PIPING PLOVER RECOVERY AND MONITORING

IN MINNESOTA, 1998

1 December 1998

Progress report submitted to the U.S. Fish and Wildlife Service

by

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INTRODUCTION

The Lake of the Woods area is the only remaining breeding site for piping plovers in Minnesota. From l982 to the present, investigators have monitored the reproductive success of plovers at this site, and have conducted a wide array of management activities directed at mitigating threats to piping plovers and sustaining their population. This report summarizes the activities conducted in l998, which were partially funded by the USFWS under the Section 6 program.

SUMMARY OF ACTIVITIES AND RESULTS BY TASKS IN WORK PLAN

Task 1. During the l997 field season, we made observations at Pine and Curry Island SNA on 20 days between May 20 and July 28 l998. Observations were on the average made twice weekly at Pine and Curry Island and Morris Point. Zippel Bay was surveyed on June 13th, and Rocky Point was visited four times, on June 3d, June 7th, June 13 and June 22. All observations were made with either a 20x wide Bushnell Spotting scope, a Swarovski Zoom 20 x 60 spotting scope, or field binoculars. Each plover seen was observed to determine if bands were present, and the breeding status of each bird was determined (i.e., observations made as to the bird's site affinity and associated nesting observations). Note that since bands have not been placed on birds in this population for several years, identification of individual birds has become more problematic. However the pairs are attached quite closely to their nesting site, so that it

is usually apparent when members of a nesting pair are encountered.

A total of eight adult plovers were present at Lake of the Woods in 1998, six of these seen on Pine and Curry Island, and two on Rocky Point (Table 2). This represents a population decrease of three birds at Pine and Curry, and a population decrease of eight birds at Lake of the Woods as a whole. A population decrease of 50% is significant. However, it is difficult to evaluate the exact numbers of unbanded non-breeders.

Tasks 2 and 4. Nests were visually located by observing the bird's behavior from a distance. Wire mesh predator exclosures were placed around each nest on the day the nest was found, even if only one egg was present. Exclosure cages were made of 2" x 4" mesh welded wire 4.3' in height. A circle of wire 9.8' in diameter was fastened to three steel rods which were driven into the ground. Nylon Carpenter's string was tied across the top in an overlapping manner to discourage avian predators. The exclosures allowed plovers to freely pass in and out of their nest site, while serving as a barrier to mammalian and avian predators. The nests were observed twice weekly to determine hatching dates, and subsequent survival of chicks. Hatching and fledging success could then be determined.

There were four nests found in 1998; three on Pine and Curry Island, and one at Rocky Point (Fig. 1). The birds were very late in returning to the area this year. The first nest was found on June 3rd, at Rocky Point; it contained four eggs. An exclosure

was placed on the nest on that date. A second nest containing one egg was found on June 13th on the west end of Tern Island. On June 15th, observations indicated that nest had failed. Also on that date, a re-nest approximately 40 m. E. Of the first nest was spotted. This new nest contained 2 eggs, and a nest cage was placed on the nest on June I5th. A fourth nest was initiated very late; located on July 6th on the east end of Tern Island's south shore. A nest cage was also placed on this nest. The outcomes of each of the nests are as follows (Table 3): the Rocky Point nest was hatched at the June 13th nest check. On a subsequent visit, there were four young seen in the vicinity, and observations indicated that all four young fledged. The re-nest on Tern Island hatched on approximately July I4th. Three eggs hatched from this nest, and three chicks fledged. One chick had hatched at the third nest on July 27th; subsequent visits were not made after July 28th so fledging success of this chick is unknown.

Even though there were fewer adult birds seen, the fledging rate in I998 was excellent compared with I997 (Table 4). Seventy-five percent of nests initiated were successful (at least one egg hatched), and reproductive success was also good, with between 2.3-2.66 chicks fledged per pair (Table 5).

Task 3. A federal permit was obtained to take nesting Ring-billed Gulls from the SNA, where they have attempted to breed every year since I985. Gulls compete with terns and plovers for breeding space and also are potential predators on chicks and eggs. On May 27th 80 Ringed-billed Gulls were observed in the tern colony. On that date 51 gull eggs from 40 nests were taken. On May 31st, 26 gull eggs from 29 nests were taken. A

grid constructed of nylon carpenter's string and metal posts was erected in the gull breeding area on this date also. On June 3d, 2 gull eggs in 1 nest were taken. On June 7th there were 130 adult Ring-billed Gulls still at the site. An additional 14 eggs from l2 nests were destroyed. On June 10th, 10 gull eggs from 5 nests were destroyed. On June 15th, 43 gull eggs in 25 nests were destroyed and the string grid enlarged to include additional nesting areas. Only one additional egg appeared on July 2nd, and by this time there were only 50 Ringed-billed Gulls remaining. They were quite tenacious this year, with a total of 147 eggs removed. Gull deterrents were removed on July 28th. No birds became entangled in the string, and the grids were moderately effective at discouraging gull nesting. The nesting outside the grid that occurred this year would seem to indicate that the birds are finding ways "around" the string. There were gull congregations of other species this year also, approximately 900 Franklin's gulls seen on Tern Island on June 28th, and 1200 on July 2nd, with an additional l300 on Morris Point. By July 6th that number had decreased to 650. Additional gull roosting sites on "West End" attracted most gulls in the vicinity.

Task 5. Jim Walton was again hired to conduct predator trapping on Pine and Curry Island and Morris Point. An average of six sets (three mink and six fox/skunk) were maintained during the period of 5/2/98 until 7/15/98, for a total of 456 trap nights. On May 4 a skunk was caught on the West end of Pine Island. On May 29, a male mink was caught on Morris Point, and on June 7 a female fox was caught on Morris Point.

WATER LEVELS AND EROSION

(note: these activities were not part of the Section 6 project)

Data on Lake of the Woods (LOTW) water levels were obtained from the Lake of the Woods Control Board in Quebec. Water levels in l998 remained lower than average (Table 1). This may have contributed to increased success of plovers. However, erosion continued to occur. The big pines at the west end of the islands are on the verge of washing away. Also, during the summer the gap between Tern island and Morris Point became noticeably narrower. On October 8th, Bill Berg (DNR) reported that the gap had completely filled in, making the primary nesting area of terns and plovers a peninsula rather than an island.

RECOMMENDATIONS

The following are our recommendations for future monitoring and management on Pine and Curry Island.

1. Continue to monitor population size, nesting, and reproductive success of Piping Plovers on Pine and Curry Island SNA, Rocky Point and Zippel Bay for the foreseeable future.
2. Continue the use of wire mesh predator exclosures around piping plover nests, and attempt to place exclosures after one egg has been laid.
3. Continue to contract with a trapper during May-July on Pine and Curry Island SNA and Morris Point, with vigilance, to prevent large scale depredation occurrences such as that which occurred at the site in l997.

4. Continue to obtain a federal permit and remove gull eggs as they occur on the SNA. Install deterrents of elevated string grids on the gull-nesting areas. Closely monitor the response of the gulls to this practice, as full scale nesting of the gulls is to be avoided at all costs.

5. Continue the sanctuary signing of all traditional use areas including Morris Point , "Tern Island", "West End", "Middle Curry "and Oak Point. Propose a re-signing project with SNA management staff to re-post the entirety of the SNA utilizing the new black SNA signs. Also make sure wood routed sanctuary and picnic signs are in place.

6. Obtain GPS coordinates for the entire boundary of the SNA to document erosion and change in size of sand spits and gaps, etc.

7. Investigate the installation in l999 of an electric fence around the plover nesting site.

8. Contact SNA to cut trees and shrubs at Oak Point to eliminate crow/raven perches and to improve habitat.

9. Adequately post Rocky Point.

10. Assist in increased interpretation of the SNA through development of kiosks.

11. Attempt to better establish local communication regarding rules on the SNA, and justification for the rules. This can be accomplished by continuing individual contact, newspaper articles and working with Tourist Bureau.

12. Encourage enforcement of the rules .

13. Continue to seek federal funding for this important project.

ACKNOWLEDGMENTS

This work was partially funded by the USFWS under Sec. 06 of the Endangered Species Act. Additional funding was provided by the Nongame Wildlife Program of the Department of Natural Resources. The Section of Wildlife and Scientific and Natural Areas Program provided in-kind contributions. Bruce Lenning and Doug Easthouse provided field assistance. Steve Maxson provided comments and suggestions. Mike Haws and Jeff Dittrich posted sanctuary signs in May, and removed signs in September. Rick Cousins supplied us with LOTW water levels from the Springsteel Point gauge on Lake of the Woods. Bill Berg provided valuable fall observations.

References

Haig, S. and L.W. Oring. 1987. Population studies of piping plovers at Lake of the Woods, Minnesota, I982-I987. Loon 59:113-117.

Weins, T. 1986. Nest site tenacity and mate retention in the piping plover (*Charadrius melodus)*. M.S. Thesis, Univ. Of MN, Duluth.

Table 1. Monthly mean water levels (ft. above sea level) at Lake of the Woods, 1982-1998.

	May	June	July	August	Mean
1982	1059.3	1060.0	1060.1	1060.3	1059.9
1983	1058.7	1059.0	1059.8	1059.7	1059.3
1984	1058.9	1059.6	1060.5	1060.6	1059.9
1985	1060.3	1061.0	1061.5	1061.0	1060.9
1986	1060.6	1060.6	1060.5	1060.1	1060.4
1987 /1	--	--	--	--	
1988	1057.8	1057.9	--	1057.9	1057.9
1989	1059.6	1060.5	1061.5	1060.9	1060.6
1990	1058.1	1059.3	1060.0	1059.4	1059.2
1991	1058.5	1059.4	1060.0	1059.7	1059.4
1992	1060.3	1060.3	1060.5	1060.4	1060.4
1993	1058.9	1059.3	1060.0	1060.0	1059.6
1994	1058.5	1059.0	1060.0	1060.4	1059.5
1995	1059.1	1059.0	1059.2	1059.2	1059.1
1996	1060.2	1061.1	1060.9	1060.5	1060.7
1997	1059.8	1059.7	1060.0	1059.7	1059.8
1998	1058.90	1059.54	1059.62	1059.32	1059.34

/1 1987 data are not available.

Table 2. Population summary of piping plovers from 1982-98 at Lake of the Woods, Minnesota./1

Year	Breeding Birds				Non-breeders	Total
	Pine/Curry Island	Morris Point	Zippel Bay	Rocky Point		
1982	24	4	0	2	14	44
1983	32	6	2	2	7	49
1984	36	8	0	0	3-6	47-50
1985	19-36	4	0	-	1-2	24-42
1986	18	4	0	1	9-10	32-33
1987	12	2	0	-	12	26
1988	18	4	0	4	4	30
1989	14	2	0	4	2	22
1990	8	2	-	2	4	16
1991	12	0	0	0	2	14
1992	10	0	0	0	3	13
1993	9	0	0	0	2	11
1994	10	2	0	0	3	15
1995	11	2	0	0	1	14
1996	10	0	0	0	0	10
1997	4	0	0	4	8	16
1998	6	0	0	2	8	16

/1 1982-84 data from Wiens 1986.
1985-87 data from Haig and Oring 1987.

Table 3. Nest initiation dates and nest fates of piping plovers breeding at Lake of the Woods, Minnesota, 1998.

Nest location	Approximate nest initiation date	Nest fate
Tern Island W. Spit	13 June	abandoned
Tern Island W. Spit Renest	15 June	3 hatched, 3 fledged
Tern Island S. Shore	6 July	1 hatched, 1 fledged?
Rocky Point	3 June	4 fledged

Table 4. Reproductive success by breeding location for piping plovers, 1998.

	Rocky Point	Morris Point	Tern Island	West End Plus	Middle Curry	Oak Point	Total No.	Total %
No. nests	1	0	3	0	0	0	4	--
No. eggs laid	4	0	6	0	0	0	10	--
No. successful nests	1	0	2	0	0	0	3	
No. eggs hatched	4	0	4	0	0	0	8	
No. chicks fledged	4	0	3-4	0	0	0	7-8	

Table 5. Reproductive success of piping plovers at Lake of the Woods, Minnesota from 1982-1998.[a]

Year	No. Nests	Chicks fledged	Chicks fledged/pair
1982	24	26	1.7
1983	22	44	2.1
1984	27	13	0.6
1985	--	7-10	0.4-0.5
1986	--	9	0.8
1987	7	2-21	0.3-3
1988	13	12-15	1.0-1.25
1989	10	1	0.1
1990	7	4	0.7
1991	6	2-4	0.3-0.7
1992	5	4	0.8
1993	6	9	1.8
1994	7	4-7	0.7-1.2
1995	8	7-8	1.0-1.1
1996	9	4-6	0.8-1.2
1997	3	0	0
1998	4	7-8	2.3-2.6

[a] 1982-1984 data from Wiens 1986.
1985-1987 data from Haig and Oring 1987.

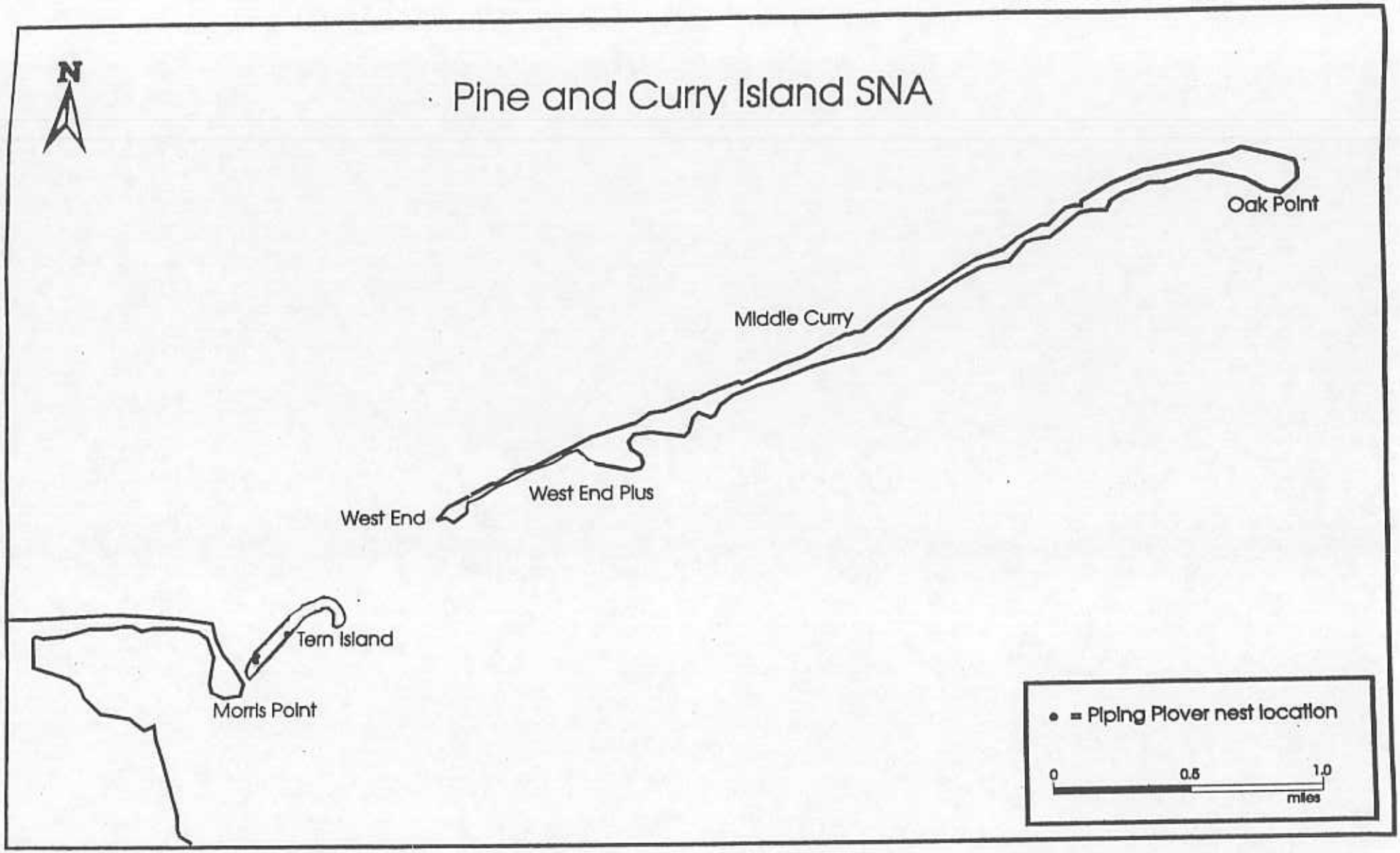

Figure 1. Piping Plover nest locations, 1998.
Also one nest at Rocky Point.