

1989 STATUS AND BREEDING SUMMARY OF PIPING
PLOVERS AND COMMON TERNS AT LAKE OF THE WOODS,
MINNESOTA

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PIPING PLOVERS

Methods

In 1989 we made 11 trips to Lake of the Woods (LOTW) between 11 May and 15 August (Table 1). We made regular observations at Morris Point and Pine/Curry Island while Zippie Bay (18 May) and Rocky Point (15, 29 June, 18 July, 15 August) were visited less frequently. 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. We attempted to capture unbanded adults or birds in need of new color bands by nest trapping after incubation was well underway. Chicks were captured by hand or with a butterfly net when 1-17 days old. Each chick was banded with a USFWS band and one color band above it on the same leg. Chicks from different broods were given different colors.

Results

1989 can be characterized as having the lowest total population and the lowest reproductive success since studies of this population of piping plovers began in 1982. In 1989, water levels at LOTW were 2-4 feet higher than they were in 1988 (Table 2). This initially decreased beach size in all of the traditional piping plover habitats on Morris Point and Pine/Curry Island. As water levels continued to increase into July and peaked at 1061.8, beaches became even smaller (in some cases nonexistent). Entire beaches traditionally used as nesting sites were washed over by storm waves repeatedly during the season. Extensive beach erosion also occurred. The large spit at Oak Point which fledged two broods of piping plovers in 1988 was completely under water in 1989. About 200-300m of Pine Island, just east of "Tern Island", which had two plover nests and fledged

several chicks in 1988 eroded away completely. In fact, in July, boats were motoring through the area that had once been island. The extent of this erosion can be seen by comparing maps made from aerial photos taken in 1987 and 1989 (Fig. 1). Lake levels in 1985 were similar to those of 1989 (Table 2) but beach erosion was not nearly as severe in 1985. In addition to the high lake levels this year, several heavy rains, particularly one of 5 inches on 5-6 July, flooded portions of the island temporarily, further reducing habitat and/or flooding nests.

In 1989 we rebanded one adult and banded two chicks (see Table 3 and attached banding schedule). Although ten adult plovers were unbanded or in need of replacement bands, the rapid disappearance of nests prevented us from nest trapping more than one.

On our initial visit to Pine/Curry Island (11 May), when ice was still visible on the main body of the lake, only a few plovers were present but by 18 May essentially all the breeding birds had arrived. A total of 22 adult piping plovers were present this year (Table 4). This was a decrease from 30 in 1988 and was probably due, at least in part, to the high water levels/reduced breeding habitat present in 1989. At least two chicks from 1988 returned. One of these was a breeding bird this year at Rocky Point. The seven breeding pairs on Pine/Curry Island were distributed as follows: Tern Island = 3 pairs, Oak Point = 2 pairs, Middle Curry = 2 pairs. (See Fig. 2 for a geographic breakdown of the island). Some pairs changed territories after their nest failed. The pair on Morris Point moved to Tern Island for a time before departing altogether. A pair at "West End" also moved to Tern Island and later to Middle Curry. A pair at Middle Curry moved to Oak Point. A female from Tern Island was seen at both Rocky Point and Oak Point whereas her mate remained on Tern Island.

We located ten nests between 31 May and 7 July (Table 5) (Fig. 2). We believe, based on behavior of the birds and evidence of storm waves washing over beaches, that three, possibly four, additional nests were washed away before we could locate them. Of the ten nests found, five (1-Morris Point, 2-Oak Point, 1-Rocky Point, 1-Tern Island) were washed away or flooded by heavy rains. Two more were depredated (1-Rocky Point, 1-Middle Curry) by unknown predators. One Tern Island nest was abandoned at the one egg stage possibly because ring-billed gulls began moving into this area to nest. The remaining two nests (1-Tern Island, 1-Middle Curry) hatched a total of three chicks. Only one of the chicks from Tern Island survived to fledging age. This was a fledge rate of only 0.1 chicks per pair (Table 6).

COMMON TERNS

Tern colonies in LOTW were surveyed at least twice in 1989 in order to assess numbers of nests as well as fledging success at each site.

Pine/Curry Island

No terns were present during our initial visit on 11 May but many of the birds had returned by 17 May. The main colony was located on the western half of Tern Island at the traditional site. A census on 13 June found 113 nests (19 -1 egg, 39 - 2 egg, 55 - 3 egg). The initial nesting attempts apparently were unsuccessful. Although some nest predation occurred, many of the nests were flooded by a 5 inch rain on 5-6 July. On 18 July we noted numerous new tern nests on higher ground and further east on Tern Island than the original nests had been. A second census on 15 August found only one chick near fledging age.

We also found evidence of 49 eggs that had hatched and 34 that had been depredated. In addition, we found 46 active nests containing eggs, 53 abandoned nests with eggs intact, and 12 nests containing a combination of eggs and dead chicks. The number of dead chicks totaled 24. We also observed nine chicks that had hatched within the previous five days. We suspect that the changing photoperiod and/or a lack of food may have led to the high level of nest abandonment during this renesting attempt. We believe it is unlikely that any chicks fledged from these late nests.

A smaller colony of about ten pairs nested at Oak point. Seven nests were found there on 18 July but no chicks fledged.

Rocky Point

During our initial visit on 15 June we observed 50-60 terns in a small colony. We found numerous scrapes but only two 1 egg nests. Five depredated eggs were also noted. On 29 June we found 28 nests (6 - 1 egg, 11 - 2 egg, 11 - 3 egg) plus numerous scrapes. These nests were unsuccessful. When we checked the area on 18 July the colony had moved about 100m east where we found 48 nests (11 - 1 egg, 23 - 2 egg, 14 - 3 egg). These nests were also unsuccessful as we observed no chicks on 15 August.

Techout Island

On 14 June we estimated this island to have approximately 2,000 ring-billed gull nests. Gulls were present virtually everywhere on the island except for a small area on the southwest side which contained a tern colony where we found 237 nests (80 - 1 egg, 76 - 2 egg, 79 - 3 egg, 2 - 4 egg). Fifty nests were

found during a second visit on 1 August. These were no doubt renests. In addition, 50 unfledged chicks of various age were seen as well as 50 flying young. We estimate that this colony fledged about 100 chicks in 1989.

Over the long run, it seems likely that nesting terns will be crowded off this island by the very numerous ring-billed gulls.

Fourblock Island

On 14 June we observed no terns present. This was likely due to the high water levels which inundated the beach areas normally used by nesting terns.

PREDATOR MANAGEMENT

In 1989 Jim Walton continued trapping mammalian predators on Pine/Curry Island. An average of 15 traps were set each night from 21 May through 16 July for a total of 855 trap nights. The main trapping areas included Morris Point, Tern Island, West End, and Oak Point. Three male and one female mink were taken.

Ring-billed gulls returned in numbers to Tern Island this year and attempted to breed on the northwest end of the island. Unfortunately, this colony site is also prime habitat for piping plovers. The first gull nest was found on 31 May. Thereafter, we destroyed all gull nests found (Table 7) by collecting and burying eggs and by obliterating the nest bowl and scattering the nest materials. There appeared to be about 100 gulls attempting to breed in this colony and in spite of our disturbance they were very attached to the site and would return as soon as we had moved off 100m or so. In addition, the number of gulls loafing on the available beaches rose dramatically during the season.

The peak occurred during early July. During our 7 July visit, 2,000-3,000 gulls (including Franklin's gulls) were present on Tern Island. Another 2,000 or so were on Morris Point and an equal number were on Oak Point. Thus, in early July when piping plover chicks would normally be present, all the principal beaches favored by piping plovers were densely covered with gulls. It seems very unlikely that plover chicks could have used any of these beaches without being preyed upon.

In contrast to 1988, virtually no crows or ravens were observed in areas used by piping plovers or common terns this year.

CONCLUSIONS AND RECOMMENDATIONS

1989 represented the eighth year of research on piping plovers at LOTW. High water levels resulted in beach erosion and loss of habitat. Only 22 plovers were present - the lowest number since this research began. Fledging success was also the lowest recorded as only one chick survived.

We recommend several management actions:

- 1) Express concern to the International Lake of the Woods Control Board over their maintenance of high water levels during the critical nesting months for piping plovers.
- 2) Continue to trap mammalian predators during May-July on Pine/Curry Island and Morris Point.
- 3) Continue to destroy ring-billed gull nests on Pine/Curry Island.

- 4) Remove the 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.

ACKNOWLEDGEMENTS

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LITERATURE CITED

Haig, S. M. and L. W. Oring. 1987. Population studies of Piping Plovers at Lake of the Woods, Minnesota, 1982-1987. *Loon* 59:113-117.

Wiens, T. P. 1986. Nest site tenacity and mate retention in the piping plover (*Charadrius melodus*). M.S. Thesis, University of Minnesota-Duluth, 34pp.

Table 1. Number of days spent on Pine/Curry Island - 1989.

Date	Maxson	Haws	Drewes	Lenning	<u>Nongame MCC</u>		No. of person-days
					1	2	
May 11	X	X					2
17	X	X					2
18	X	X					2
31	X	X					2
June 1	X	X					2
8	X		X				2
9	X		X				2
13	X	X		X	X	X	5
22	X		X				2
29	X	X	X				3
July 7	X	X					2
18	X	X					2
25	X		X				2
Aug 15	X	X		X	X		4

Total 34

Table 2. Mean water levels (ft. above sea level) at Lake of the Woods, 1982-1989.

	May	June	July	August
1982	1059.3	1060.0	1060.1	1060.3
1983	1058.7	1059.0	1059.8	1059.7
1984	1058.9	1059.6	1060.5	1060.6
1985	1060.3	1061.0	1061.5	1061.0
1986	1060.6	1060.6	1060.5	1060.1
1987 /1	--	--	--	--
1988	1057.8	1057.9	--	1057.9
1989	1059.6	1060.5	1061.5	1060.9

/1 1987 data are not available.

Table 3. Adult Piping Plovers given new band combinations in 1989.

Band Number	Old band combination	New band combination	Sex	Location	Date
951-54089 / <u>1</u>	-:A	RR:FA / <u>2</u>	F	Oak Point	6-9-89

/1 This bird was originally banded as a chick on Pine/Curry Island in 1983.

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

Master Permit No. 08035

Banding Schedule
3-860 (Rev. 1985)

Master Permittee L. W. Oring, Dr.

REPORT ONLY CONTINGUOUS
BAND NUMBERS

THROUGH 901-31456

FROM 901-31455

INCLUSIVE BAND NOS.

Pine & Curry Island, 4 mi N. Hackett —Banding Locations—

A Lake of the Woods Co., MN D

B E

C F

BAND PREFIX	COMMON NAME	ADU #	STATUS	AGE-SEX	REGION	LAT-LONG	LOC	DATE
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Table 4. Population summary of Piping Plovers from 1982-89 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

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

Table 5. Reproductive success of Piping Plovers in 1989 by breeding location.

	Morris Point	Tern Island	Middle Curry	Oak Point	Rocky Point	Total
No. nests	1	3 / <u>1</u>	2	2 /2	2	10
No. eggs hatched	0	2	1	0	0	3
No. chicks fledged	0	1	0	0	0	1

/1 likely were two additional nests washed away before we found them.

/2 likely was one additional nest washed away before we found it.

Table 6. Reproductive success of Piping Plovers at Lake of the Woods, Minnesota from 1982-89. /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

/1 1982-84 data from Wiens 1986.

1985-1987 data from Haig and Oring 1987.

Table 7. Number of ring-billed gull nests destroyed on Tern Island, 1989.

Date	Scrape	Nest Contents			Estimated number of gulls present / <u>1</u>
		1 egg	2 eggs	3 eggs	
May 18	--	--	--	--	2
31	--	1	--	--	15
June 1	--	--	--	--	40-50
8	29	8	1	0	100
13	56	5	2	0	(no count)
22	54	6	9	2	280
29	45	1	0	1	several hundred
July 7	15	0	0	0	2,000-3,000
18	12	0	1	0	500
25	0	0	0	0	100
Total	211	21	13	3	

/1 Gull estimates for 22, 29 June, and 7 July include Franklin's gulls.

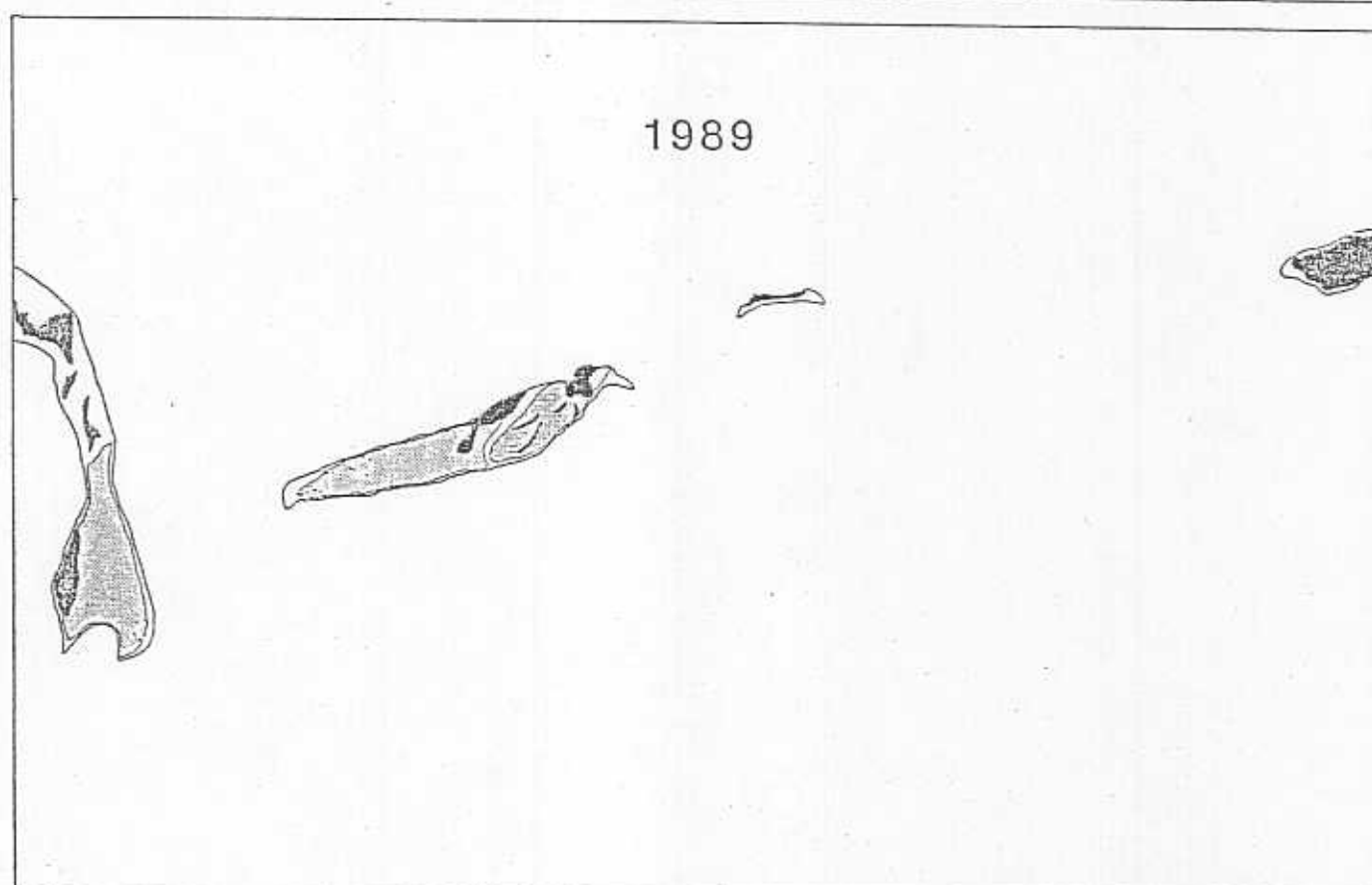
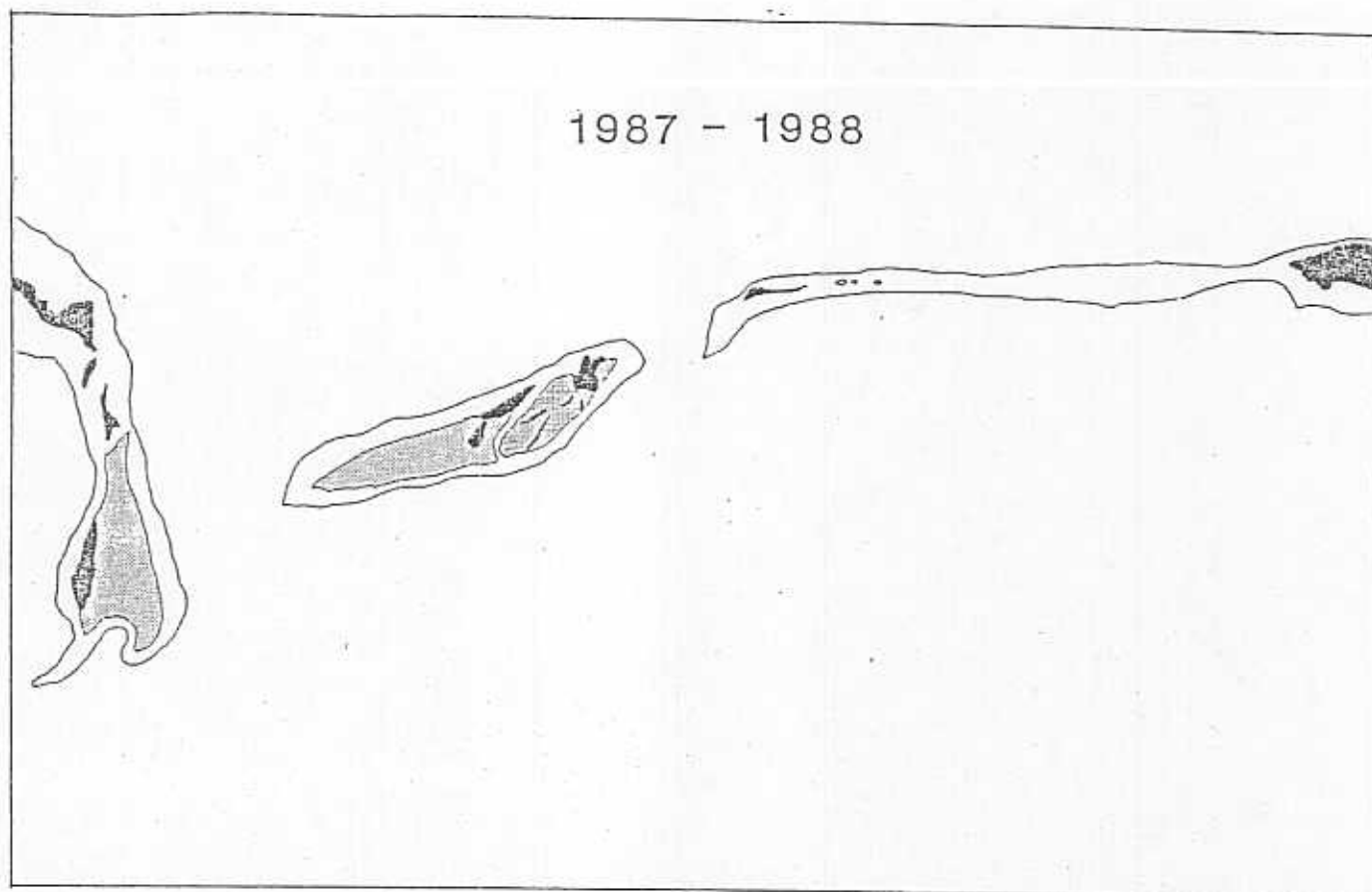
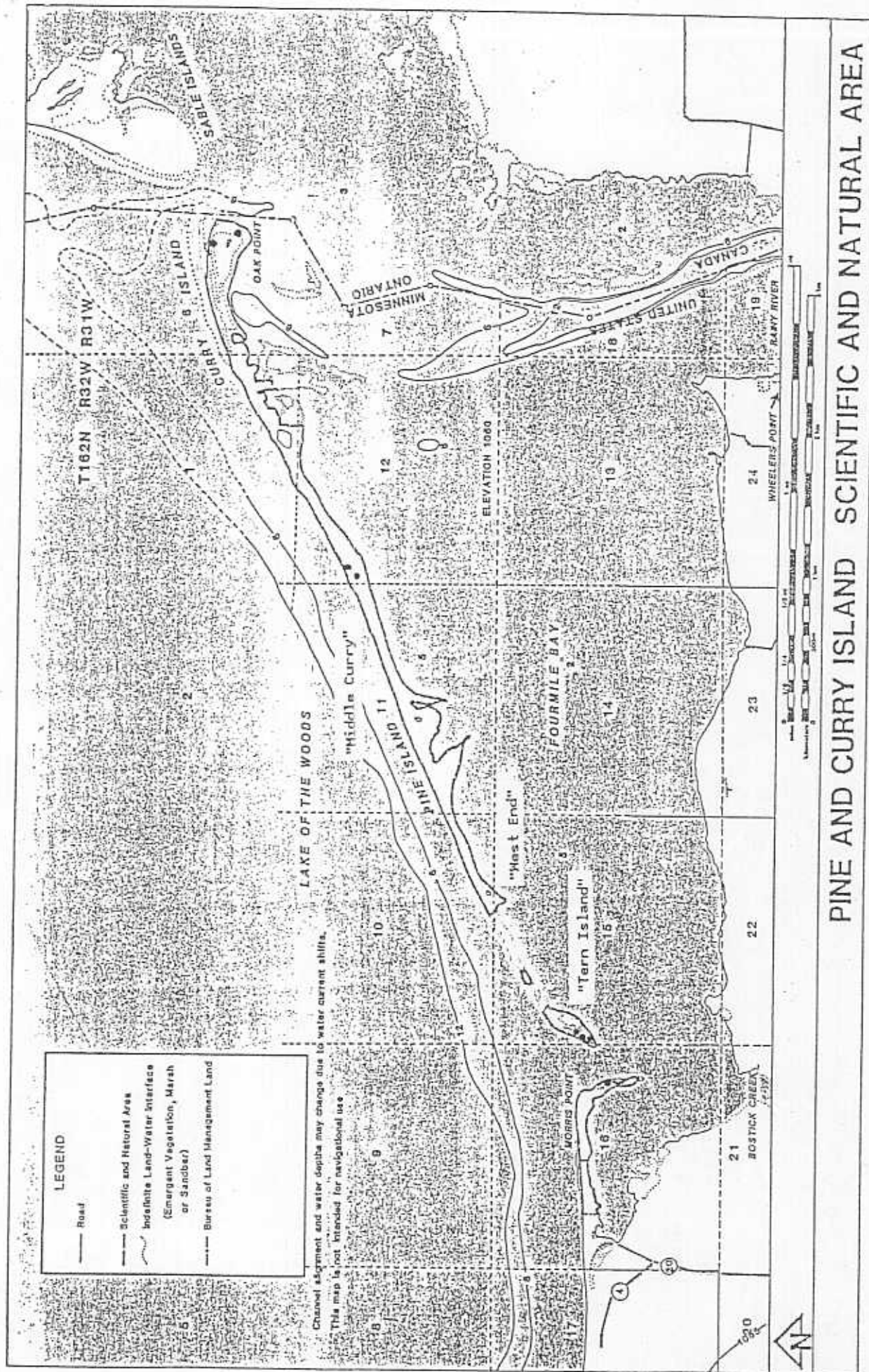


Figure 1. Configuration of the western portion of Pine/Curry Island, and Morris Point during 1987, 1988 and 1989.



PINE AND CURRY ISLAND SCIENTIFIC AND NATURAL AREA

Figure 2. Nest site locations, 1989.

• = nest