Alberta Conservation Association

2021/22 Project Summary Report

Project Name: Piping Plover Recovery Program

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Project Leader: Lance Engley

Primary ACA staff on project: Meagan Butler, Lance Engley, Paul Jones, Garret McKen, Benjamin Misener, Stephen Nadworny, Sue Peters, Mike Ranger, Amanda Rezansoff, Dan Sturgess, and Hayley Webster

Partnerships

Alberta Environment and Parks
Landholders
Environment and Climate Change Canada – Habitat Stewardship Program

Key Findings

- We collaborated with Alberta Environment and Parks to survey 24 waterbodies, on which we located 73 adult piping plovers, the lowest count since comprehensive annual surveys began in 2000. This decline may be due to the substantial reduction in available breeding habitat since 2012 resulting from vegetation encroachment on some lakes and from flooding of nesting habitat on other lakes.
- We worked with ACA's land management staff to reduce vegetation encroachment on gravel habitat we created in 2015.
- We enhanced over 58 km of shoreline habitat since 2002, with the majority considered "critical" breeding habitat.

Abstract

Piping plovers are small, black and white, short-billed *Endangered* shorebirds that nest and feed along gravel beaches. They face a number of threats including high rates of predation and damage to their nesting and feeding habitat. ACA is working with landowners across east-central

and southern Alberta to improve habitat and promote awareness of the plight of the piping plover. Each year, we also conduct piping plover counts on key breeding lakes that allow us to monitor population numbers and distribution, and help us guide habitat improvement activities.
We surveyed 24 waterbodies, on which we found 73 adults on eight lakes, with ten or more adults on four of these lakes. We worked with our partners to improve over 5 km of shoreline habitat through the implementation of seasonal grazing and chemical control to reduce the encroachment of vegetation that impairs this habitat for piping plovers. Since large-scale recovery efforts began in 2002, we have improved over 58 km of shoreline habitat, with the majority of "critical" piping plover habitat being protected or improved through fencing.

Introduction

The piping plover is a small, black and white, short-billed *Endangered* shorebird requiring gravel-strewn beaches for nesting and rearing broods. We address threats facing piping plover populations through the enhancement of habitat and through education and outreach initiatives. We also conduct annual surveys on core breeding lakes to monitor numbers, their distribution, and the success of our recovery actions.

In 2021/22, Alberta Conservation Association's (ACA) primary objectives were to survey at least 25 core breeding lakes for adult piping plovers, and complete at least two enhancement projects. All of these objectives are supported by the *Alberta Piping Plover Recovery Plan, 2010 – 2020* (Alberta Piping Plover Recovery Team 2010).

Methods

We conducted adult surveys by walking along select beaches approximately two-thirds of the distance between the water's edge and the inshore vegetation line (Goossen 1990). We recorded and mapped the location, number, and breeding activity of adult piping plovers. On known breeding lakes, 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.

Results

In 2021/22, we worked with Alberta Environment and Parks to survey 24 waterbodies. We recorded 73 adults on eight lakes, with ten or more adults found on four of these lakes. We recorded 17 fewer piping plovers during the 2021 count than we did during the 2019 count (n = 90), which amounts to a decrease of 19% (Figure 1). This apparent decline may be due to the substantial reduction in available breeding habitat since 2012, resulting from vegetation encroachment on some lakes, and from flooding of nesting habitat on other lakes where water levels remain at their highest level in nearly a decade.

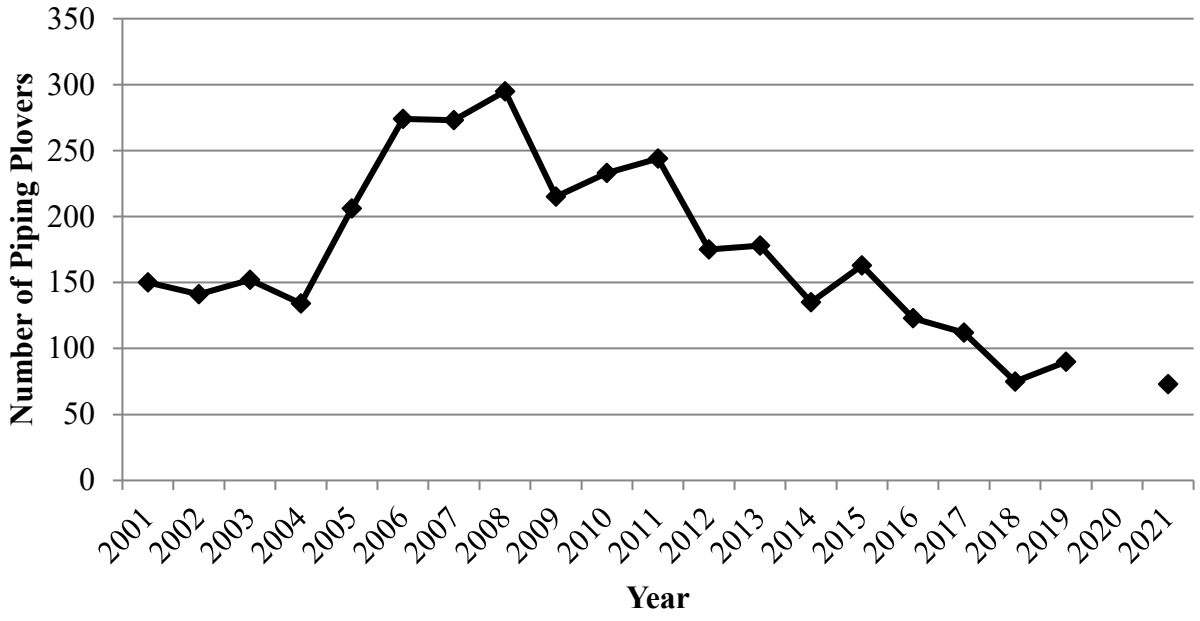

Figure 1. Piping plover counts in Alberta since 2001, with large-scale recovery efforts beginning in 2002. Survey effort is comparable among years, except for international census years 2001, 2006, 2011, and 2016, where survey coverage was more extensive. We did not conduct an annual survey in 2020 due to the COVID-19 pandemic restrictions.

We evaluated habitat on 24 lakes where surveys were completed and contacted over 15 landowners over the breeding season. We reduced vegetation encroachment through the implementation of seasonal grazing and chemical control. Overall, we improved over 5 km of shoreline habitat for piping plovers in 2021 (Figure 2). Since 2002, we have enhanced over

58 km of shoreline habitat to improve piping plover breeding habitat, with the majority of this enhanced through fencing schemes. Most known piping plover habitat in Alberta has now been protected through the cooperation of many landowners, though high water levels have hindered our efforts in recent years.

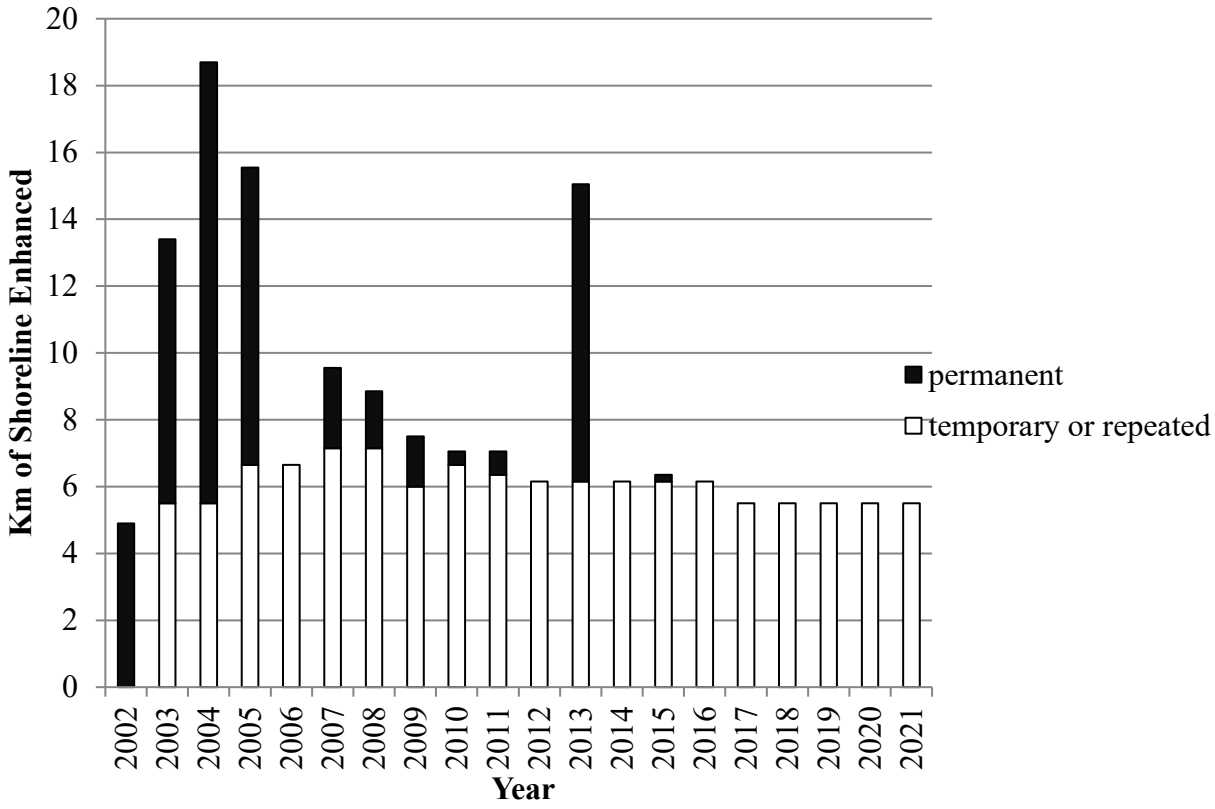

Figure 2. Number of kilometres of shoreline enhanced through temporary or repeated (seasonal grazing, chemical control, or temporary electric fencing), and permanent (fencing) projects from 2002 to 2021.

Conclusions

The piping plover population count in 2021was the lowest since comprehensive annual surveys began in 2000. Unusually high water levels over the past ten years in eastern and south-central Alberta have greatly reduced available breeding habitat on key lakes, while shoreline vegetation encroachment in north-central areas have further reduced available breeding habitat. High water levels can have a detrimental effect on the population in the short term but are crucial in helping

keep vegetation from encroaching on habitat and making it unsuitable for nesting. When water levels recede, there should be an abundance of high quality, vegetation-free habitat available for nesting. We will continue to monitor Alberta's piping plover population and associated habitat conditions each spring and will continue to explore alternative techniques for reducing vegetation encroachment on important breeding habitat.

Communications

- Submitted a manuscript entitled "The effectiveness and cost efficiency of different predator exclosure designs to increase piping plover *(Charadrius melodus)* nest success and fledging rate in Alberta, Canada" to Conservation Science and Practice for consideration for publication.

Literature Cited

Alberta Piping Plover Recovery Team. 2010. *Alberta Piping Plover Recovery Plan, 2010 – 2020.* Alberta Sustainable Resource Development, Fish & Wildlife Division. Alberta Species at Risk Recovery Plan No. 18, Edmonton, Alberta, Canada. 28 pp.

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

Photos

Photo 1. Piping plover breeding habitat. Photo: Amanda Rezansoff

Photo 2. ACA employee, Garret McKen, surveying for piping plovers. Photo: Amanda Rezansoff