

1990 STATUS AND BREEDING SUMMARY OF PIPING PLOVERS
AND COMMON TERNS AT LAKE OF THE WOODS, MINNESOTA

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PIPING PLOVERS

Methods

In 1990 12 trips were made to Lake of the Woods (LOTW) between 10 May and 9 August (Table 1). We made regular observations at Pine/Curry Island and Morris Point, while Rocky Point was visited less frequently (7, 14 June, 25 July). We did not visit Zippel Bay this year (no breeding piping plovers have been observed at Zippel Bay since 1983). All piping plovers observed were checked for bands and their breeding status was determined. Nests were located and the hatching and fledging success was determined for each. Unbanded adults or birds in need of new color bands were nest trapped once incubation was well underway. Chicks were captured with a butterfly net when 1-17 days old and each was banded with a USFWS aluminum band.

On 10 May a power brush saw was used to cut tall willow shrubs on a 50m stretch of beach at Oak Point in an effort to improve piping plover habitat at that location. Data on LOTW water levels were obtained from the U.S. Army Corp of Engineers, St. Paul.

Results

The water level at LOTW on 10 May was 1057.9 ft. This was as low as the 1988 water levels and considerably below 1989 levels (Table 2). Broad sand beaches were exposed in all the traditional piping plover habitats. A large sandy spit was once again present along the north side of Oak Point. However, water levels rose steadily during May and June to a peak of 1060.2 ft on 8 July before leveling off and decreasing somewhat during August. By 22 May, parts of the Oak Point spit were inundated. By 15 June most of the spit was under water and it was

completely submerged by 22 June. Likewise, other beaches became progressively smaller as the season progressed but the water never reached the extremely high levels of 1989. Some erosion occurred at the northeast end of Tern Island but it was not nearly as severe as that of 1989.

In 1990 two adults and five chicks were banded (see Table 3 and attached banding schedule). Another seven adult plovers were unbanded while two others were in need of replacement bands. Four of these were not captured because they did not nest. Four others could not be captured because their nests were depredated before nest trapping was attempted. We failed to capture the final bird during two attempts at nest trapping because only its banded mate was incubating at the time.

The most unusual aspect of the 1990 season was the lack of piping plovers on Morris Point and Tern Island during the month of May despite excellent habitat conditions early in the season. Normally, virtually all breeding birds arrive by the third week of May and Morris Point and Tern Island are among the earliest breeding areas occupied. This year no plovers were seen until 6 June on Tern Island and 15 June on Morris Point.

A total of 16 adult piping plovers were present this year (Table 4). This represents a continuing population decrease from 30 and 22 in 1988 and 1989, respectively. The ten birds on Pine/Curry Island were distributed as follows: Oak Point had one pair plus two nonbreeders. One pair nested at "Middle Curry" but their initial nest washed away in a storm and they subsequently renested on Tern Island. Two other pairs nested on Tern Island. (See Fig. 1 for a geographic breakdown of the island). The two nonbreeders (A:- and unbanded) at Oak Point occupied the spit adjacent to the area of cut over willow and appeared to be paired on 22-23 May. They were not seen at Oak Point thereafter. Possibly they moved to Sable Island where Leo Heyens (unpubl. report) reported seeing two unbanded birds, an A:- banded bird, plus

another partially banded bird on 30 May. An A:- banded bird was also seen at Tern Island on 2 and 18 July though it did not breed there. The remaining two nonbreeders were observed at Rocky Point on 7 June. They appeared to be in the process of pair formation and territory establishment as the male made repeated song flights and aggressively chased killdeer on the beach several times. However, this pair was not present at Rocky Point during our subsequent visits.

We located seven nests between 23 May and 10 July (Table 5, Fig.1). Three nests (1-Morris Point, 1-Tern Island, 1-Rocky Point) were depredated and a fourth (Middle Curry) was washed away by a storm. The remaining three nests (1-Oak Point, 2-Tern Island) hatched a total of 11 eggs. Two chicks fledged from Tern island and two others fledged at Oak Point. This represents a fledge rate of 0.7 chicks per pair (Table 6). An additional unbanded fledgling was seen on Tern Island on 25 July and 9 August. This bird was fully flighted when first observed and must have been raised elsewhere.

The willow cutting at Oak Point opened up that area considerably making it appear much more suitable as piping plover habitat. Unfortunately, only one breeding pair settled at Oak Point this year so the cut over area remained unused. This area remained quite open well into June but by 18 July (as expected) new sprouts were approximately waist high again. When Bruce Lenning checked this area in September, the willow was 4-5 ft. high and for each plant trimmed, there were 4-5 new sprouts. If we choose to continue this experiment, the willow will need to be trimmed again next spring.

COMMON TERNS

Pine/Curry Island

The main colony was again located on the western half of Tern Island. On 23 May about 60 terns were present. By 6 June several hundred had arrived and some were beginning to incubate. A census on 22 June tallied 177 nests (21-1 egg, 29-2 egg, 127-3 egg). By 10 July, half grown chicks were starting to appear on the beaches. Some were beginning to fly by 25 July. Judging by the number of immature terns seen on the beaches during a second census on 9 August, we estimated that 64 chicks fledged. We also found a few nests still containing eggs but about half of these appeared to be abandoned. In addition, we noted a few small dead chicks. However, there was no evidence of mammalian predation. Given that 1.) no evidence of predation was found, 2.) we seldom walked through the tern colony while surveying plovers, thus minimizing human disturbance, and 3.) there was a lack of severe storms during the nesting season, it is puzzling why there weren't greater numbers of fledglings.

A small group of 3-5 pairs nested at Oak Point. Three nests were found on 27 June and 6 large chicks were observed on the beach on 25 July.

Rocky Point

We found no evidence of nesting by common terns at this site in 1990.

Techout Island, Fourblock island

These sites were not surveyed in 1990.

PREDATOR MANAGEMENT

Mammals

In 1990 Jim Walton continued trapping mammalian predators on Pine/Curry Island. An average of ten traps (2 fox, 8 mink) were set each night from 11 May-18 July for a total of 690 trap nights. One female mink was captured. Jim reported that he observed less predator sign than in previous years. We observed no evidence of nest predation by mammals on the SNA this year except for the depredated plover nest on Morris Point.

Gulls

Ring-billed gulls once again returned to the northwest end of Tern Island where they have attempted to nest previously. This colony site is adjacent to the tern colony and occupies some of the best piping plover habitat on the SNA. As in previous years, we destroyed all gull nests by removing the eggs, obliterating the nest bowl and scattering the nest materials (Table 7). On 6 June we destroyed nests and scrapes of 131 pairs. Over the entire breeding season we destroyed 77 nests with eggs and 187 scrapes. No nests containing eggs were found after 22 June. Despite our deliberate disturbance of the colony site on 15 occasions (Table 7), the gulls were persistent in returning to the site and the adjacent beach throughout the season. The number of gulls loafing on Tern Island beaches increased dramatically during late June through mid July as additional ring-billed gulls, a few herring gulls, and many Franklin's gulls arrived (Table 7). The presence of these large congregations of loafing gulls effectively prevented piping plovers from using many of the best beach habitats on Tern Island. It is interesting to note that in 1988, when only one pair of ring-billed gulls attempted to nest on Tern Island, four pairs of

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pipers had territories on the lake side of Tern Island. Only one male had a territory on the bay side of the island and he was unable to obtain a mate. In 1990, one pair of plovers had a lake side territory (although not in the beach areas preferred in 1988) and two pairs had bay side territories. The lake side pair fledged two chicks while neither bay side pair was successful. This suggests that the presence of gulls on Tern Island is forcing piping plovers to occupy less preferred areas of the island and may be adversely affecting plover reproductive success. To what extent gulls actually prey on eggs and chicks of piping plovers remains unknown.

Eagles

This year the LOTW #9 nest located in a white pine on Pine/Curry Island was occupied. A large chick with well developed wings was seen in the nest on 25 July.

RECOMMENDATIONS

- 1.) Continue to trap mammalian predators during May-July on Pine/Curry Island and Morris Point.
- 2.) Continue to destroy ring-billed gull nests on Pine/Curry Island.
- 3.) Express concern to the International Lake of the Woods Central Board over their maintenance, in some years, of high water levels during the critical nesting months (May-July) for piping plovers. High water levels in combination with storms destroys plover nests and causes major erosion of crucial piping plover habitat.
- 4.) Continue for at least one more year the experimental cutting of willow vegetation along a 50m section of upper beach on the north side of Oak Point to increase piping plover

nesting and brood rearing habitat.

- 5.) Add an additional sanctuary area at "Middle Curry" (see Fig. 1). Typically, one pair of piping plovers attempts to nest in a rather localized portion of this beach each year. Currently, this area is not protected from human disturbance. Closure of approximately 200m of beach and associated dune habitat would benefit the plovers while still leaving large expanses of beach for the use of fishermen, nature observers, etc.
- 6.) Continue to distribute brochures and information to resort owners and DNR personnel in the vicinity of LOTW to encourage compliance with sanctuary regulations.
- 7.) Meet with enforcement personnel to communicate the need for stricter enforcement of the no trespass regulations on sanctuary areas.
- 8.) Experiment with the use of small wire mesh predator exclosures placed around piping plover nests. Wire mesh exclosures of various types (e.g., Rimmer and Deblinger, 1990) have been used at several locations on the Great lakes and Atlantic Coast and have greatly increased piping plover hatching success. We suggest trying exclosures initially in areas such as Morris Point which have experienced poor hatching success in recent years.

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LITERATURE CITED

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- Rimmer, D. W. and R. D. Deblinger. 1990. Use of predator exclosures to protect piping plover nests. *J. Field Ornithol.* 61:217-223.
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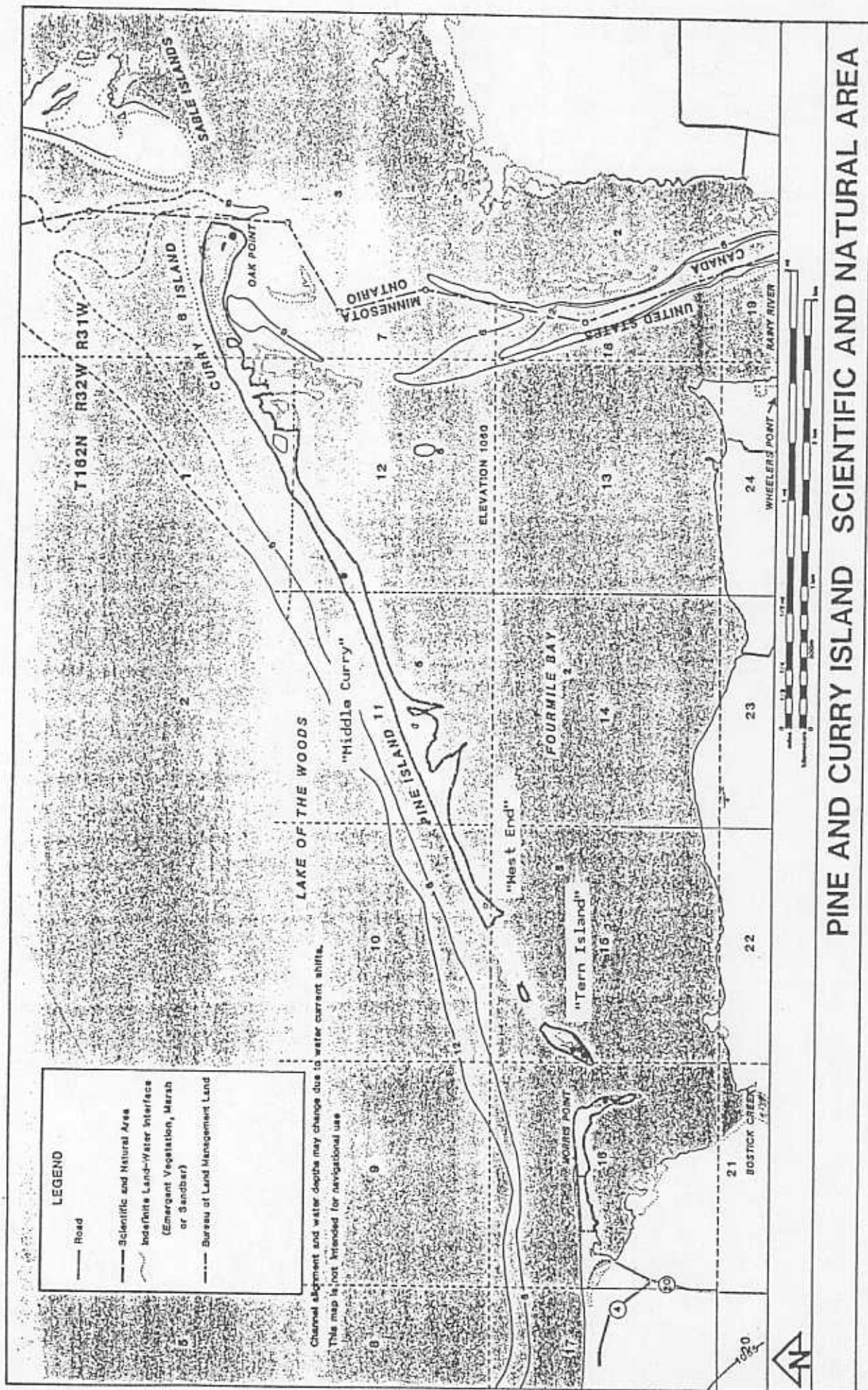


Figure 1. Nest site locations, 1990. • = nest

Table 1. Number of days spent on Pine/Curry Island and/or Rocky Point - 1990.

Date		Maxson	Haws	Lenning	Other	No. of Person-days
May	10	x		x	2	4
	22	x				1
	23	x				1
June	6	x				1
	7	x				1
	14	x				1
	15	x				1
	22	x	x	x	2	5
	27	x				1
	28	x	x			2
July	2	x				1
	10	x				1
	11	x				1
	18	x				1
	25	x				1
Aug	4	x			x	2
	9	x	x	x		3
Total						28

Table 2. Monthly mean water levels (ft. above sea level) at Lake of the Woods, 1982-1990.

	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 / <u>1</u>	--	--	--	--	
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
Mean	1059.2	1059.7	1060.6	1060.0	

/1 1987 data are not available.

Table 3. Adult piping plovers given new band combinations in 1990.

Band number / <u>1</u>	Old band combination	New band combination	Sex	Location	Date
901-39444	BA: - / <u>2</u>	FA: -	F	Tern Island	6-10-90
901-39446	GA: -	FA:GG	M	Tern Island	6-10-90

/1 These birds were originally banded as chicks on Pine/Curry Island in 1988.

/2 Bands are read left leg top to bottom: right leg top to bottom. B=blue, G=green, F=green international flag, A=USFWS band.

Table 4. Population summary of piping plovers from 1982-90 at Lake of the Woods, Minnesota. /1

Year	Breeding Birds				Non-breeders	Total
	Pine/ Curry Is.	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

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

Table 5. Reproductive success of piping plovers in 1990 by breeding location.

	Morris Point	Tern Island	Middle Curry	Oak Point	Rocky Point	Total
No. Nests	1	3	1	1	1	7
No eggs hatched	0	7	0	4	0	11
No. chicks fledged	0	2	0	2	0	4

Table 6. Reproductive success of piping plovers at Lake of the Woods, Minnesota from 1982-1990. /1

Year	Chicks fledged	Chicks fledged/pair
1982	26	1.7
1983	44	2.1
1984	13	0.6
1985	7-10	0.4-0.5
1986	9	0.8
1987	2-21	0.3-3
1988	12-15	1.0-1.25
1989	1	0.1
1990	4	0.7

/1 1982-1984 data from Wiens 1986.
1985-1987 data from Haig and Oring 1987.

Table 7. Number of ring-billed gull nests destroyed on Tern Island, 1990.

Date	Nest contents				Estimated no. of gulls present /2
	Scrape	1 egg	2 eggs	3 eggs	
May 22	0	0	0	0	20
23	2	0	0	0	35
June 6	81	18	17	15	350
14/1	--	--	--	--	21
15	--	--	--	--	150
18/1	--	--	--	--	2
22	48	1	2	1	200
27	--	--	--	--	400
July 2	--	--	--	--	800
10	--	--	--	--	1,900
11	56	0	0	0	--
18	--	--	--	--	600
25	--	--	--	--	170
Aug 4	--	--	--	--	200
9	0	0	0	0	250
Total	187	19	19	16	23

/1 Nests were destroyed by the contract trapper.

/2 All gull estimates except 22,23 May and 15 June include Franklin's Gulls.