Red Deer lakes, with Handhills and Red Deer fencing projects using a wildlife-friendly fencing technique. We also repeated an annual vegetation reduction project through livestock grazing on Little Fish Lake. These improvements enhanced over 7 km of shoreline habitat (Figure 2). Since 2002, this project has enhanced over 48 km of shoreline habitat.

Figure 2. Kilometres of shoreline enhanced through temporary and permanent projects from 2002–2010.

We conducted habitat assessments at 11 sites on four lakes and recorded contact with 39 landowners. Most sites showed signs of improvement in habitat quality since enhancements were completed.

Conclusions

We recorded 18 more piping plovers in 2010 than we did in 2009 while surveying the same number of breeding lakes. This slight population increase in 2010 occurred despite many of these lakes having had high water levels, which restricted beach width and limited available nesting habitat. The number of individuals sighted has shown a moderate increase since 2002, which suggests our recovery efforts are benefiting population numbers as we enhance reproduction through habitat improvements and predator exclosures.

Communications

- Distributed annual plover newsletter to landowners and cottagers.
- Distributed field season report through our website and directly to funding agencies, colleagues and other interested parties.
- Delivered a program update at the federal Prairie Piping Plover Recovery Team meeting.

Literature Cited

Alberta Piping Plover Recovery Team. 2010. Alberta piping plover recovery plan, 2010 – 2020. Alberta Sustainable Resource Development, Fish and Wildlife Division, Alberta Species at Risk Recovery Plan No. 18, Edmonton, Alberta. 28 pp.

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.

Paige, C. 2008. A landowner's guide to wildlife friendly fences. Landowner/Wildlife Resource Program, Montana Fish, Wildlife and Parks, Helena, Montana, USA. 44 pp.

Photos:

Alberta Conservation Association staff member, Dan Sturgess, putting up electric fence to protect piping plover habitat from predators. (Photo: Amanda Rezensoff)

Alberta Conservation Association staff member, Dan Sturgess, setting up predator exclosure. (Photo: Lance Engley)

Piping plover entering predator exclosure. (Photo: Gordon Court)

Typical piping plover habitat. (Photo: Amanda Rezensoff)