

## **Piping Plover Census Protocol**

**Reporting Office: Seney NWR (Whitefish Point Unit)**

**Species: Piping Plover (*Charadrius melodus*)-Endangered Species**

### **JUSTIFICATION AND OBJECTIVES**

The management program for the Endangered Great Lakes population of Piping Plover (the northern great plains and Atlantic coast populations are considered threatened) is carried out under the direction of the *Recovery Plan for the Great Lakes Piping Plover (Charadrius melodus)*. Parts of the recovery strategy include, “to increase average fecundity, protect essential breeding habitat, increase public education and outreach, and establish and maintain partnerships” (USFWS 2003). The Great Lakes population of the Piping Plover was listed as an endangered species in 1985 (USFWS 2003) and is also listed by the State of Michigan as a state endangered species. Overall coordination for annual nest monitoring is led by the East Lansing Ecological Services Field Office, with Vincent Cavalieri the current coordinator. Seney NWR is a cooperator in the annual monitoring program, primarily up at its Whitefish Point Unit, north of Paradise Michigan along Lake Superior. Approximately ¼ mi of shoreline at the Whitefish Point Unit is designated as critical habitat for piping plovers (USFWS 2001).

Prior to the recent past, the last known Piping Plover nesting attempt at Whitefish Point was in 1985 (Michigan Land Use Institute 2002). In 2009, a pair successfully nested and fledged four young. In 2010 and 2011, a single pair nested each year with three young successfully fledged each year. In 2012, three pairs nested and 11 young were successfully fledged.

The annual monitoring program is primarily composed of three main stages:

1. search available nesting habitat and attempt to find Piping Plover and/or nests;
2. set up predator exclosures around nests and daily monitoring of nests until hatching;
3. band plovers, chicks plus adults if not already banded, and daily monitoring of plovers until all chicks have died or fledged .

In Michigan, the annual monitoring program is a cooperative effort involving personnel from the USFWS, Michigan Department of Natural Resources, U.S. Park Service, U.S. Forest Service, Michigan Audubon Society, U.P. Land Conservancy, Detroit Zoo, University of Minnesota, Lake Superior State University, Central Michigan University and volunteers.

### **STATISTICAL CONSIDERATIONS**

None.

## **DATA COLLECTION PROCEDURES**

Each year, usually in mid-April, all partners gather for a Piping Plover preseason meeting at the University of Michigan's Biological Station (northern Lower Peninsula) to review the accumulated nesting data over the years, discuss any issues from last year or new proposed changes for this year, make sure everybody is prepared for the upcoming season and set dates for the annual monitoring training. Two one-day training sessions are set up, one usually held in the Upper Peninsula in St. Ignace and one in the Lower Peninsula (usually held at Sleeping Bear Dunes National Lakeshore facilities). All primary plover monitors must have completed the training at least once. Each year, usually in early August, all partners reconvene for an end of season meeting again at the University of Michigan's Biological Station to go over the season and report any data not previously reported.

Currently, all plover monitoring at the Whitefish Point Unit is led by technicians hired through Lake Superior State University and work under a Special Use Permit with Lake Superior State University. The technicians are stationed at Vermilion and monitor the beaches there.

Plover monitors, agency staff and or volunteers systematically search the available nesting habitat for the areas that they are responsible for, for any piping plovers, adults exhibiting breeding behavior, nest scrapes or ultimately nests with eggs. A GPS coordinate is taken of any found nest (Zoeren and Dingledine 2012):

### **Preferences for GPS Datum and Format**

Preferred Datum: NAD 27

Preferred Format: UTM

Prior to the beginning of nesting season, staff from Seney NWR post a portion of the beach at the Whitefish Point Unit closed to public access. This normally occurs at the end of April or first of May.

Since 1988, fencing has been consistently used to protect all known piping plover nests (USFWS 2003). Once a nest is found a small mini-exclosure is put over the nest to protect it. Once there is a full clutch, the small mini-exclosure is removed and a full nesting exclosure is put up. The most common design for a full exclosure is a roll of 2" X 4" welded wire, 4 feet in height supported by metal fence posts around the nests and topped with a blueberry or bird netting with less than ¾" square openings. The welded wire protects the nests from terrestrial predators and the netting protects the nest from aerial predators.

Protocol for putting up the exclosures (Stucker 2000 and USFWS undated):

1. during the placement of exclosures, there must be at least one member of the crew in attendance who is permitted by the USFWS to work with endangered species.
2. with a full exclosure there should be a minimum distance of 5' from the nest to the welded wire fencing in all directions.
3. the full exclosure should be put up within 20 minutes. The mini should be put up within 5 minutes.
4. exclosures should be put up in good weather. Rainy, very windy, cold or extremely hot weather should be avoided if possible.
5. after placement of the mini-exclosure, careful observation should occur for evidence of abandonment of the nest by the plovers throughout the day and periodically for several days thereafter. The exclosure should be removed if piping plover behavior is abnormal or if birds show reluctance to enter the exclosure.
6. following construction of the full exclosure, behavior of plovers must be monitored. Monitoring must continue for at least 60 minutes from a distance out of sight of the birds. If neither adult returns to the nest or if behavior appears abnormal within that 60 minutes, exclosure shall be removed and monitoring must continue for an additional 60 minutes to determine whether nest abandonment has occurred.
7. removal of eggs or chicks must receive a case-by-case approval from the East Lansing Field Office.

In addition to the full exclosure, it is also standard practice to put up psychological fencing at a minimum 50' in distance from the full exclosure. The psychological fencing consists of metal posts with a single strand bailing twine. Colored flagging is tied to the twine at regular intervals to ensure the twine is visible to the public. The purpose of the psychological fencing is to limit human activity near the nest (USFWS 2003). Staff from Seney NWR have regularly been involved with setting up exclosures and psychological fencing.

After the nest is discovered, the nest is monitored on a daily basis to confirm that both adults are present and incubating the nest. All piping plovers captured for banding are currently banded with USGS metal bands and Darvic color bands. Nesting adults receive unique color combinations, while chicks receive brood specific color combinations. Nesting adults are trapped on the nest using a single chambered potter trap, while chicks are caught by hand (USFWS 2009). Chicks are targeted for banding before they reach 10 days old. All banding is conducted by permitted personnel with the University of Minnesota.

The protocol for reading color bands is as follows: report a color band combination by recording the combination seen from top to bottom on the left leg and then recording the combination seen on the right leg in the same manner (University of Minnesota 2010).

After hatching, the chicks are monitored daily to ensure they are still alive. Once they are flight capable or the estimated fledging date has arrived, they are considered fledged and no longer regularly monitored.

### **DATA ANALYSIS AND REPORTING**

Every week, a statewide tele-conference is held with the goal to have monitors at all sites report the current status of all piping plover sightings and nests, but that is not always feasible/possible. In addition to the conference calls, monitors email data and observations weekly to the designated data collector, usually a person with the University of Minnesota. At the end of the plover season, all nesting and observation data for the State is sent to the East Lansing Piping Plover Coordinator (Vince Cavalieri) for storage and compilation.

GPS locations of piping plover nests are maintained in a GIS database at the University of Minnesota and the USFWS, East Lansing Field Office. These data are vital for keeping track of and evaluating where plovers have been nesting in the Great Lakes (Zoeren and Dingledine 2012).

### **MANAGEMENT ACTION THRESHOLDS**

The 2003 Great Lakes Recovery Plan describe four recovery criteria that must be met before the population will be considered for reclassification to threatened status (USFWS 2009):

1. the population has increased to at least 150 pairs (300 individuals), for at least 5 consecutive years, with at least 100 breeding pairs (200 individuals) in Michigan and 50 breeding pairs (100 individuals) distributed among sites in other Great Lake States.
2. 5-year average fecundity is within the range of 1.5 – 2.0 fledglings per pair, per year across the breeding distribution, and ten-year population projections indicate the population is stable or continuing to grow above the recovery goal.
3. ensure protection and long-term maintenance of essential breeding habitat in the Great Lakes and wintering habitat sufficient in quantity, quality and distribution to support the recovery goal of 150 pairs.
4. genetic diversity within the population is deemed adequate for population persistence and can be maintained over the long-term.

In 2012, a total of 58 nesting pairs were documented in the Great Lakes.

## **DATA STORAGE PROCEDURES**

A database is kept at the East Lansing Field Office.

## **SPECIAL CONSIDERATION**

Not directly related to the monitoring program, but for the last two summers, Visitor Services staff have been going up to Whitefish Point at least twice a month to set up temporary exhibits including about Piping Plovers or just being a presence and talking to visitors.

## **LITERATURE CITED**

- Michigan Land Use Institute. 2006. Human Use/Natural Resource Management Plan for Whitefish Point December 6, 2002. Traverse City, Michigan. 80pp.
- Stucker, J.H. 2000. Great Lakes Mini-Exclosure Protocol. Unpublished Report. 4pp.
- University of Minnesota. 2010. Identification of Colorbands Great Lakes Piping Plovers. Unpublished Report. U of MN, Twin Cities. 3pp.
- USFWS. 2001. Endangered and Threatened Wildlife and Plants; Final Determination of Critical habitat for the Great Lakes Breeding Population of the Piping Plover. Federal Register 66(88):22938-43.
- USFWS. 2003. Recovery Plan for the Great Lakes Piping Plover (*Charadrius melodus*). Fort Snelling, Minnesota. 151pp.
- USFWS. 2009. Piping Plover (*Charadrius melodus*) 5-year Review: Summary and Evaluation. Hadley, Massachusetts and East Lansing, Michigan. 214pp.
- USFWS. Undated. Guidelines for the use of Predator Exclosures to protect Piping Plover Nests. Unpublished Report. 3pp.
- Zoeren, A. C. and J. Dingledine. 2012. Piping Plover Monitor Handbook. Unpublished Report. 22pp.

## **EFFORT AND COSTS**

Since 2007, Seney NWR has been providing housing for one plover technician. From 2007 – 2009, the technician was hired or facilitated through the East Lansing Field Office. From 2010 – 2013, Seney NWR has been providing rent free housing for a technician hired by Lake Superior State University who primarily monitors the Port Inland area along Lake Michigan. In exchange, the technician stationed at Vermilion monitors the nests/birds at the Whitefish Point Unit. The Refuge Law Enforcement Officer normally goes up to Whitefish Point three to four times each month from June – August to make sure the public is obeying the beach closed signs and the psychological fencing.