Piping Plover Breeding Activity Summary 2010

Long Island, Apostle Island National Lakeshore, Wisconsin
Plover Monitors: Emma Pelton (author) and Josh Zifko
(emmapelton@gmail.com & joshzifko@yahoo.com)

Introduction

The Apostle Islands National Lakeshore and adjacent Bad River tribal and private lands provide critical nesting habitat (US FWS 2001) for the federally and state endangered piping plover (*Charadrius melodus*). This area contains the only successful breeding pairs found in Wisconsin during recent years. These pairs are part of the Great Lakes piping plover population, with most pairs breeding in Michigan. Protection and management of Wisconsin's piping plover population is a collaborative effort between the National Parks Service, Wisconsin Department of Natural Resources, Band River Band of Lake Superior Chippewa Indians, and U.S. Fish and Wildlife Service.

The Apostle Island National Lakeshore represents a key historic nesting area for piping plovers in Wisconsin. Nesting in the Apostle Islands was sporadic between 1996 and 2005, but since 2006, pairs have consistently nested. Three to six nests have been established annually on Long Island, with an occasional pair nesting on Outer Island. 2010 was the fifth consecutive year that daily piping plover monitoring occurred on Long Island.

The 2010 monitoring season for piping plovers lasted from May 18th through July 9th. The monitors were: Emma Pelton of Madison, WI hired by the Wisconsin Department of Natural Resources—Bureau of Endangered Resources and Josh Zifko of Washburn, WI hired by the Bad River Band of Lake Superior Chippewa Indians—Bad River Natural Resources. The purpose of the monitors was to perform initial piping plover surveys of the island's suitable habitat, determine nest locations, identify mating pairs and territories, erect predator exclosures, perform daily monitoring, band chicks, and observe bird behavior and other activity. Daily monitoring occurred consistently during the 2010 season except a two day stretch when no monitors were on the island due to strong thunderstorms. Another purpose of the monitors was visitor education and minimizing visitor and dog disturbance to nesting birds. Over 150 people and 15 dogs visited Long Island and 55 people were contacted by a monitor during the eight week monitoring period.

On recommendation from previous years, predator control occurred for the first time on Long Island during the two weeks prior to the start of monitoring activities and nest establishment. USDA APHIS—Wisconsin Wildlife Services conducted predator reduction efforts using foothold and cage traps between May 3rd and May 20th. Three WIWS employees performed the trapping: Aaron Freund, John Nuce, and Bryan Vergin. Targeted species included coyotes, red fox, raccoon, and skunk. Four raccoons and one coyote were captured and euthanized. WIWS staff reported two coyotes and 1-3 raccoons were present at the conclusion of WIWS control efforts (WIWS survey write-up 2010). Once piping plover nests were established, predator exclosures were erected by the monitors and NPS-APIS crew. Exclosures consisted of 12' by 12' metal fencing (to deter mammal and other ground predators) topped with blueberry netting (to deter avian predators) and surrounded by a buffer zone marked using signs and twine (psychological fencing). This fencing officially closed the area to visitor use in an effort to minimize human and dog disturbance to nesting birds.

This report is a summary of the major observations by the monitors during 2010 for breeding activities on Long Island as well as recommendations for future monitoring seasons. For further information including band combination history, GPS locations of nests, and more detailed history of piping plovers on Long Island, please contact the NPS-APIS office in Bayfield, WI.

Individual Nest Summary and Timeline

Eight adult piping plovers were found on Long Island during the summer of 2010. This included three pairs and two loner birds. This is a summary of major observations for each pair and individual.

Pair #1(Southern beach)

The female was banded X,B:Of,BW and the male was Of,LG:X,b. Scrapes were found ~2.5 miles south of camp on May 18th. A nest with two eggs was found on May 21st. A third egg was found on May 24th and a fourth egg on May 25th. An exclosure and psychological fencing was set-up on May 25th. Incubation lasted for 3 ½ weeks from May 25th until June 19th. Hatching lasted from June 19th through June 20th. All four eggs hatched successfully and four chicks were still alive at the end of monitoring activities on July 9th. The chicks were not banded, as banding materials were not available until the chicks were nearly two weeks old and would have been very difficult to catch.

Pair #2 (Southern beach)

The female was banded Of,G:X,Y and the male was unbanded. The male's history is unknown. Scrapes were found ~1.5 miles south of camp on May 18th. A nest with two eggs was found on May 25th. A third egg was found on May 26th and a fourth egg was never laid. An exclosure and psychological fencing were set-up on May 26th. Fulltime incubation never began and the female bird was never seen after May 28th.The nest was determined as abandoned and the three eggs were unviable after going days without incubation. The exclosure and fencing were removed on June 2nd and the eggs were moved to the National Park Service headquarters in Bayfield, WI for preservation. The unbanded male remained in his original territory for the rest of the season, sometimes in the company of the unbanded loner bird, but no re-nesting attempts were observed.

Pair #3 (Northern beach)

The female was banded X,g:O,g and the male was banded X,G/O:O,-. Scrapes were found ~1.5 miles north of camp in the small northern beach, just meters from the 2008 northern pair's nest on May 20th. Goose-stepping and copulation were observed on May 24th. A nest with two eggs was discovered on May 31st. A third egg was found on June 1st and a fourth egg was never laid. An exclosure and psychological fencing were set-up on June 2nd. Incubation lasted for 3 ½ weeks from June 3rd until June 27th. Hatching lasted from June 27th through June 28th. All three eggs hatched successfully and three chicks were banded on July 7th at ~9 days old.

Banded Loner (Southern beach)

This male was banded X,Y:Of,BB and first seen on May 18th. The bird was never seen in close company of other piping plovers except in territorial disputes with Male #2. His territory extended from the large dead tree marking the start of suitable piping plover beach south to the territory of Pair #2.

Unbanded Loner (Southern beach)
This bird was first seen on May 18th, but afterwards only sporadically (with the complication of having two unbanded birds, so records of this loner's presence may have been assumed as Pair #2's male). Most sightings occurred between the territory of the banded loner and the territory of Pair #2.

Nest Activity Timeline

	Nest #1	**Nest #2**	**Nest #3**
1st Visit to Area	May 18	May 18	May 19
Scrapes Observed	May 18	May 18	May 20
Nest Discovered	May 21	May 25	May 31
Exclosure Erected	May 25	May 26	June 2
1st Egg Laid	(not observed)	(not observed)	(not observed)
2nd Egg	(not observed)	(not observed)	(not observed)
3rd Egg	May 24	May 26	June 1
4th Egg	May 25	(not laid)	(not laid)
Abandoned	(not abandoned)	May 28	(not abandoned)
Hatching Start	June 19	-	June 27
Hatching End	June 20	-	June 28

Individual Nest Locations and Success Summary

Pair Id	**Band Combination**	**Eggs Laid**	**Chicks Hatched**	**Chicks Banded**	**Nest Success** *(fledged* chicks/ nest)*
Pair #1	**F:** X,B:Of,BW **M:** Of,LG:X,b	4	4	0	4
Pair #2	**F:** Of,G:X,Y **M:** unbanded	3	0	N/A	0
Pair #3	**F:** X,g:O,g **M:** X,G/O:O,-	3	3	3	3
Banded Loner	**M:** X,Y:Of,BB	N/A	N/A	N/A	N/A
Unbanded Loner	N/A	N/A	N/A	N/A	N/A

*Chicks considered fledged if survived until banding or end of monitoring season

Nest Success at Long Island 2006-2010

Year	**Nests**	**Eggs Laid**	**Chicks Hatched**	**Nest Success** *(fledged* chicks/ nest)*
2006	4	16	5	1.25
2007	6	24	13	2.2
2008	5	19	6	1.2
2009	4	15	8	2
2010	3	10	7	2.3

*Chicks considered fledged if survived until banding or end of monitoring season

Recommendations

Fencing perimeter: Although the psychological fencing was effective in visitors keeping outside its perimeter, the area was not large enough to stop nearby human presence from disrupting birds during the incubation period. Increasing the buffer zone around exclosures to include 100m or more of surrounding beach could be effective at keeping human disturbance to a minimum. The difficulty in securing signs up the water's edge, also created a narrow strip of beach in front of nests that visitors often interpreted as open to walk through. This caused confusion to visitors and disruption to incubation. This was mostly a problem at Nest #3 as the north part of the island receives substantially more visitors than the southern beach. Any future nests may greatly benefit from complete closure of the northern beach to visitors.

Effort reduction: While Long Island provides critical habitat for piping plovers, their currently low numbers (three to six nests annually between 2006 and 2010) requires examining the current use of two full-time monitors living on the island.

Effort could be reduced during the incubation period, when daily monitoring of plover behavior may not be cost and time effective. Early season (mid-May thru early June) scoping of the beaches for pairs and nests took both time and familiarity with the beach and individual piping plovers. By the second week in June, incubation had begun for all three nests and monitoring activities required significantly less effort as birds stayed very close to their nests. Predator effects should also be minimal during this period due to the effectiveness of predator exclosures, so daily mortality monitoring may be unnecessary. Inter-annual variation in the nesting timeline (due to weather and re-nesting attempts) may mean some years this effort reduction may not be possible, but it may be an effective option during years with phenology like 2010's season.

Other areas of effort reduction could include reducing monitoring from every to every other day. This would allow the observations to be performed by just one monitor, perhaps located in the NPS-APIS office travelling to the island by boat every other day, thus greatly reducing the overall cost of the project. As most breeding activities including laying another egg and hatching take two days, the quality of phenology observations and ability to time management (erecting exclosures, removing abandoned eggs, banding chicks) should not be impacted. The decision to implement any of these effort reduction recommendations need to be balanced with the goals and logistic capabilities of the participating partners and monitors.

Predator control: The lack of predation on any chicks this year recommends the continued early-season reduction of Long Island's predator population. Short-term suppression of the predator population may have beneficial effects on the island's piping plover nest success rate and thus recovery goals. The larger ecological impacts of predator suppression may make long-term use of this practice inappropriate, but the current connection between Chequamegon Point and Long Island ensures some predator re-population.

A special thank you to Bob Wilmer of Bad River Natural Resources for the many boat rides, Julie Van Stappen and the entire crew at NPS-APIS for logistical support, Sumner Matteson for the opportunity, and Krista McGinley and the McGinley family for training, housing, and support.