CHRONOLOGY OF WATERFOWL MIGRATION

duplicate

Spring, 1972

Ross Hall
Andrew MacInnis

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by

Ross Hall and Andrew MacInnis

Canadian Wildlife Service
Sackville, New Brunswick

Foreword

Observations at the John Lusby National Wildlife Area and Amherst Point Sanctuary were by Ross Hall. Observations at the Tintamarre National Wildlife Area, Cole's Island and Ram Pasture were by Andrew MacInnis. The Shepody area and the Missaquash were observed by both Hall and MacInnis.

The written report for the John Lusby, Amherst Point, the Shepody area, and the Missaquash is by Hall (Parts I - IV). The written report for the Tintamarre National Wildlife Area, Cole's Island and Ram Pasture is by MacInnis (Parts V - VII).

Chronology of Waterfowl Migration

Spring, 1972

by

Ross Hall

I Amherst Point Bird Sanctuary

II John Lusby National Wildlife Area

III Shepody National Wildlife Area and surrounding coastal areas

IV Missaquash

I Amherst Point Sanctuary

Procedure

Amherst Point Sanctuary was visited on 14 occasions from March 20 to May 17, 1972. Surveys were done, similarly to those of 1971, by walking about the sanctuary and choosing vantage points which best allowed the observation of waterfowl with a minimum of disturbance.

Results

The results are presented in table or figure form. Table 1 lists the species and numbers of waterfowl that were observed on the different observation dates at Amherst Point. Tables 2 through 5 are a break-down of the total numbers of black duck, pintail, green-winged teal and ring-necked duck into number of pairs and number of males and females. Black duck total numbers are not separated into sexes.

Figures I to IV graph the numbers of black duck, pintail, green-winged teal and ring-necked duck against the observation dates and day length. Numbers in 1971 are also graphed for comparison.

Figures Va to Vd depict the manner by which areas of open water appeared at Amherst Point. The beginning of the freshet (Figure Vb) occurred on April 28 with the flooding of the "common pasture" area at Amherst Point.

Ice over the ponds was about half gone on May (Figure Vc) and completely gone on May 17 (Figure Vd). Flood waters over the "common pasture" area had receded by May 17.

Compared to 1971 the beginning of the freshet in 1972 was approximately three weeks later. In 1971 the freshet began on April 5. Ice in 1971 was completely gone from the ponds by April 21.

Appendix I gives climatological data.

Table 6 lists observations of waterfowl courtship behaviour at Amherst Point.

Discussion

On April 28 large numbers of black duck, pintail, and green-winged teal were found on the flooded "common pasture" area of the Amherst Point Sanctuary. In the few days prior to this, large numbers of these birds had arrived at the John Lusby National Wildlife Area, and had availed themselves of the first opportunity to move onto the flooded inland area.

The large numbers of waterfowl did not remain long at Amherst Point. The sharpness of the peaks in Figures I to III depict this. Non-local birds, having been delayed by the abnormally late spring, were apparently anxious to continue their migration.

Ring-necked ducks and other diving waterfowl arrived at the Amherst Point Sanctuary, for the most part, after

May 1, when the ice on the ponds was starting to go out. Figure IV shows a later arrival of ring-necked ducks in 1972 than in 1971.

From Figures I to IV it can be seen that peak numbers of waterfowl in 1972 appear much higher than in 1971. This does not necessarily mean that total waterfowl populations were higher in 1972. In 1971 several smaller flocks of waterfowl could have passed through over a longer period of time, for the same total number as in 1972, rather than in a great rush late in the spring.

Canada geese made more use of the sanctuary in 1972 than in 1971. From March 20 to April 24, geese were frequently observed about the small areas of open water (Figure Va) that were kept open by faster currents. Hard times at the John Lusby National Wildlife Area because of the very late spring appears to have necessitated the geese to frequent Amherst Point Sanctuary. Both loafing and feeding behaviour were observed.

Table 1. Species and numbers of waterfowl at Amherst Point Sanctuary - Spring 1972

Species	March				April					May				
	20	23	27	29	4	5	10	17	24	28	1	5	8	17
Black duck	1		18	1		2		2	16	116	75	22	25	4
Am. widgeon										2	19	12	5	4
Pintail			6							113	40	22	8	
Green-w. teal										150	48	58	70	
Blue-w. teal										2	5	7	8	11
Ring-n. duck									2	5	22	15	56	35
Lesser scaup												4	6	
C. goldeneye	1	1	2	1								1		
Bufflehead												2	2	
C. merganser					1				5		4	3	4	
Red-b. merganser									2	7	24	12	7	2
Canada goose			12	32	24	27	4	45		6	6		9	
Totals	2	1	38	34	25	29	4	47	25	401	243	158	200	56

Table 2. Black duck total number, number of pairs and per cent paired on each observational date at Amherst Point Sanctuary - Spring 1972

Date	Total number	Number of pair	Per cent paired
March 20	1	0	0
23			
27	18	5	56
29	1	0	0
April 4			
5	2	1	100
10			
17	2	1	100
24	16	2	25
28	116	46	80
May 1	75	27	72
5	22	8	73
8	25	10	80
17	4	1	50

Table 3. Pintail - Total number, number of pairs, per cent paired and number of male and female on each observation date at Amherst Point Sanctuary - Spring 1972

Date		Total number	Number of pairs	Per cent paired	Number of male	Number of female
March	20					
	23					
	27	6	2	67	4	2
	29					
April	4					
	5					
	10					
	17					
	24					
	28	113	49	87	64	49
May	1	40	15	75	25	15
	5	22	6	54	16	6
	8	8	3	75	5	3
	17					

Table 4. Green-winged teal - Total number, number of pairs, per cent paired and number of male and female on each observation date at Amherst Point Sanctuary - Spring 1972.

Date		Total number	Number of pairs	Per cent paired	Number of male	Number of female
March	20					
	23					
	27					
	29					
April	4					
	5					
	10					
	17					
	24					
	28	150	75	100	75	75
May	1	48	24	100	24	24
	5	58	29	100	29	29
	8	70	35	100	35	35
	17					

Table 5. Ring-necked duck. Total number, number of pairs, per cent paired and number of female and male on each observation date at Amherst Point Sanctuary - Spring 1972

Date	Total number	Number of pairs	Per cent paired	Number of male	Number of female
March 20					
23					
27					
29					
April 4					
5					
10					
17					
24	2	1	100	1	1
28	5	2	80	3	2
May 1	22	8	73	13	9
5	15	7	93	8	7
8	56	24	86	32	24
17	35	14	80	21	14

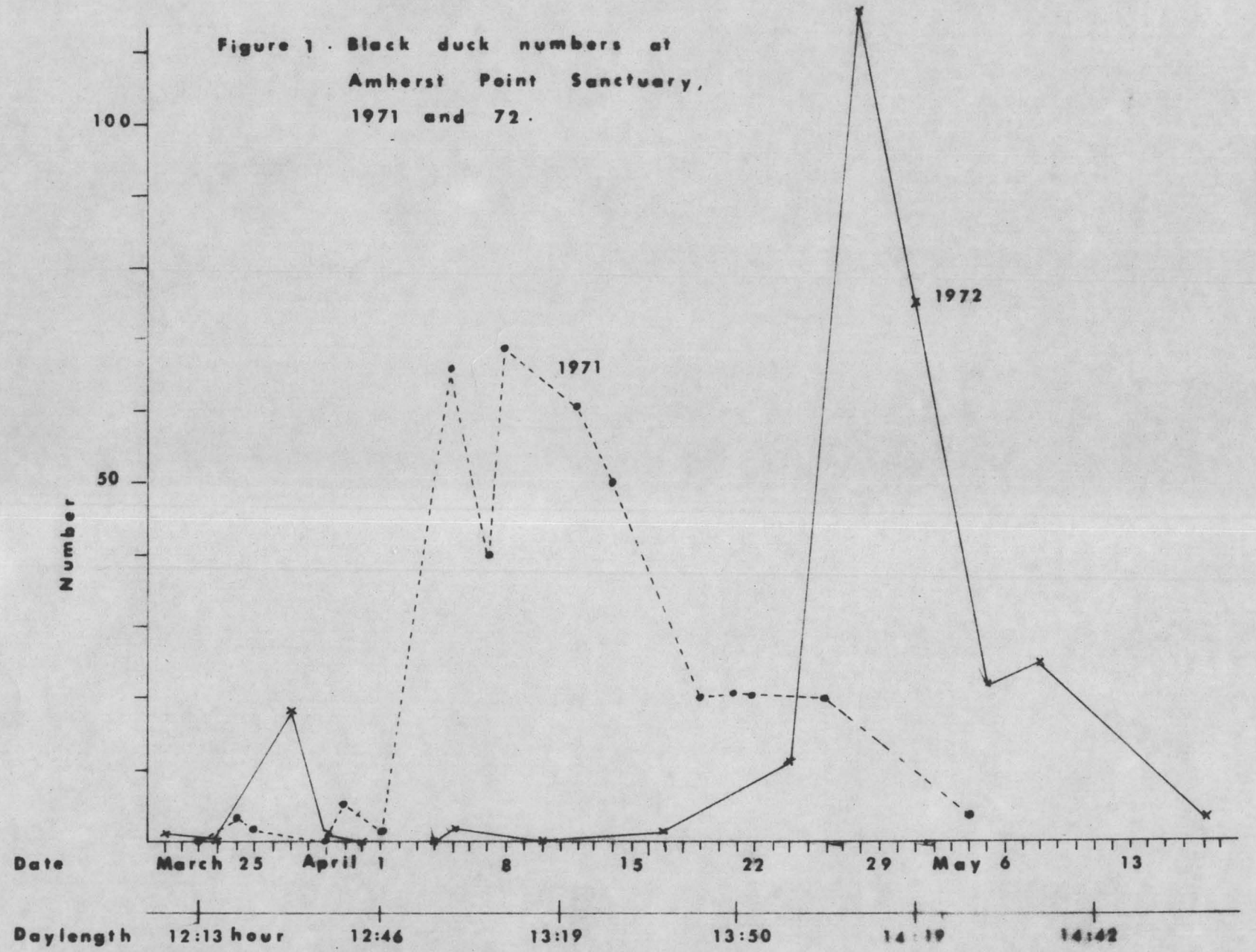
Table 6. Observations of waterfowl courtship behaviour at Amherst Point Sanctuary - Spring 1972

Date	Observation
March 27	Four male, two female, 18 black duck (5 pair) on open water by outlet of ponds. Occasional short chase ("thrust") and "wing flap" amongst blacks. Pintails sitting on edge of ice in following positions:  A lone male apart and facing pairs
April 26	About 100 pintails with females all or mostly paired. About one single male pintail for every three pairs. Lone males attempting to horn in on paired females. Aerial flight of pintails positioned as follows:  About 100 blacks mostly in pairs. A few single blacks seemingly males. Pairs mostly separated and alone. Observed a group of nine blacks "strutting" about and appeared to be males. Within group a few "thrusts" and "grunt-whistles". About 150 green-winged teal. Much peeping noise which is a part of their "grunt-whistle" display. "Grunt-whistles" and chases were frequent. All birds seemed paired and the sex ratio 1:1.
May 1	Four blacks together. One black loafing. Two birds facing and bobbing their heads intensely. A fourth black watching the pair and following closely. Three blacks circling over Sanctuary for several minutes. Appeared that trio composed of a pair and a lone male. Mated male at times flying close to female with lone black following or mated male attacking lone male (grabbing at other bird). A loud quacking at times. This circling behaviour was observed three times while at area. Once a fourth black following trio at a distance. Three blacks on water. One black observed to chase lone male with head stretched over water ("sneak").

Table 6. Observations of waterfowl courtship behaviour at Ahuriri Point Sanctuary - Spring 1972 (continued)

Date	Observation
May 5	A female pintail twice observed to rise a few feet over water and drop heavily into water. Its mate continued to feed during this.
	A lone male pintail observed to be dipping bill in water and splashing water over its back.
	A pair of blacks with one bird bobbing its head.
May 17	A male blue-winged teal observed to chase another male in an aerial chase. Later a female was observed flying after the two males, again in aerial chase.
	Four blacks circling high over Sanctuary. One bird dropped away and a minute later another bird dropped away and flew to area where first black landed.

Figure 1 . Black duck numbers at Amherst Point Sanctuary, 1971 and 72 .



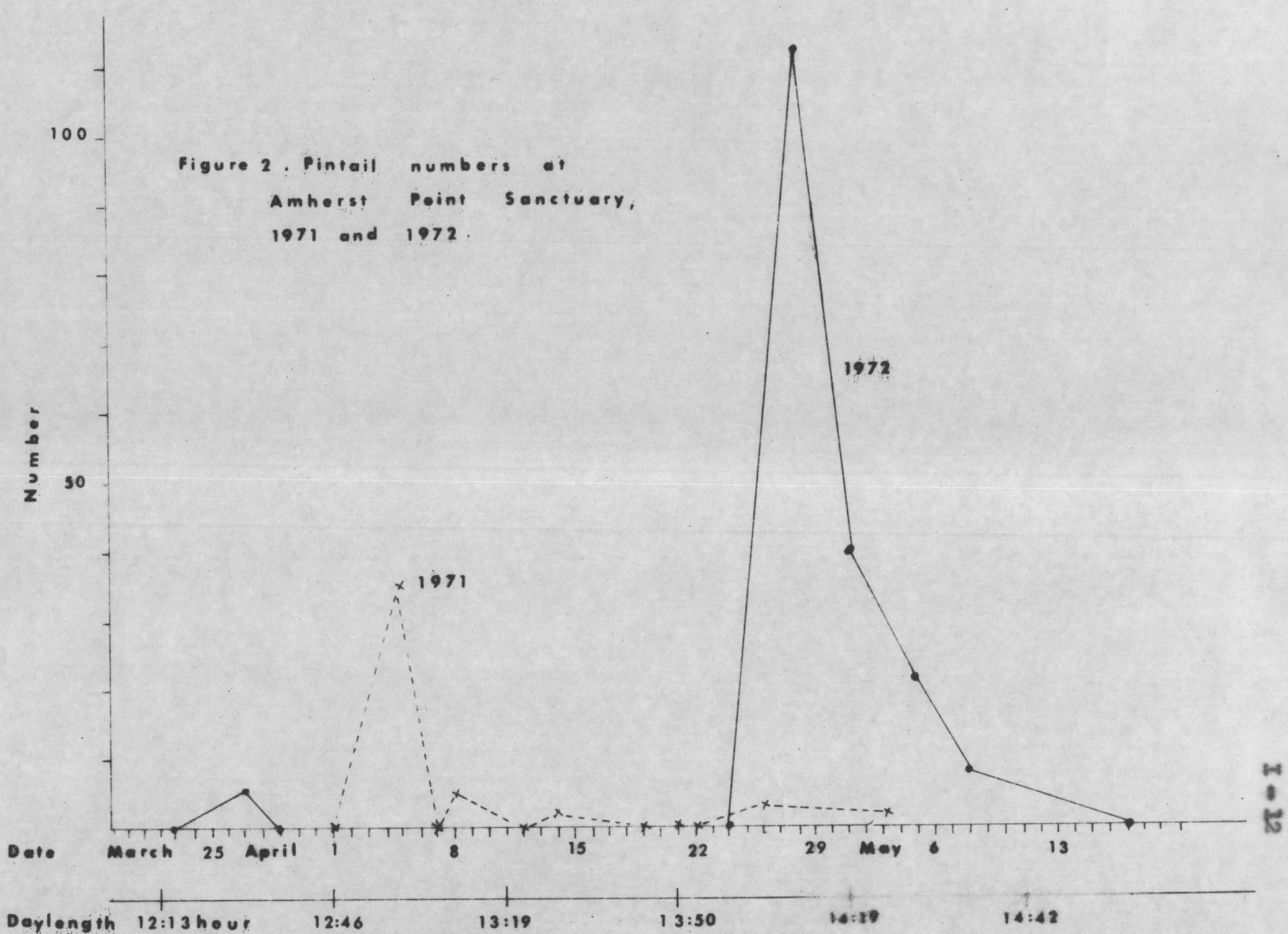


Figure 2. Pintail numbers at Amherst Point Sanctuary, 1971 and 1972.

Figure 3 Green-winged teal numbers at Amherst Point Sanctuary, 1971 and 72.

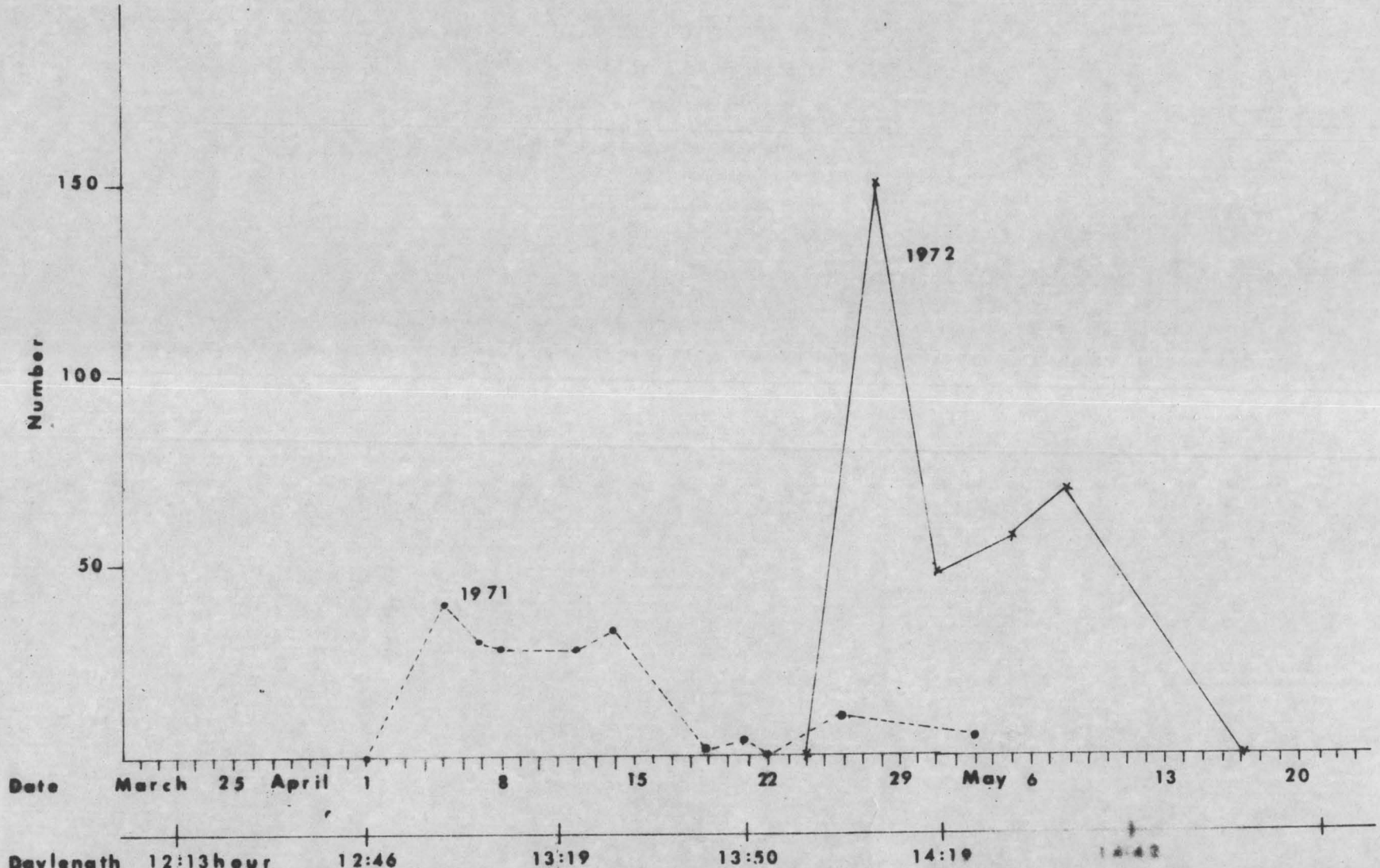


Figure 4. Ring-necked duck numbers at Amherst Point Sanctuary, 1971 and 1972.

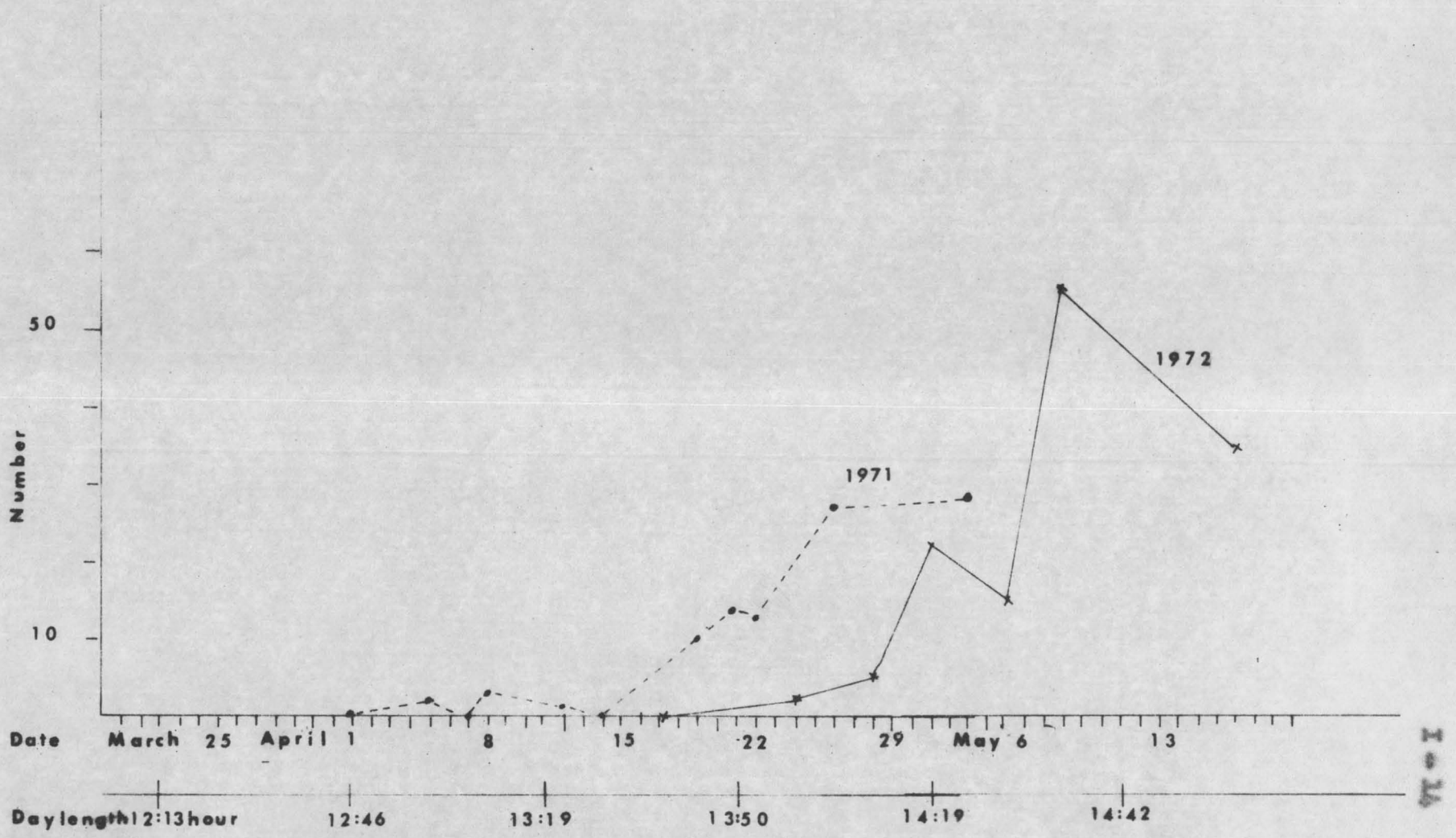


Figure 5a Amherst Point Sonctuary. Areas open water March 27, 1972.

Figure 5b. Amherst Point Sanctuary. Areas open water, April 28, 1972.

Figure 5c. Amherst Point Sanctuary - Areas open water, May 5, 1972.

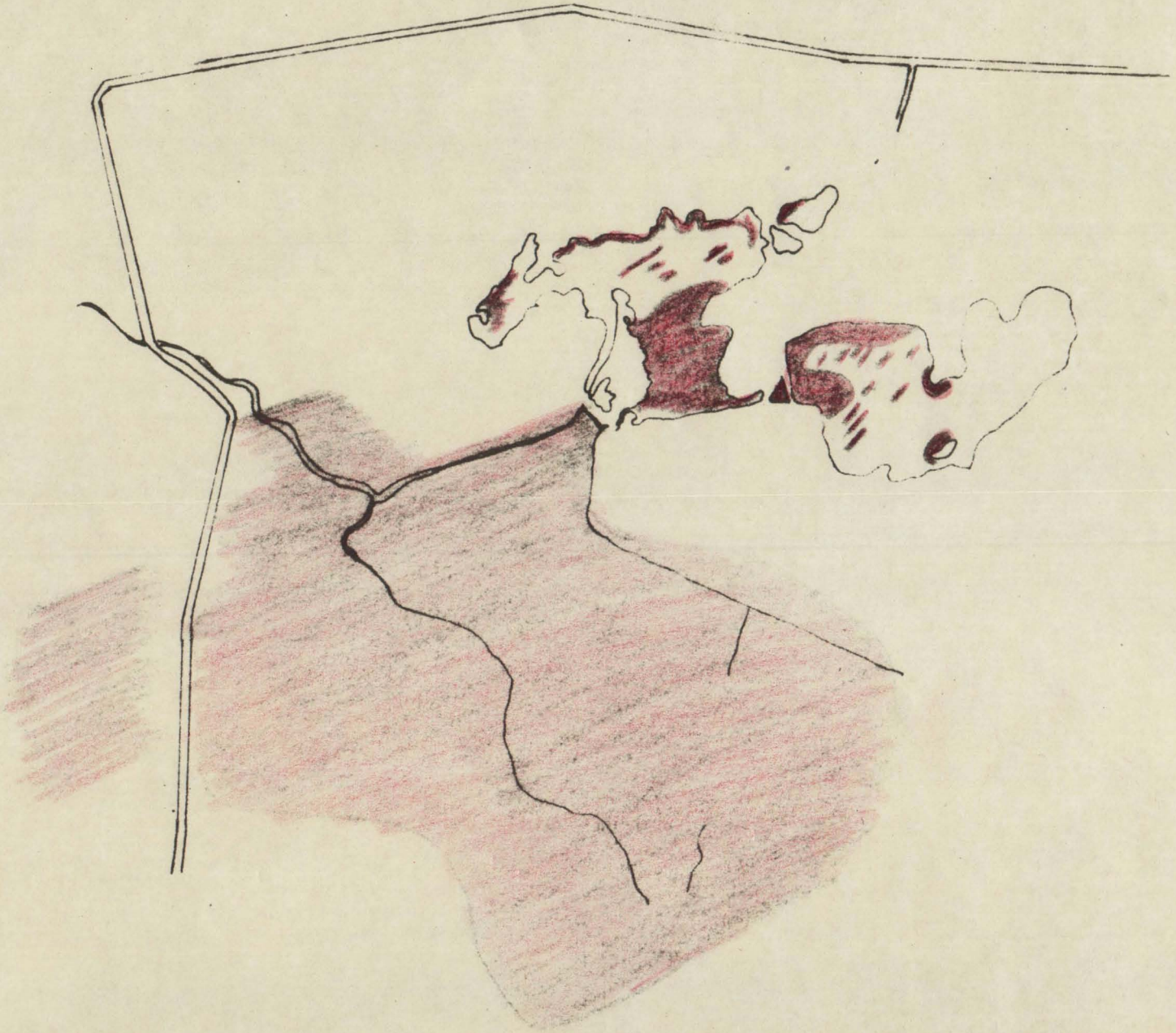
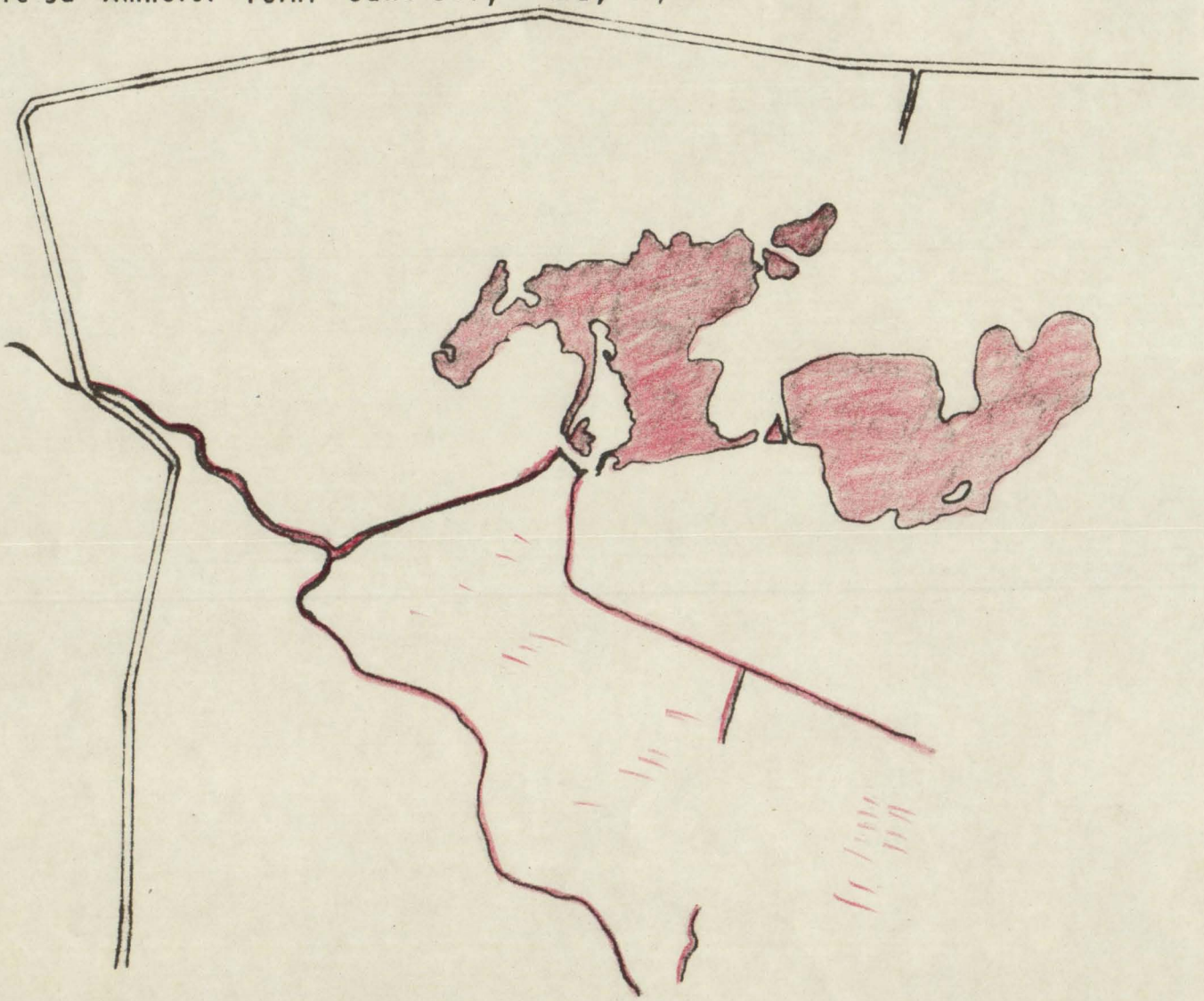


Figure 5d. Amherst Point Sanctuary. May 17, 1972.



II John Lusby National Wildlife Area

Procedure

The John Lusby National Wildlife Area was viewed with a 25x spotting scope from the vantage points indicated in Figure I. Counts were usually made at high tides so as waterfowl in tidal creeks would be visible. Counts began on March 18 and ended May 17.

Results

Table 1 lists the species and numbers of waterfowl that were observed on the different observation dates.

Table 2 lists black duck total number, number of pairs and per cent paired.

Figures II, III and IV graph numbers of Canada geese, black duck, and green-winged teal respectively against date and day length. For comparison, the numbers in 1969, 1970 and 1971 are graphed with the 1972 counts. Numbers in 1969 and 1970 are from VanZoest (1970) and numbers in 1971 from Hall (1971).

Table 3 lists observation of waterfowl behaviour.

Low temperatures and several snowfalls (Appendix I) delayed the removal of snow and ice from the John Lusby National Wildlife Area. On March 14 to 20 a series of high tides flooded the marsh. Most snow was then flushed from

the marsh, but ice remained over the salt pans. Following these high tides, however, snowfall quickly re-covered the marsh and it remained so until a second series of high tides from April 12 to 16. By April 17 most snow was gone and most salt pans contained open water. The large salt pan near the camp, however, was not completely free of ice until April 26.

Discussion

Canada geese had a very difficult time because of the snow cover on the marsh. From a short time after the geese arrived on March 22, until April 17, there was virtually no food available. Many geese remained inactive on the marsh sitting and facing the wind. Others fed on the few plants that were exposed along wind-swept areas, such as on the tops of dikes.

By April 5 reports began to reach the Canadian Wildlife Service office, Sackville, of dead and weakened geese. From this time until the salt marsh began to clear, Keith McAloney (Ducks Unlimited, Amherst) and myself hauled approximately 4000 pounds of oats by ski-doo onto the John Lusby marsh. During our trips onto the marsh, three goose carcasses were found and six other weakened geese were caught by hand. Local residents reported capturing or observing others.

On April 10 at sunset 2000 Canada geese were counted on the marsh. Large numbers of the geese were concentrated about piles of oats that had earlier been placed on the marsh. Geese on the marsh were very active, with much vocalisation. Flocks of geese were continually joining the geese at the oats. At this time 20 geese were counted which were sitting alone with their heads behind their wings. It is my opinion that these 20 geese were in a severely weakened condition. Roughly then, one per cent, or slightly more, of the total goose population is estimated to have died or reached a near dead condition at the John Lusby National Wildlife Area.

Ducks, for the most part, did not reach the John Lusby marsh until after the snow cover had left. A few early black ducks were observed but their stays were brief. It is interesting that ducks, unlike the geese, were able to adjust their arrival dates to coincide with favourable weather.

On May 17 a swan goose was observed in the company of Canada geese on the marsh. It is figured that this bird came from the Shubenacadie Wildlife Park in Nova Scotia. The bird was very wary and would flush at the first approach of someone onto the marsh.

Table 1. Species and numbers of waterfowl at the John Lunby National Wildlife Area - Spring 1972

Species	March										April							May				
	18	19	20	21	22	23	25	26	27	29	4	5	6	7	10	11	17	21	26	1	5	11	17
Mallard																	1		2				
Black duck		12			33		3	11				9	13	120	21	2	53	207	372	67	146	10	4
Am. widgeon																				5	1		
Pintail																	12	34	60	1	5		
Green-w.teal																5		192	60	81	20		3
Blue-w. teal																		2			5		2
Com. merganser														2									
Red-b.merganser																		12	1	7	4		
Canada goose		400	400	140	1197	1630	2090	1938	1933	-	1900	-	2305	-	2201	-	1500	1500-2000	925	860	420	575	320
Snow goose					3	1	1			1					1	1							
Swan goose																							1
Total	0	412	400	140	1233	1631	2094	1949	1933	2	1900	9	2318	122	2223	8	1566	1947-2447	1420	1041	601	585	330

Table 2. Black duck - Total number, number of pairs and per cent paired on each observation date at John Lusby National Wildlife Area - 1972

Date	Total number	Number of pairs	Per cent paired
March 18	0		
19	12	-	-
20	0		
21	0		
22	33	(groups 3, 8, 5, + 17 blacks flying)	
23	0		
25	3	1	67
26	11	(groups 2, 3, +6 flying, 2 definite pairs)	
27	0		
29	0		
April 4	0		
5	9	(flock of 9 flying)	
6	13	6	92
7	120	(flock flushed from Sharpe's Creek. Most flying as pairs)	
10	21	-	-
11	2	1	100
17	53	23	87
21	207	43	41
26	364	132	73
May 1	67	37	85
5	119	49	74
11	10	5	100
17	4	2	100

Table 3. Observation of waterfowl behaviour at the John Lusby National Wildlife Area - Spring 1972

Date	Observation
March 19	First arrival of Canada geese.
March 22	Observed approximately 1,000 Canada geese arrive at the John Lusby between 9:00 a.m. and 12:00 a.m. Birds arrived in groups of 20 to 150 from a westerly direction.
	Observed a lone snow goose arrive with a flock of Canada geese and land about 100 yards from another snow goose. Within 5 minutes the snow goose had joined the other bird. Later a blue goose was observed with the two snow geese.
April 7	Flushed a flock of 120 black ducks from Sharpe's creek. All or most birds appeared to fly off as pairs.
April 17	53 blacks and 12 pintails on marsh. Birds mostly feeding. Occasional "thrusts".
April 21	14 blacks swimming together in unison in Sharpe's Creek. Occasional "wing flap" and "sneak". Heads low on shoulders. A pair of blacks joined by two other blacks. Inciting behaviour, and two blacks chased off by mated male.
	Large numbers of green-winged teal loafing along edge of Sharpe's creek. Birds in flocks and mostly paired.
	A group of six blacks observed briefly - observed one "bill splash" and chase. Birds swimming or strutting about in unison.
	Many separated pairs of black ducks spread over marsh. Pairs often near other pairs but for most part separated. Many pairs flying about over marsh. Also several "courting" groups of blacks where birds strutting or swimming about together.
April 24	Observed 20 blacks to land together on marsh. A few chases and birds strutting about together. Pairs of blacks scattered over marsh.
April 26	300 blacks widely scattered over the marsh in pairs; a few singles. Two flocks of 20 and 50 birds not scattered.
May 1	Observed 2 "pairs" of blacks where one bird was inciting. This bird was approached by another bird with its head low. Two birds gave "wing flaps". The bird continued to incite and was led away by mate.
May 5.	Observed 3 male and 2 female blue-winged teal where a female was inciting towards the lone male.

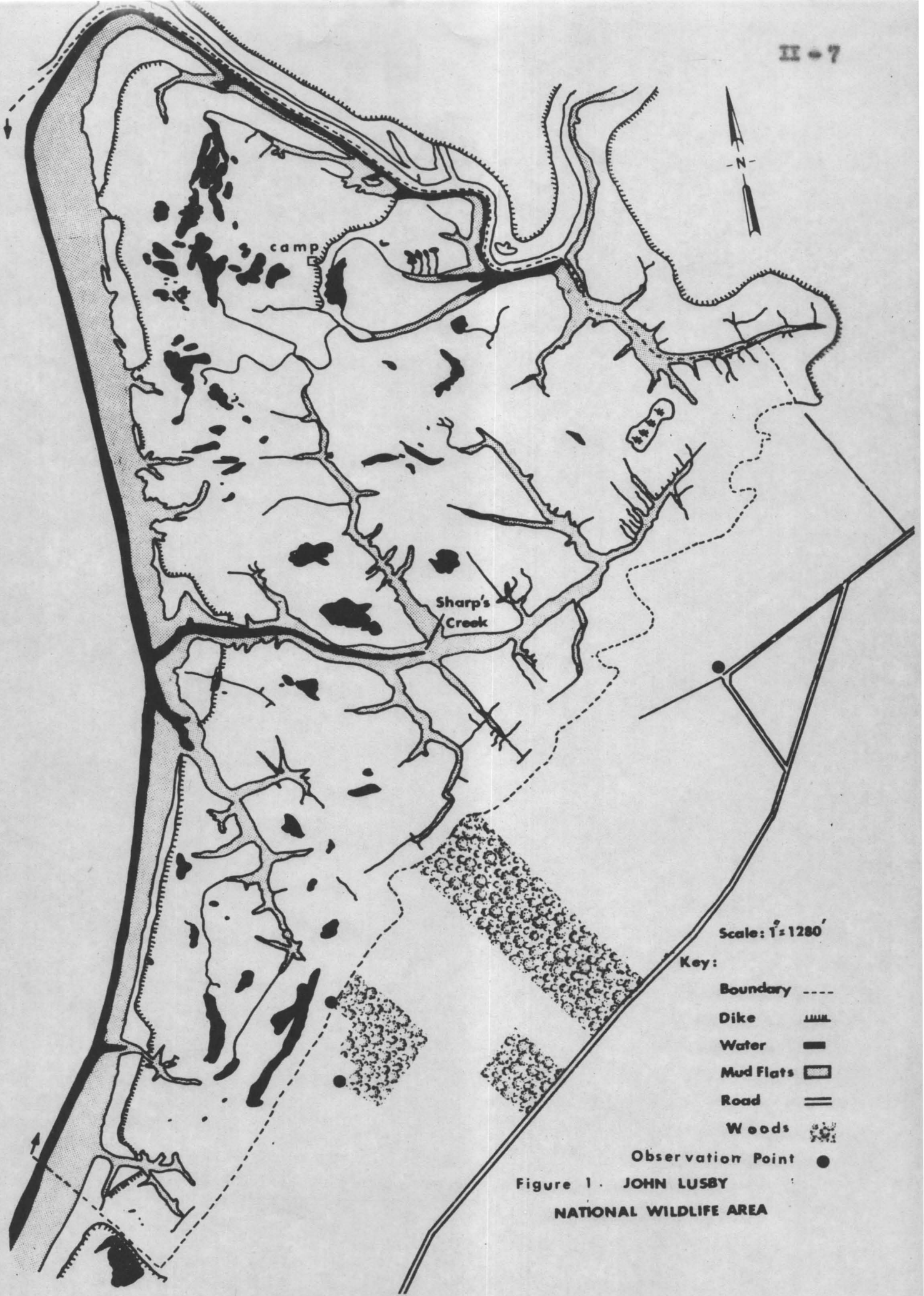


Figure 1. JOHN LUSBY
NATIONAL WILDLIFE AREA

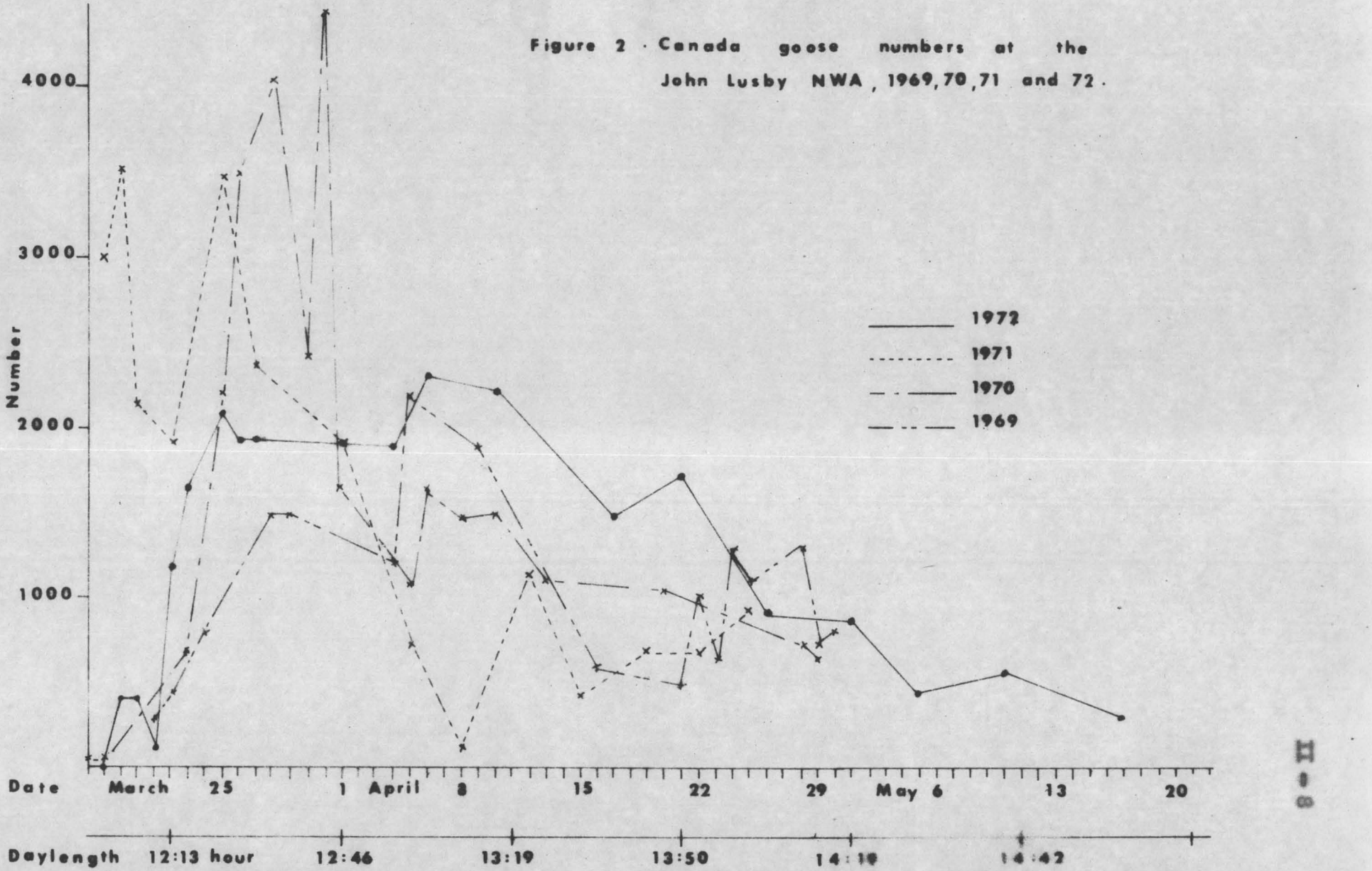


Figure 2 · Canada goose numbers at the John Lusby NWA, 1969, 70, 71 and 72.

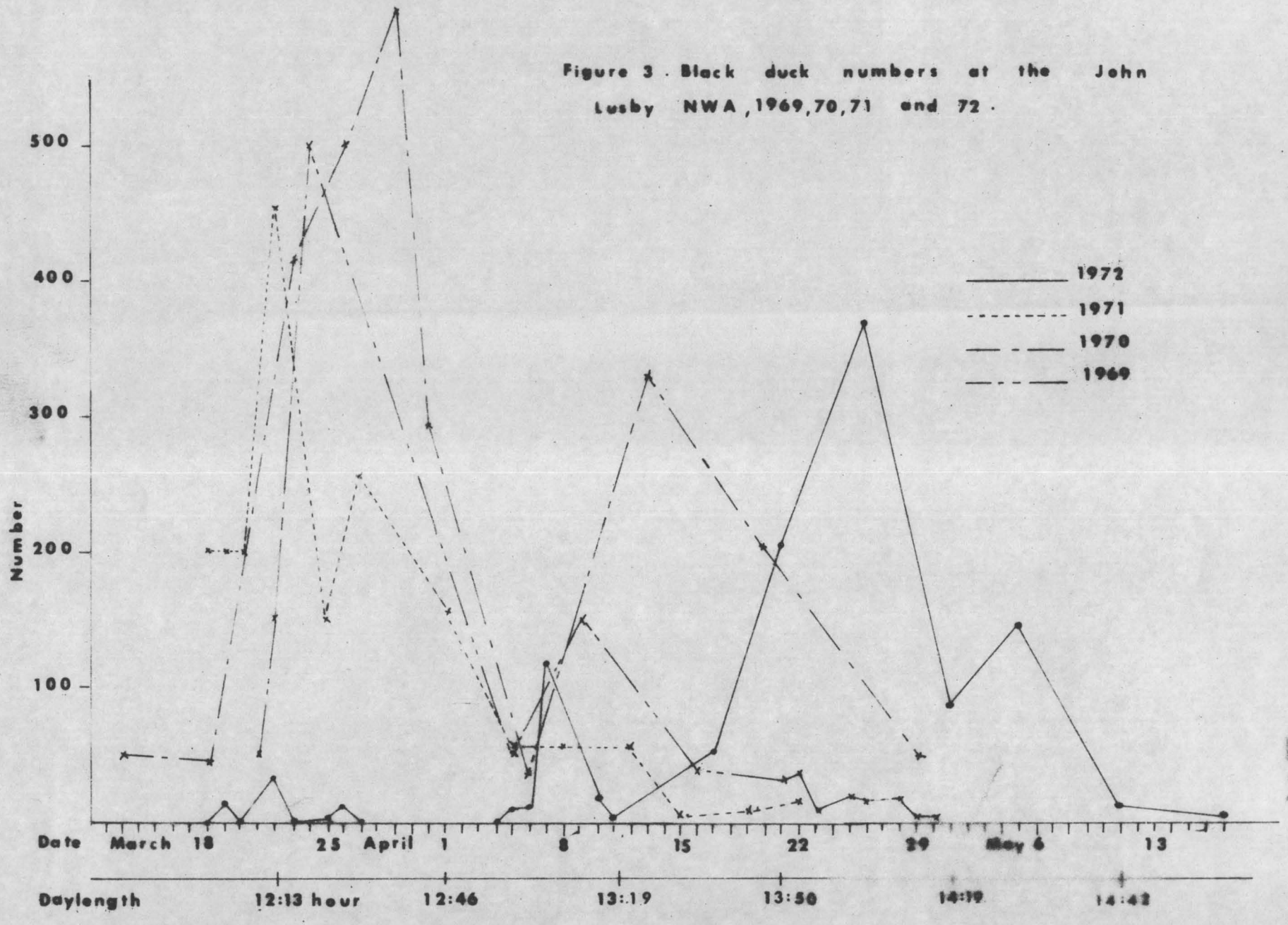


Figure 3. Black duck numbers at the John Lusby NWA, 1969, 70, 71 and 72.

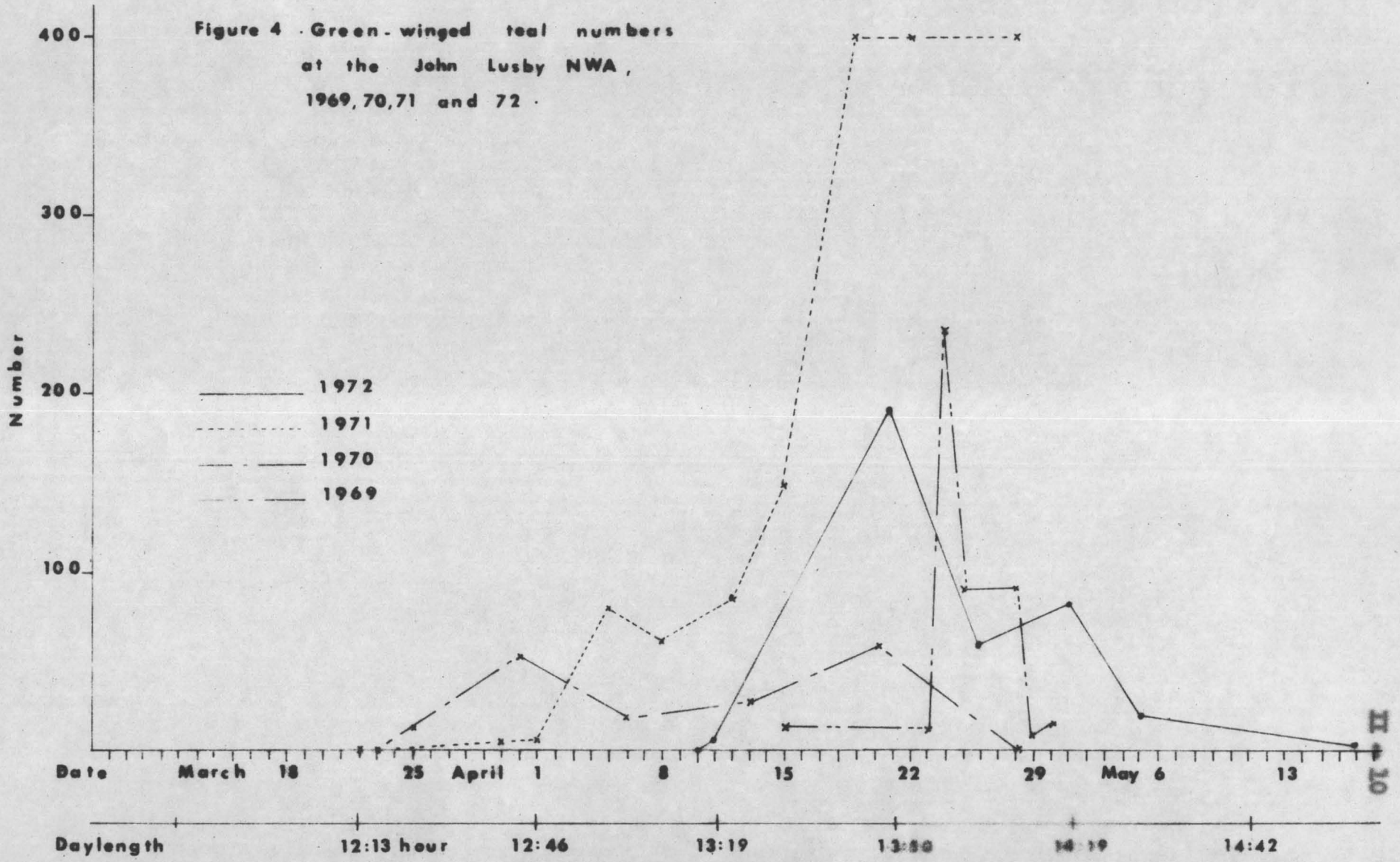


Figure 4 . Green-winged teal numbers at the John Lusby NWA, 1969, 70, 71 and 72 .

III Shepody National Wildlife Area (Germantown)

Procedure

Figure I indicates observation points from which the proposed Shepody National Wildlife Area and five surrounding coastal areas were viewed. Observations from these points were made from a car, using a 25x spotting scope. The five coastal areas are (1) Calhoun Flats, (2) Mountville Flats, (3) pasture land which is protected by the Shepody dam, (4) salt marsh below the Shepody dam, and (5) Anderson Hollow. These five areas were also observed in the 1971 spring survey. On April 27, May 2 and May 10 a canoe was taken along the canal at the Shepody National Wildlife Area. The canoe run from the upper end of the Wildlife Area to the lower end takes two hours.

Results

Table 1 lists the species and numbers of waterfowl that were counted.

Table 2 gives black duck total number, number of pairs and per cent paired for the different observation dates.

Figures II to IV graph the number of Canada geese, black duck and green-winged teal respectively against date and day length. Numbers for 1971 are also graphed.

Table 3 lists observation of waterfowl behaviour.

Snow and ice cover remained over the Shepody National Wildlife Area and surrounding coastal areas until quite late into the spring. What has been described for the John Lusby National Wildlife Area is similar to conditions here. Salt marshes were not cleared until the series of high tides from April 12 to 18. It was not until April 27 that the main canal at the Shepody National Wildlife Area had opened sufficiently to allow canoe travel. Appendix I gives climatological data.

Discussion

Canada geese in the Shepody area, like geese on the John Lusby marsh, experienced a very difficult spring. From their arrival date on March 19 to about April 18, food was scarce. On April 8 about 1500 pounds of oats were placed on the protected pasture land near Albert. One goose in a very emaciated condition was picked up after it collapsed in flight. Another goose was observed which showed difficulty in flying. Apart from these two birds, other geese gained flight easily when flushed by an approaching ski-doo.

Ducks did not arrive until coastal salt marsh areas had cleared. At this time there was a very great influx of ducks, which remained only a brief time before continuing their migration (Figures III and IV).

* Area

1. Calhoun Flats
2. Mountville Flats
3. Protected land above Shepody Dam
4. Salt marsh below Shepody Dam
5. Anderson's Hollow
6. Shepody National Wildlife Area

Table 1. Species and numbers of waterfowl at proposed Shepody National Wildlife Area (Germantown) and five surrounding coastal areas - Spring 1972

Species	Area*	March 24	5	15	April 19	22	27**	May 2**	10**
Mallard	1			1	2	1			
Black duck	1	0	0	15	44	69	87	79	12
	2	10	0	21	8	24	49	44	33
	3	0	0	24	4	0	0	0	37
	4	0	18	5	78	39	43	20	4
	5	0	0	38	63	106	250	52	8
	6	0	1	3	11	3	72	29	21
Total		10	19	106	228	241	501	224	115
Am. widgeon	2							2	
	5					3	2	2	
Total						3	2	4	
Pintail	1							1	
	4				7				
	5					4	3		
	6								2
Total					7	4	3	1	2
Green-w. teal	1					6	4	8	
	2						20	34	12
	4				14	36	40	30	
	5				15	53	150	240	26
	6						2		7
Total					29	95	216	312	45
Blue-w. teal	1						4	2	
	5						10		2
	6						5	4	2
Total							19	6	4
Shoveler	2								2
Ring-n. duck	3							4	
	4				2				
	6						7	21	19
Total					2		7	25	19

** Took canoe down channel at Shepody National Wildlife Area.

Table 1. Species and numbers of waterfowl at proposed Shepody National Wildlife Area and five surrounding coastal areas - Spring 1972 (continued)

Species	Area	March 24	5	15	April 19	22	27**	May 2**	10**
Barrow's goldeneye	3							2	
Common eider	5				100			100	
Com. merganser	2	1							
	3				10		7		
	5				20				
	6							5	14
Total		1			30		7	5	14
Ruddy duck	4					2			
Red-b. merganser	1								4
	2			4		4	48	6	7
	3					4		6	
	4				12	7	8		
	5				60	2	100	6	
	6						1	9	
Total				4	72	17	157	27	11
Snow goose	2			1				1	
	3			1					
Canada goose	1			19	54	175	48	79	26
	2	70		45	74	67	142	107	79
	3	445	1516	1710	1040	1500	900	1040	411
	4	6	150	22	20	240	60		
	5	203		59	70	125	70	100	3
	6		67	13	36	35	44	52	28
Total		724	1753	1868	2094	2142	1264	1378	547
Brant	5							1	
TOTAL		735	1778	1930	2564	2505	2176	2084	759

** Took canoe down channel at Shepody National Wildlife Area

Table 2. Black duck - Total number, number of pairs and per cent paired at proposed Shepody National Wildlife Area (Germantown) and surrounding coastal areas - Spring 1972

Date	Total number	Number of pairs	Per cent paired
March 24	10	2	40
April 5	19	7	37
15	87	22	25
19	226	71	31
22	241	86	36
27	521	199	38
May 2	224	90	40
10	115	35	30

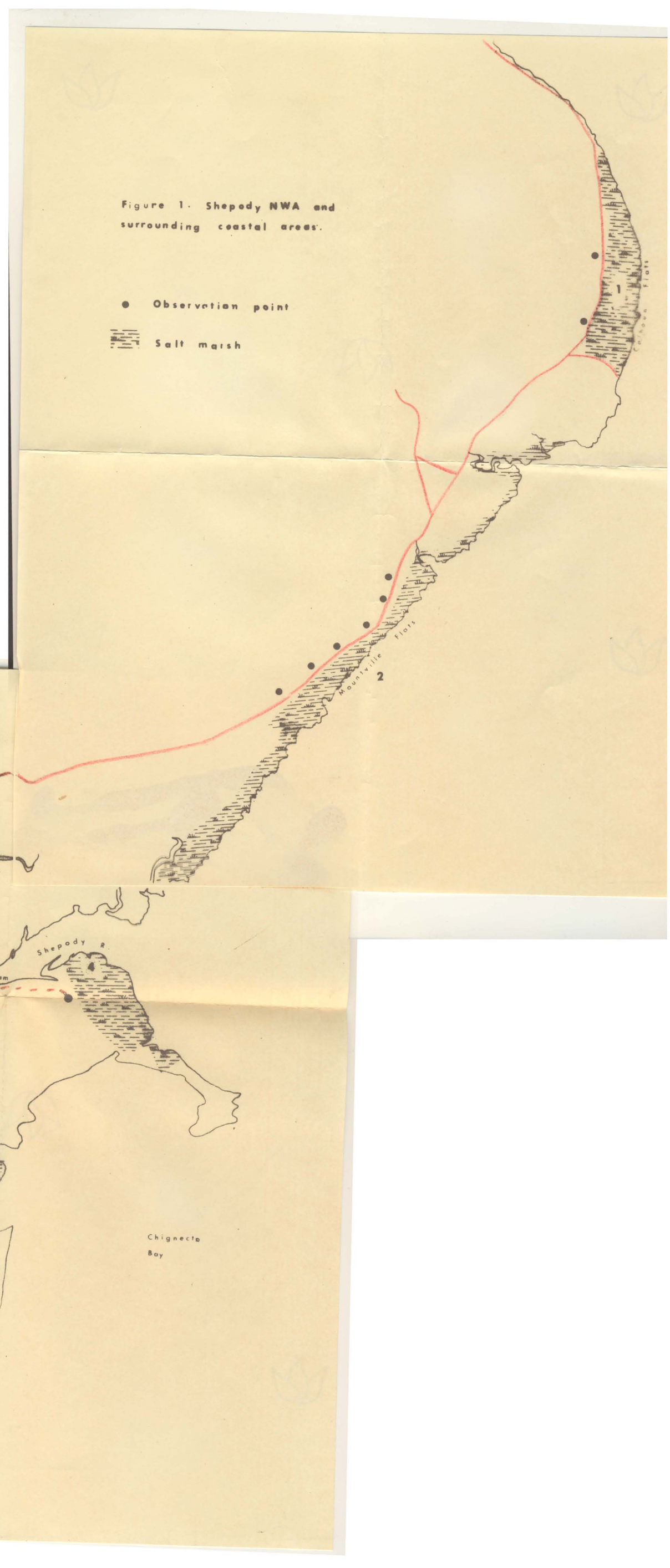
Table 3. Observations of waterfowl behaviour in the Shepody National Wildlife Area and surrounding coastal areas - Spring 1972

Date	Observations
March 24	6 male and 1 female black duck together. Apparently mated male attempting to face female and driving off other males that ventured too close. Male very aggressive toward other males. Paired birds pecking at each other's breast. Male doing this more so than female.
April 19	At Anderson Hollow were groups of strutting blacks; "wing flaps" frequent. Of 63 blacks about one-third seemed paired.
	Green-winged teal peeping and performing "grunt-whistle".
April 22	Calhoun Flats - group of blacks strutting about.
	Anderson Hollow - briefly observed a pair of blacks on a salt pan. Birds were diving under water, performing "wing flaps", swimming with heads stretched along water and "bill splashes".
April 27	Anderson Hollow - groups of blacks often rivalling over marsh. Twelve blacks strutting about; few "wing flaps".
May 2	Observed a pair of blacks where the female was steadily Quacking. Male approached female bobbing his head. Female began also to bob her head.
	Green-winged teal peeping, occasionally quacking.
	Red-breasted merganser performing "head throws". Also a gutteral quacking noise.
	Observed two pair and a single black where a female inciting towards lone bird.

Figure 1. Shepody NWA and surrounding coastal areas.

● Observation point

Salt marsh



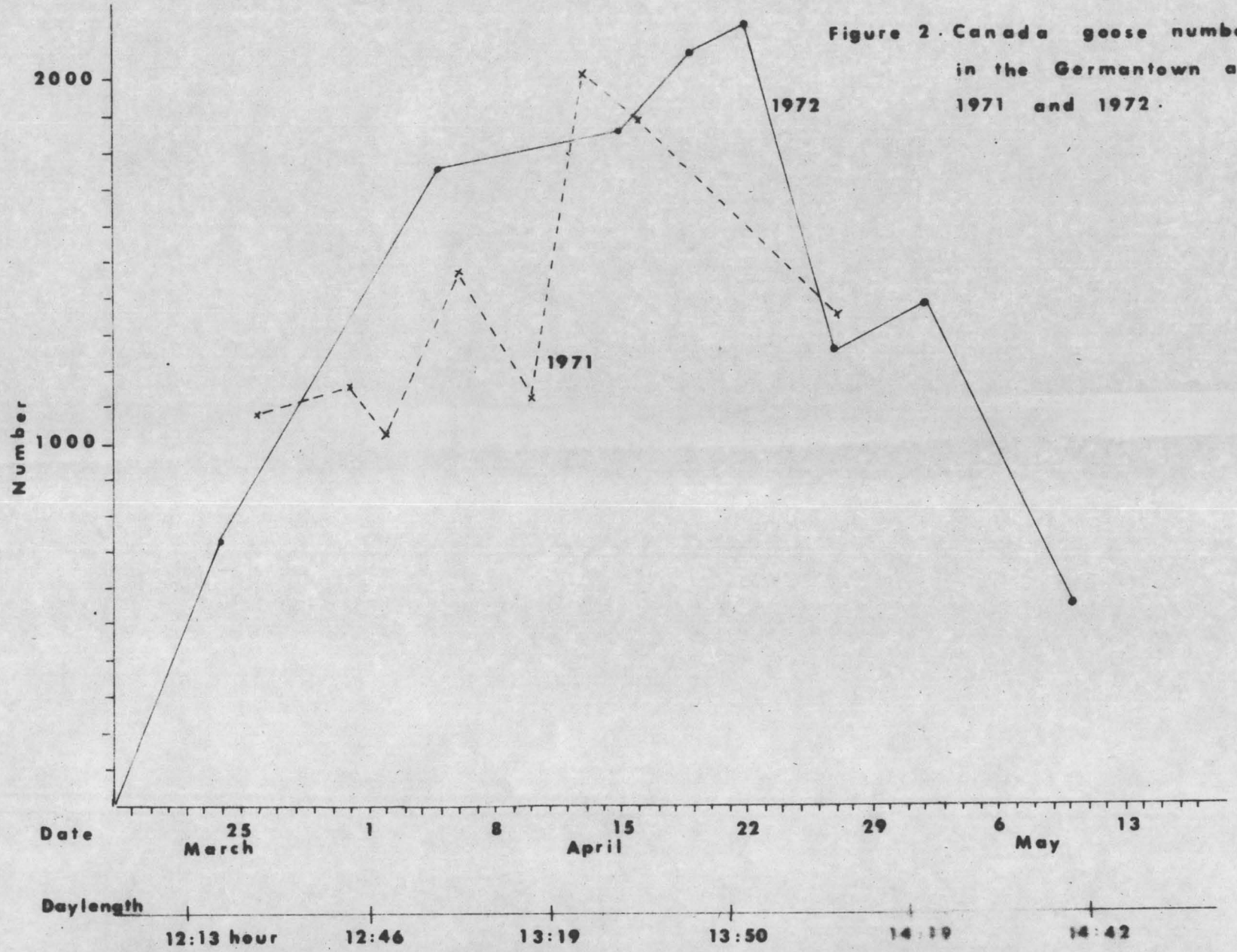


Figure 2. Canada goose numbers in the Germantown area, 1971 and 1972.

Figure 3 · Black duck numbers in the Germantown area, 1971 and 1972.

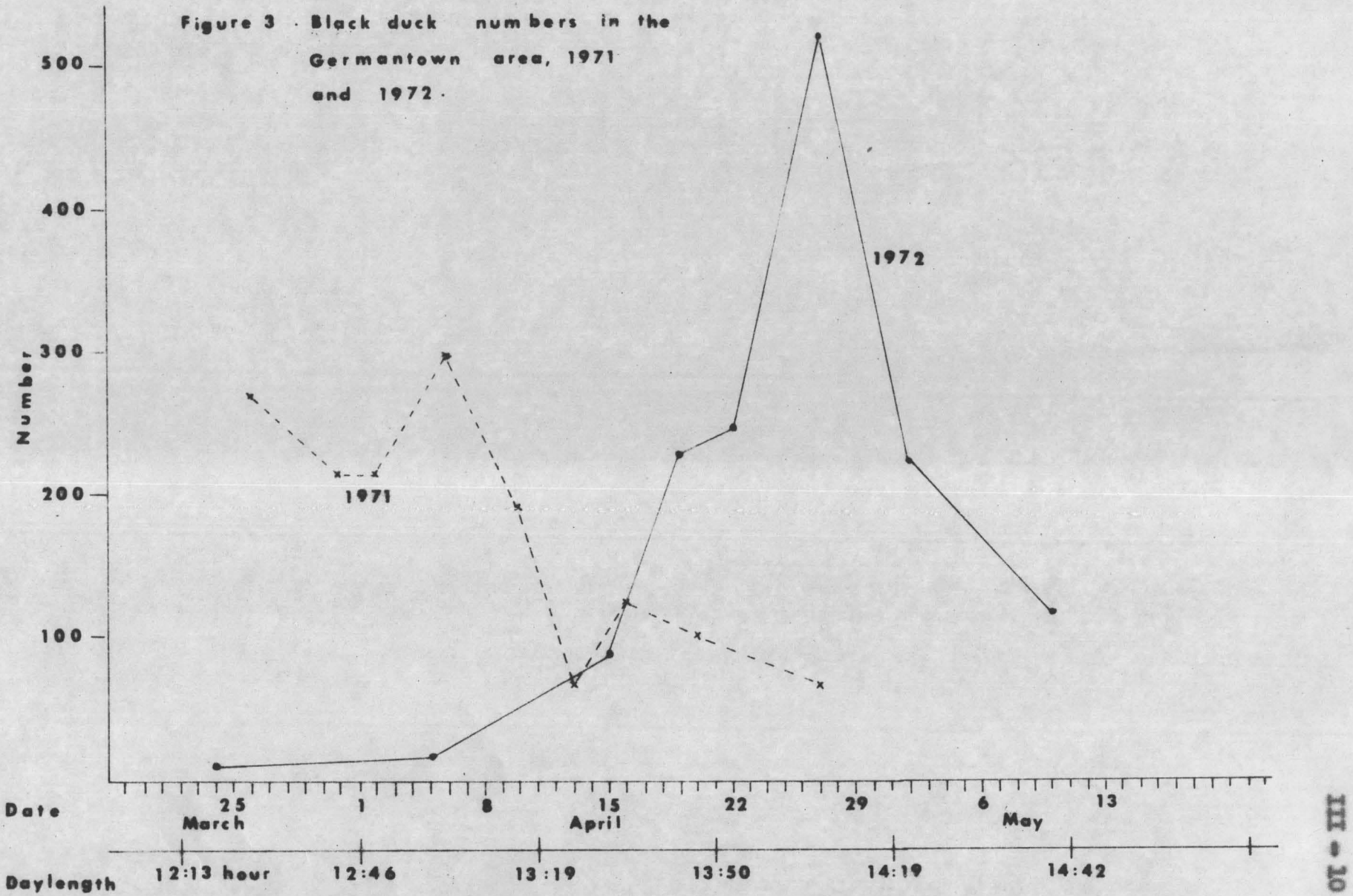
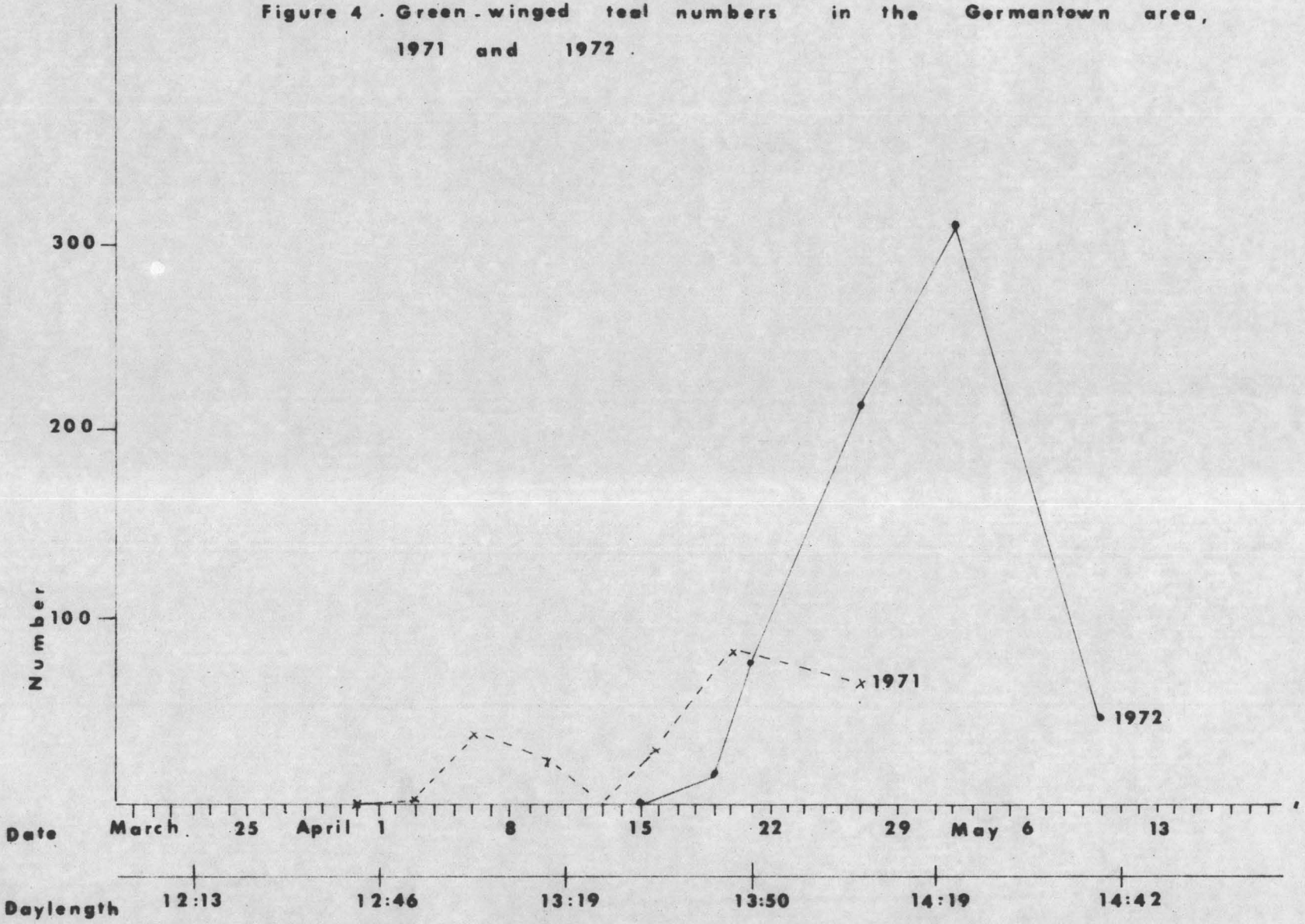


Figure 4 . Green-winged teal numbers in the Germantown area, 1971 and 1972 .



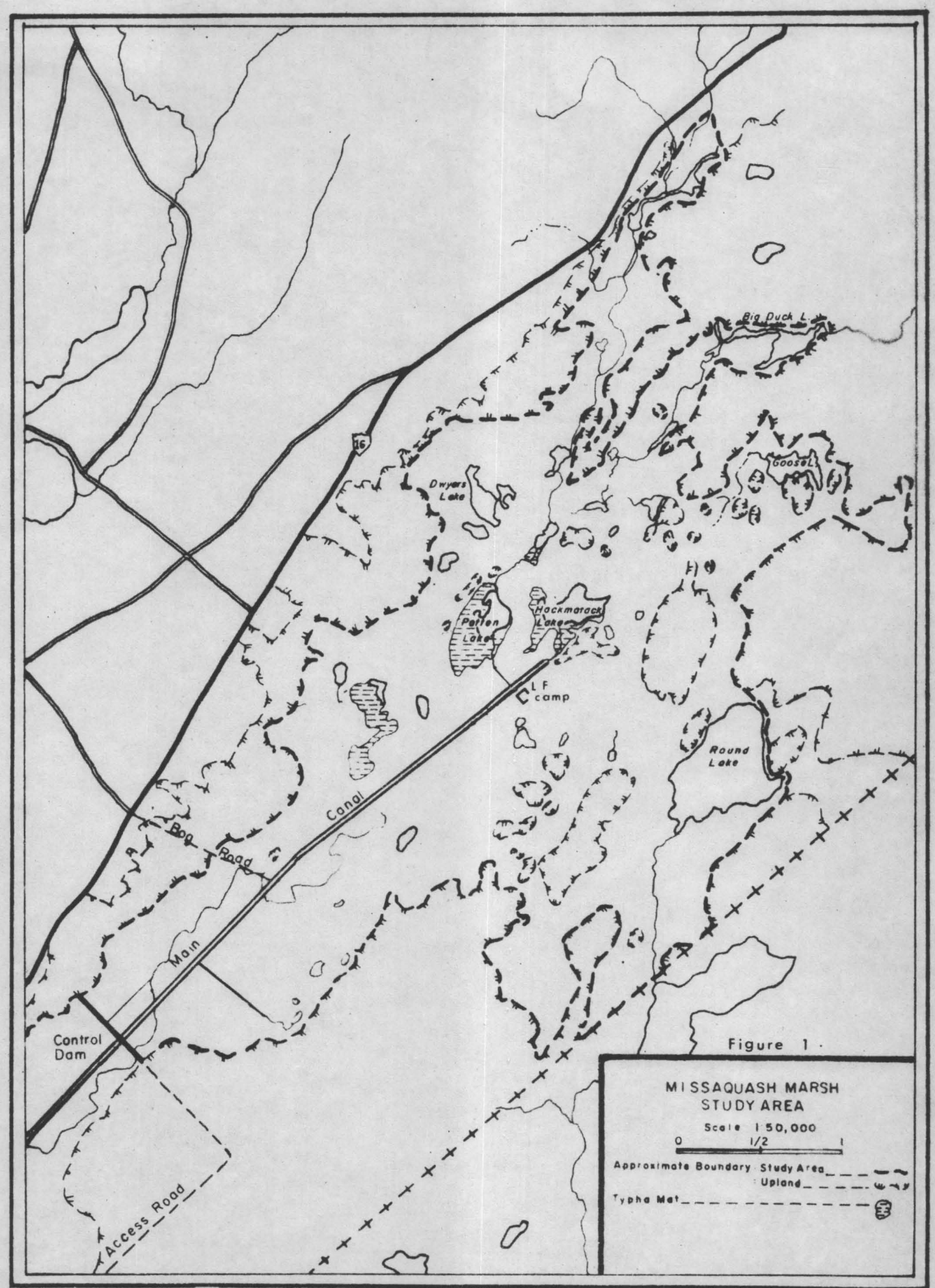

Big Duck L.
16
Dwyers Lake
Goose L.
Hackmatack Lake
Pollen Lake
L F camp
Round Lake
Canal
Bog Road
Main
Control Dam
Access Road
MISSAQUASH MARSH
STUDY AREA
Scale 1:50,000
0
1/2
1
Approximate Boundary Study Area
Upland
Typha Mat

Figure 1.

Chronology of Waterfowl Migration

Spring, 1972

by

Andrew MacInnis

V Tintamarre National Wildlife Area

VI Cole's Island Marsh

VII Ram Pasture Marsh

IV Missaquash

Procedure

On April 7 and 11 counts of waterfowl were made from the tower at the Nova Scotia Lands and Forests camp (Figure I). The camp was reached with a ski-doo.

On April 17 observations were made from the water control dam.

On six occasions, from April 21 to May 30, a boat was taken along the main canal of the Missaquash and a waterfowl count made.

Results

Table 1 lists the species and numbers of waterfowl that were observed on the different observation dates. Numbers in brackets indicate the number of pairs.

On April 7 and 11 the main canal of the Missaquash was ice covered, apart from the runs out of Pattens and Hackmatack lakes. On April 15 a third attempt was made to reach the camp tower, but water under the snow, over low-lying areas of the Missaquash, prevented ski-doo travel. On April 17 the ice over the main canal was gone. Snow and ice remained over the rest of the marsh. On April 21 and 26 snow remained over the marsh, but on April 26 the surface of the snow over some areas was wet. By May 2 approximately 40 per cent of areas surrounding the main canal were ice free. By May 8 the marsh was nearly completely open.

Table 1. Species and number of waterfowl at the Missaquash Marsh - Spring 1972 (Numbers in brackets indicate pairs).

Species	April 7*	April 11*	April 17**	April 21	April 26	May 2	May 8	May 12	May 30
Mallard	2(1)	2(1)				1	1	1	1
Black duck	2(1)	2(1)		11(2)	6(2)	60(15)	66(19)	45(15)	32(7)
Am. widgeon						2(1)	8(4)		7(3)
Pintail					2(1)	15(5)	18(9)	11(2)	6(2)
Green-w. teal				13	30	63(15-)	64	35	10(4)
Blue-w. teal						10(5)	8(4)	33(13)	30(15)
Wood duck							3	2	1
Ring-n. duck					2(1)	9	45(18)	53(20)	37(17)
Lesser scaup						2(1)			
C. goldeneye			4	1					
Bufflehead					2(1)		1		
Hood. merganser						2	3(1)		
Com. merganser	3	6		10(2)					
Red-b. merganser			2(1)	12(3)	1	3			
Canada goose						40***			
Am. coot					1	1			
Totals	7(2)	10(2)	6(1)	47(7)	44(5)	208(42-)	217(55)	180(50)	124(48)

* April 7 and 11 - took skidoo to tower at camp
** April 17 - lower end only at water control structure.
April 21 to May 30 - surveyed area by boat
*** Geese wing clipped and introduced

Tintamarre
National Wildlife Area

Procedure

Waterfowl observations were undertaken on the Tintamarre National Wildlife Area from March 20 through May 24. During this period the area was visited 23 times. An effort was made to confine observations to early morning and evening hours when waterfowl are known to be the most active. This was not difficult to achieve early in the survey, as the number of areas that could be used by ducks and geese was small. However, after ice-out the large number of locations utilised by waterfowl, the distance between these locations, and the poor condition of access roads limited the area that could be covered in a daylight or dusk time period. As a result, daily totals are often not representative of the entire National Wildlife Area. However, on most surveys, enough of the territory was covered so that population trends could readily be recognized.

In addition to noting waterfowl numbers, locations and numbers of pairs, breeding behaviour and feeding activity were observed where they occurred. Feeding observations have not been included in this report.

Results

Figure I presents a map of the Tintamarre National Wildlife Area, showing areas utilized by waterfowl during

the spring of 1972.

Daily totals for species and pairs of waterfowl for the entire National Wildlife Area and for specific locations within this area are given in Tables 1 and 2 respectively.

Figures II to V present daily totals for black duck, green-winged teal, pintail and blue-winged teal, respectively, for both the spring of 1971 and 1972.

Figure VI presents daily totals for ring-necked duck on the Tintamarre National Wildlife Area for the spring of 1972.

Weather and habitat conditions for the spring of 1972 are given in Table 3, and in Table 4 observations of Waterfowl Breeding Behaviour on the Tintamarre National Wildlife Area.

Discussion

Black duck, green-winged teal and pintail populations all reached their peaks in 1972 on May 6. By this date most of the lakes, ditches and impoundments within the Tintamarre National Wildlife Area were clear of ice (ice-out was on May 1, 1972). This would be expected, as previous to May 1 conditions weren't suitable for large numbers of waterfowl. Thus there is a strong correlation between waterfowl numbers and weather, spring being exceptionally late this year in many parts of the Maritimes.

The most important species this year, as it was last, was the black duck. For both 1971 and 1972 two population peaks were observed. The major peak this year was 19 days later than that of 1971, probably the result of poor weather and habitat conditions.

This lateness trend also held true for green-winged teal. For this species, there were also two population peaks each year, but here their order was reversed for the two years. In 1971 the minor peak occurred on April 17 (68 birds) and the major on April 26 (82 birds), while in 1972, the major peak occurred first on May 6 (290 birds), and the minor later, on May 18 (76 birds). There was a ten day difference between the major peaks for the two years. However, if one were to dismiss the peak sizes, it would be observed that a period of 19 days separate the initial peaks for 1971 and 1972. Once again it is probable that weather and habitat conditions (which go hand in hand) are two factors that resulted in the delay of immigration in 1972.

It is interesting to note that the third most important species of waterfowl observed here this spring, the ring-necked duck, wasn't noted at all in the 1971 spring survey. This duck reached a population high of 53 on May 15. No reason for this striking difference for the two consecutive years is known.

Once again, for the fourth major species, the pintail duck, there were two population peaks for each year. In this case it doesn't appear as if there was a substantial difference in immigration dates or in population numbers, for the same time period for the two years. In 1971 the minor peak occurred on April 5 (4 ducks), while in 1972, this peak occurred on April 7 (5 ducks). When the survey was terminated in 1971, the pintail population had gradually risen to a high of 13 ducks. The 1972 value for this time of year was 15. Due to the lateness of the spring this year, the survey was carried on an additional 24 days over 1971. During this time the pintail reached a peak of 53 birds on May 6. As it is impossible to speculate on the numbers this species might have reached had the survey been extended in 1971, we can only conclude that for the two years immigration was similar for March 20 to May 1.

It is difficult to draw definite conclusions about the differences in blue-winged teal immigration between the two years. As this species is a late migrant, it is only logical there should be more sightings in 1972. However, the maximum value for blue-winged teal in 1971 (15) wasn't reached until 22 days later in 1972.

Finally, Canada geese which were sighted on only four occasions in 1971, and reached a high of 26, were observed 11 times this year and on April 17 numbered 77.

It would appear that for many species of waterfowl, immigration this year was from two to three weeks behind that of 1971.

Table 1. Species, Daily totals and pairs of waterfowl - Tintamarre National Wildlife Area, spring 1972

Species	March				April						
	20	21	28	30	4	7	10	17	20	24	28
C. loon											
C. geese				14	23	9	5	77	54	14	15
Mallard											
Black duck			(2)*4		(11)30	(7)17	(2)5	(5)12	(5)20	(4)15	(6)14
Am. widgeon										(2)4	
Pintail					1	5	5	1	(1) 2	(2)17	
G.-w. teal						(1) 2		1		(2) 8	(1) 2
B.-w. teal											(1) 3
Shoveler											
Wood duck											
Ring-n. duck					1	2		(1) 3	(1) 4	(4)10	(5)15
C. goldeneye				2	1		(1)3			(1) 2	(1) 2
Hood.merganser										(1) 2	
C. merganser	1		1	1		(1) 2	(1)2	(1)2			
Red.-b. merganser										(1) 2	11

* - (pairs) total
*** - May 5, 1972 only Upper Front Lake surveyed
** - Areas observed - Community Pasture and Impoundments #1 & #5

Continued on next page

Table 1. Species, daily totals and pairs of waterfowl - Tintamarre National Wildlife Area, spring 1972 (cont'd)

Species	May							
	1	5**	6	10	15	17***	18	24
Common loon					(1)*2			
Canada goose		19					2	(4)11
Mallard	(1) 2		1					1
Black duck	(21)47	(10)35	(26)129	(3) 4	(5)17	2	(4)15	(3) 8
Am. widgeon								1
Pintail	(6)15	3	(4)53	(1) 2	(3)22		(2) 8	(2) 7
Green-w. teal	(5)13	(2) 4	(19)290	(4)17	(11)73		(4)76	(8)18
Blue-w. teal	(1) 2		(1) 2	(2) 7	(6) 12		(7)15	(20)44
Shoveler								(2) 4
Wood duck						1		
Ring-n. duck	(5)12	(5)14	(4) 8	(1) 2	(16)45	(22)53		(5)20
C. Goldeneye								
Hood. merganser								
Common merganser	4							
Red-b. merganser			1					

54

* - (pairs) total
***- May 5, 1972 only Upper Front Lake surveyed
** - Areas observed - Community Pasture and Impoundments #1 and #5

Table 2. Species, daily totals and pairs of waterfowl by area - Tintamarre National Wildlife Area, spring 1972

LOCATION Date of survey	Black duck	Am. widgeon	Pintail	G.-w. teal	B.-w. teal	Wood duck	Ring-n.duck	C. goldeneye	C. merganser	R.-b. merganser	Canada goose
FILLMORE'S HOLE											
March 20									1		
28	(2) 4										
30								1	1		14
April 4	(11)26		1				1	1			23
7	(1) 2		5	(1) 2			2				1
17	(4) 9		1	1			(1) 3				38
20	(3)12		(1) 2				(1) 4				17
24	(3) 7	(2) 4	(2)17	(2) 8			(4)10				5
28	(2) 6			(1) 2	(1) 2		(5)15	(1) 2		11	
May 1	(5)14			(5)13			(3) 8		4		
6	(3)17		1	(3)57			(1) 2				
15							(1) 4				
18	(1) 3										
24											
UPPER FRONT LAKE											
May 1	(2) 4										
5						1					
6	(3)28		40	8							49
15	(2) 4				(1) 2		(14)41				
17	2						(22)53				

Table 2. Species, daily totals and pairs of waterfowl by area - Tintamarre National Wildlife Area, spring 1972 (continued)

LOCATION Date of survey	Black duck	Com. loon	Pintail	G-W. teal	B.-W. teal	Ring-n. duck	C. goldeneye	C. merganser	R.-b. merganser	Canada goose
LOWER FRONT LAKE										
March 21										
28								1		
30							1			
April 4	3									
7	(5) 13							(1) 2		8
10	(2) 5		5				(1) 3	(1) 2		5
17a.m.	(1) 3							(1) 2		40
17p.m.	(1) 2						(1) 2	(1) 3		7
20	(2) 8									37
24a.m.	(1) 8						(1) 2		(1) 2	9
24p.m.	1						(1) 2	(1) 5		3
28	(1) 2			(1) 7						
May 1a.m.	(2) 4		(1) 5		(1) 2	(2) 4				15
1 p.m.	(1) 2		12			(12)31				
5	(1) 2			(1) 2						
10						(1) 2				
15	(1) 2	(1) 2			(2) 4					
18	1			(3) 6	(2) 4					2
24	(1) 2									

Table 2. Species, daily totals and pairs of waterfowl by area - Tintamarre National Wildlife Area, spring 1972 (continued)

LOCATION Date of survey	Mallard	Black duck	Pintail	G.-w. teal	B.-w. teal	Rng-n. duck	Canada goose
COMMUNITY PASTURE							
Apirl 4		1					
7		(1) 2					
28		(3) 6		36			
May 5		(1)12	3			(2) 14	19
6	1	(10)46	(3) 10	(14)100		(3) 6	
IMPOUNDMENT #5							
May 1	(1) 2	(14)29	(5) 10				
5		(2) 5					
6		(1)12		(2) 94	(1) 2		
10		(1) 2	(1) 2	(2) 11	(1) 5		
15		1	(2) 5	(11) 23			
18		(1) 5	(1) 6	48	(1) 2		
24				(1) 4	(4) 9		
IMPOUNDMENT #1							
May 5		(6) 16		(1) 2			
10		2		2			
15		(1) 8	(1) 17				
18			(1) 2	(1) 10			
24			(1) 3	(1) 2	(2) 6		

Table 2. Species, daily totals and pairs of waterfowl by area - Tintamarre National Wildlife Area, spring 1972 (concluded)

LOCATION Date of survey	Mallard	Black duck	Am. widgeon	Pintail	G.-w. teal	B.-w. teal	Shoveler	Ring-n. duck	R.-b. merganser
IMPOUNDMENT #4									
May 10		2			(2) 4	(1) 2			
18		(1) 2			12	(1) 2			
24	1	2		(1) 2		(4) 9	(1) 2		
IMPOUNDMENT #2									
May 15		(1) 2			50	(3) 6		(2) 4	
18		(1) 3				(1) 3		(5)10	
24					(1) 2	(4) 8		(5)10	
IMPOUNDMENT #3									
May 18		1				(2) 4			
24				1		(2) 4			
IMPOUNDMENT #6									
May 24		6	1	1	(5)10	(4) 8	(1) 2	10	
IMPOUNDMENTS #1,2,3,& 4									
May 6		(9) 26		(1) 2	31				1

Table 3. Weather and habitat conditions for the Tintamarre National Wildlife Area. Spring 1972

Date	Weather conditions	Ice free areas	New arrivals
March 21	Cloud cover 15% Wind 8 mph Temperature 29°F.	Small part of Filmore's Hole; narrow run of open water between Long Lake and Front Lake; ditch into Community Pasture; ditch from Robinson's Brook to Filmore's Hole.	
March 28	Cloud cover 100% Wind 15-20 mph Temperature 35°F. Storm night of Mar. 27, 2-3 in. fresh wet snow.	Ditto	
March 30	Cloud cover 100% Wind 5-7 mph Temperature 27°F Light snow	Ditto	Canada geese American goldeneye
April 4	Cloud cover 100% Wind 5-7 mph Temperature 30°F Light snow.	Ditto Plus narrow run of open water between Upper Front Lake and Front Lake structure.	Pintail Ring-necked duck Killdeer
April 7	Cloud cover 100% Wind 5-7 mph Temperature 30°F. Light snow.	Ditto	1 pair Green-winged teal Great blue heron
April 10	Cloud cover 60% Wind 0 mph Temperature 35°F Severe storm night of April 9, 6-8 in. new snow.	Ditto	Redwinged blackbird
April 17	Cloud cover 100% Wind 0 mph Temperature 32°F	Ditto Open water area in Filmore's Hole has enlarged appreciably. Same for run between Long Lake and Front Lake. Most of Jolicure covered with 1-2 ft. snow.	Savannah sparrow

Table 3. Weather and habitat conditions for the Tintagarre National Wildlife Area. Spring 1972 (continued)

Date	Weather conditions	Ice free areas	New arrivals
April 20	Cloud cover 60% Wind 0-3 mph Temperature 33°F.	Fillmore's Hole is about 65% ice free	Tree swallows
April 24		All areas which were ice-free on April 20 have enlarged substantially. Ditches and impoundments beginning to show ponds of water on the ice and small open areas.	Pied-billed grebe Hooded merganser
April 28	Cloud cover 100% Wind 5 mph Temperature 34°F	Little change in ice and snow conditions. Small pond in Community Pasture. Bottom of Front Lake just above structure has opened considerably.	Blue-winged teal
May 1	Cloud cover 25% Wind 5-7 mph Temperature 38°F	Bottom of Front Lake is completely clear of ice. Water level very high - up to access road in places. Extensive portion of Community Pasture flooded. Small areas of Impoundments 4 and 1 are ice free. Areas of open water in Imp.3, especially in end nearest Paunchy Pond.	American bittern Kingfisher Mallard
May 5	Cloud cover 80% Wind 0-5 mph Temperature 42°F	Much of Com. Pasture flooded. About 80% of Imp.5 is free of ice.	Greater yellowlegs
May 6	Cloud cover 0% Wind 0-3 mph Temperature 25°F.	Little ice in Upper Front Lake	
May 10	Cloud cover 100% Wind N.W. 15-20 mph Temperature 35°F	Ice has almost disappeared from lakes, ditches, and impoundments. Water level in Front Lake has dropped 1½-2 feet since May 1.	

Table 4. Observations of waterfowl breeding behaviour on the Tintamarre National Wildlife Area - Spring 1972

Date	Species	Observations
April 4	Black duck	Pursuit flight by territorial male against pair (specifically female).
April 17	C. goldeneye	Female splashing with wings and turning in a 180° semi-circle in front of male. Four occurrences in less than one minute.
April 24	Pintail	Single male pursuing pair (specifically female). Female making a clucking noise, almost a rattle with paired male following the chase rather inattentively. Much twisting and turning at great altitude.
	Black duck	Two pursuit flights between a single black duck and a pair were observed. Pursuing black was noted to lower its neck on several locations towards the duck it was chasing.
May 1	Black duck	Pursuit flight by a single black (likely a territorial male) against a paired female. Male of pair followed the flight but at some distance. All three ducks circled Pilmore's Hole for about two minutes. When they came within ear shot the female was heard quacking. The pursuing male gave up the chase and returned to Pilmore's Hole. The pair then regrouped and landed about 100 ft. away from the single black. The flight lasted for about 3½ minutes.
May 5	Pintail	Pursuit flight; territorial male chasing paired female. Here the paired drake followed the chase more closely than would occur in this sort of behaviour among black ducks. (This has been noticed on several occasions). The flight reached extreme altitudes and was very erratic with much twisting and turning.
May 5.	Black duck	Time 8:31 p.m., Impoundment #5. Single black swims towards pair of blacks which are feeding. Single black jumps and lands near pair. All three birds lift off water, single black chasing lead bird (probably a female). Lost sight 8:33 p.m.
May 6	Black duck	7:22 a.m. Pursuit flight over Impoundment #5. Pursuing black drops off and pair depart from area over Comm. Pasture. Single black momentarily joins with another black which is circling Imp. #5 and then both land in separate locations in that impoundment.

Table 4. Observations of waterfowl breeding behaviour on the Tintamarre National Wildlife Area - Spring 1972 (continued)

Date	Species	Observations
May 6	Black duck	7:26 a.m. Very short pursuit flight. Pursuing black departs and pair circle and land in dense vegetation towards the rear of Impoundment #3.
	Blue-w. teal	Male blue-winged teal chest thumps, dips head (three times) and does a wing flap. Then male swims along flapping his wings. Female appears to be very inattentive. Now male wing flaps, does two head dips throwing water over his back, wing flaps, another head dip, shakes his head and then his tail. Male is now sitting still facing female. Female moves toward him, shakes her tail, does three head dips, wing flaps, shakes her tail. Male swims toward female. He then begins to preen vigorously - back, wing and then his chest. Male swims over to female, females jumps followed by male and they both land about fifty yards away from where they took flight.

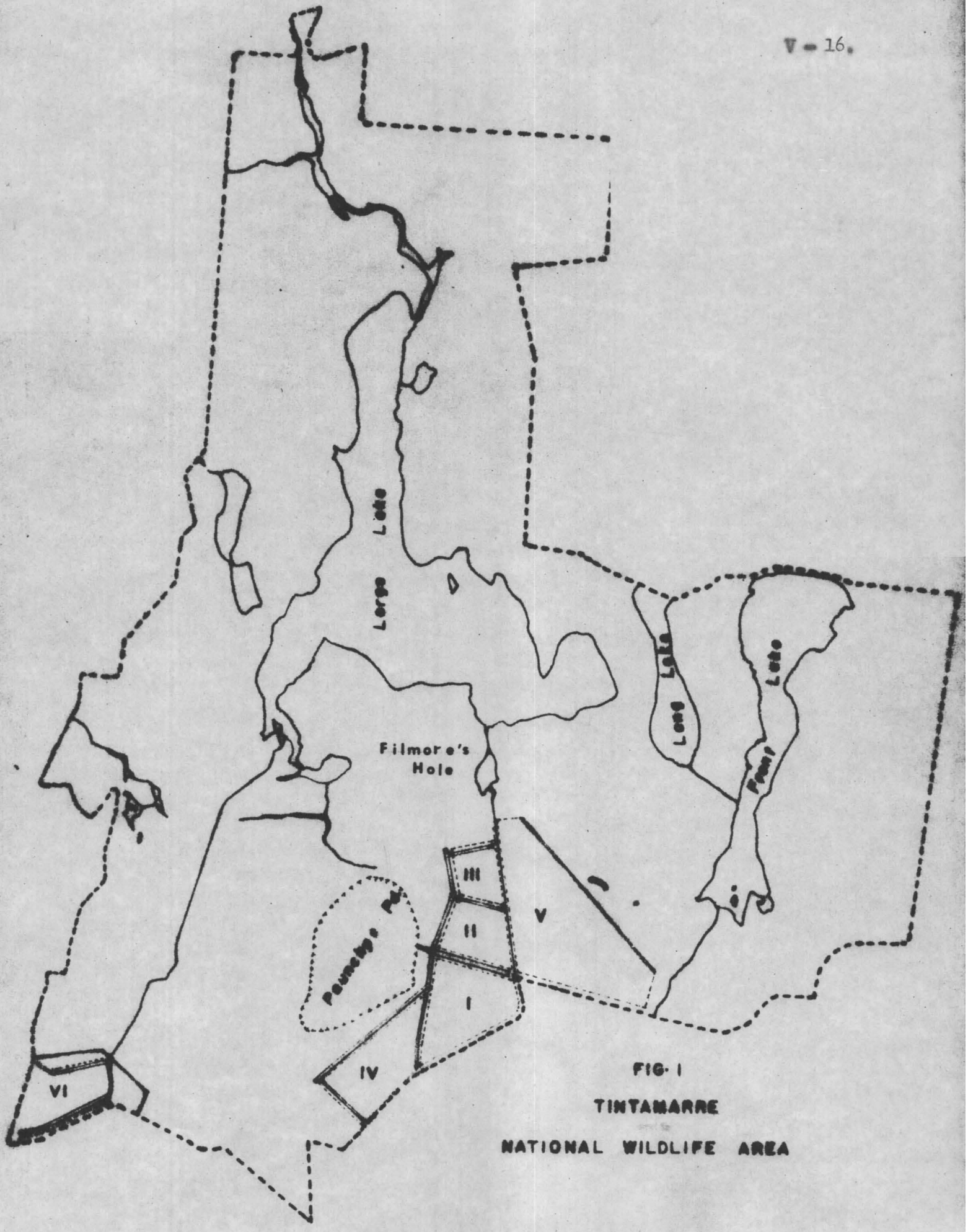


FIG. 1

TINTAMARRE

NATIONAL WILDLIFE AREA

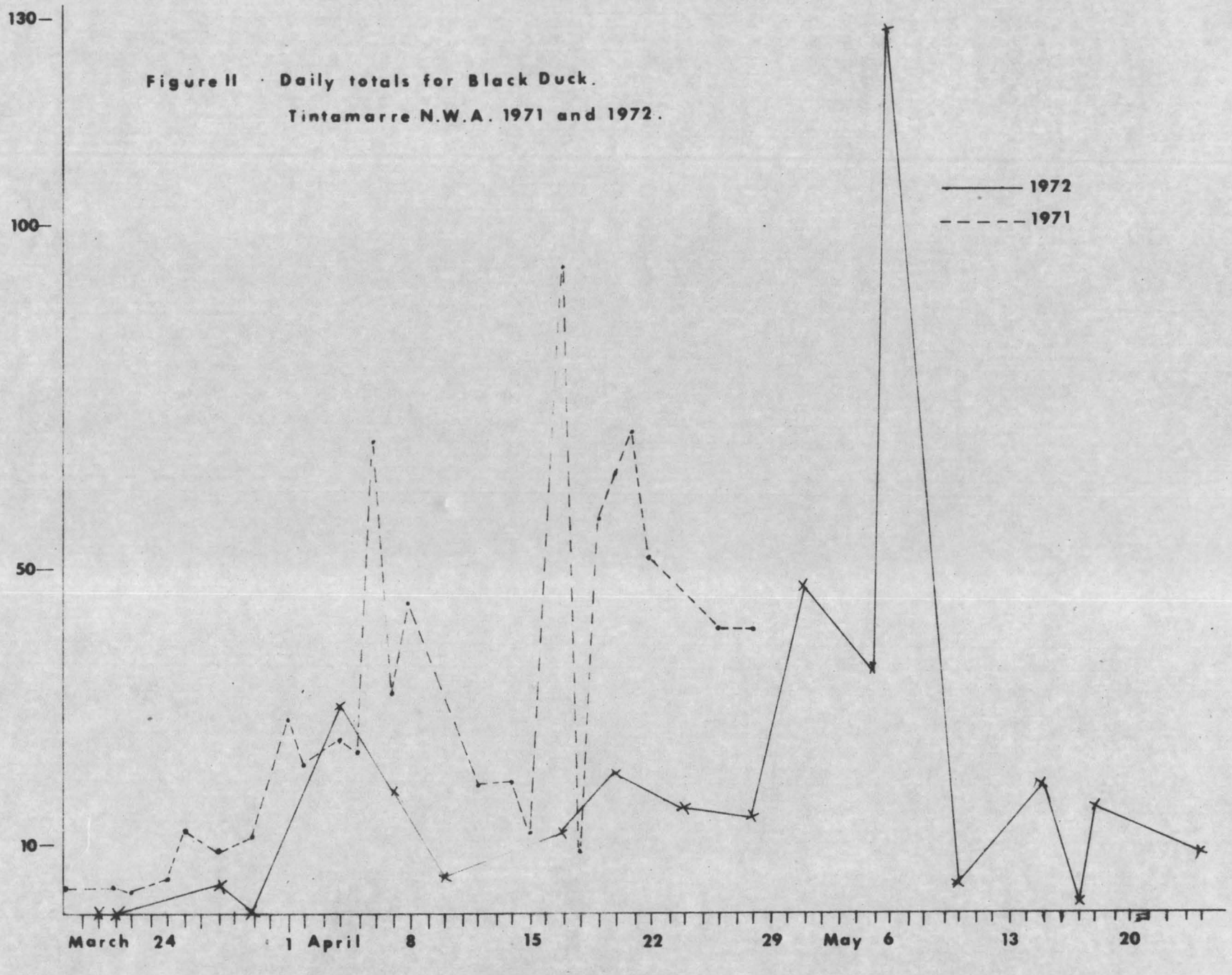
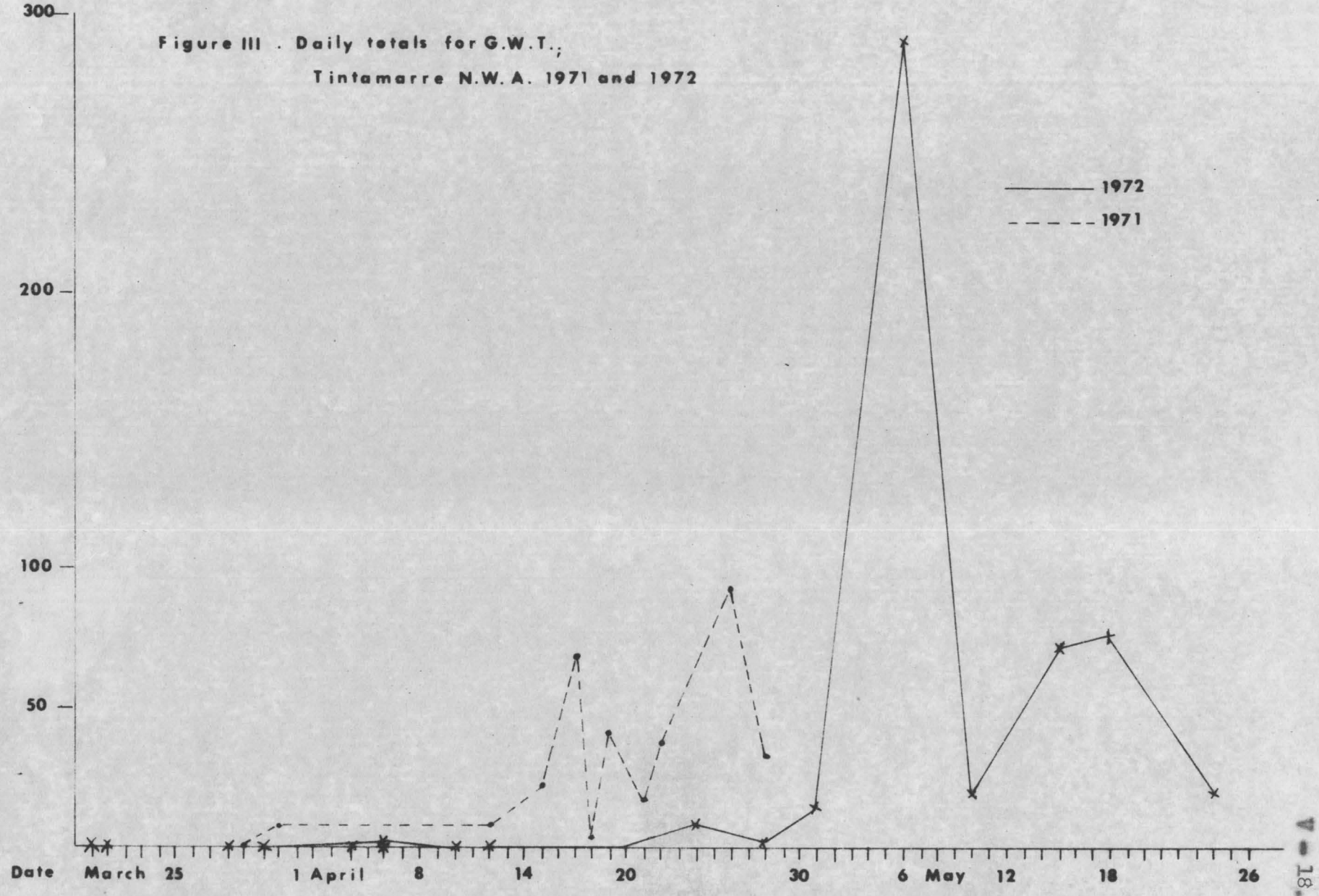


Figure II · Daily totals for Black Duck.
Tintamarre N.W.A. 1971 and 1972.

Figure III . Daily totals for G.W.T.;
Tintamarre N.W.A. 1971 and 1972



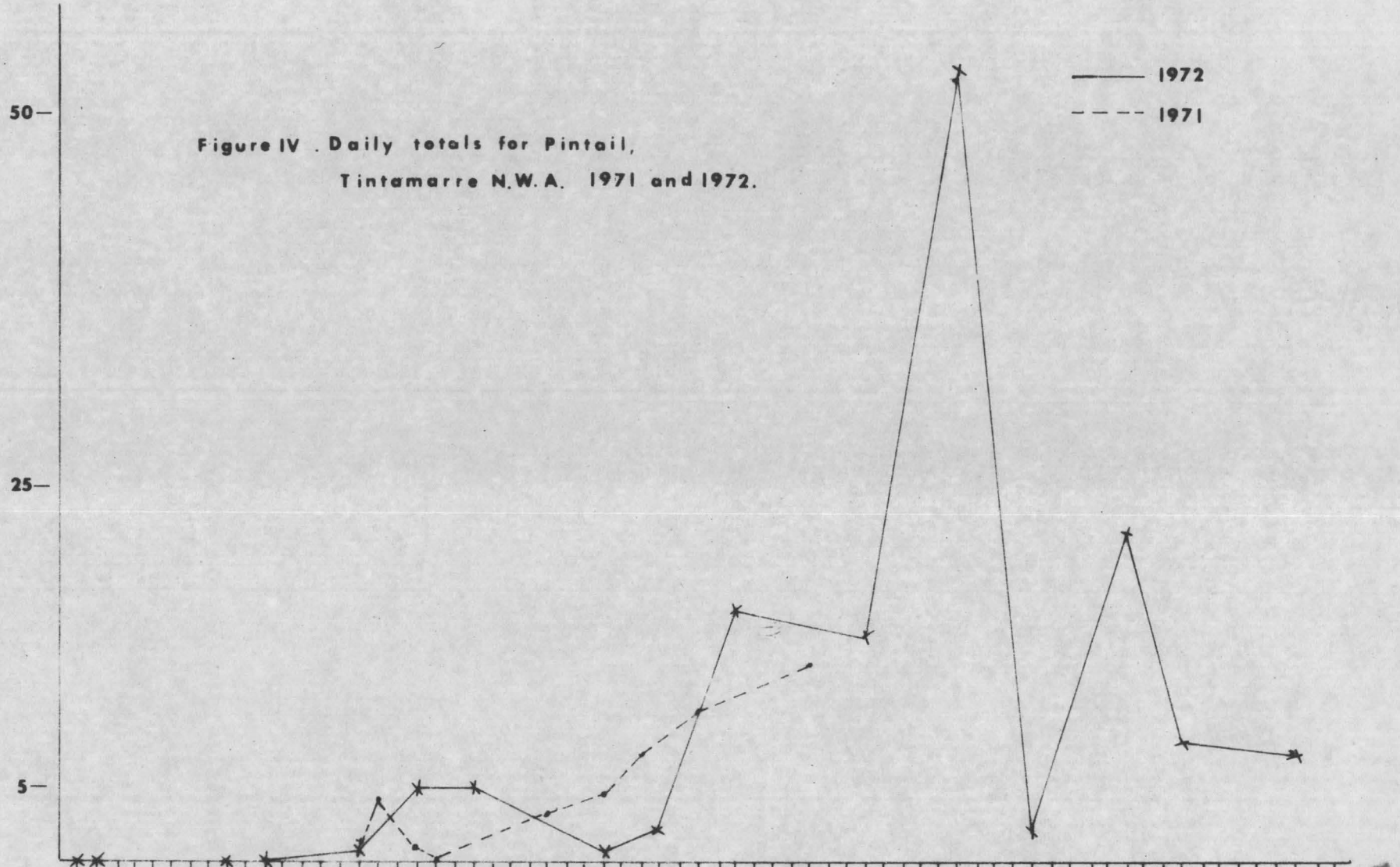
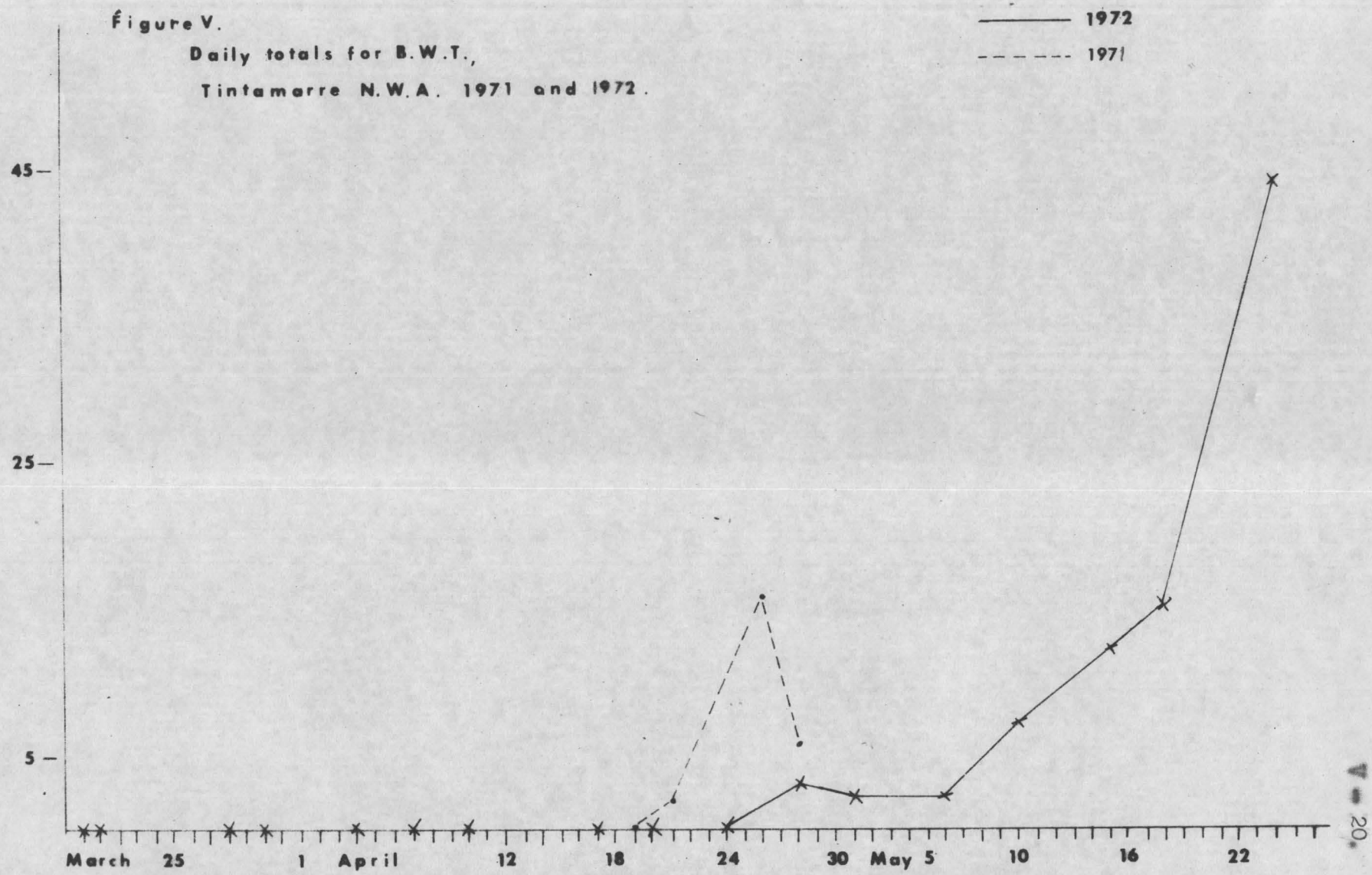


Figure IV . Daily totals for Pintail,
Tintamarre N.W.A. 1971 and 1972.

Figure V.

Daily totals for B.W.T.,

Tintamarre N.W.A. 1971 and 1972.



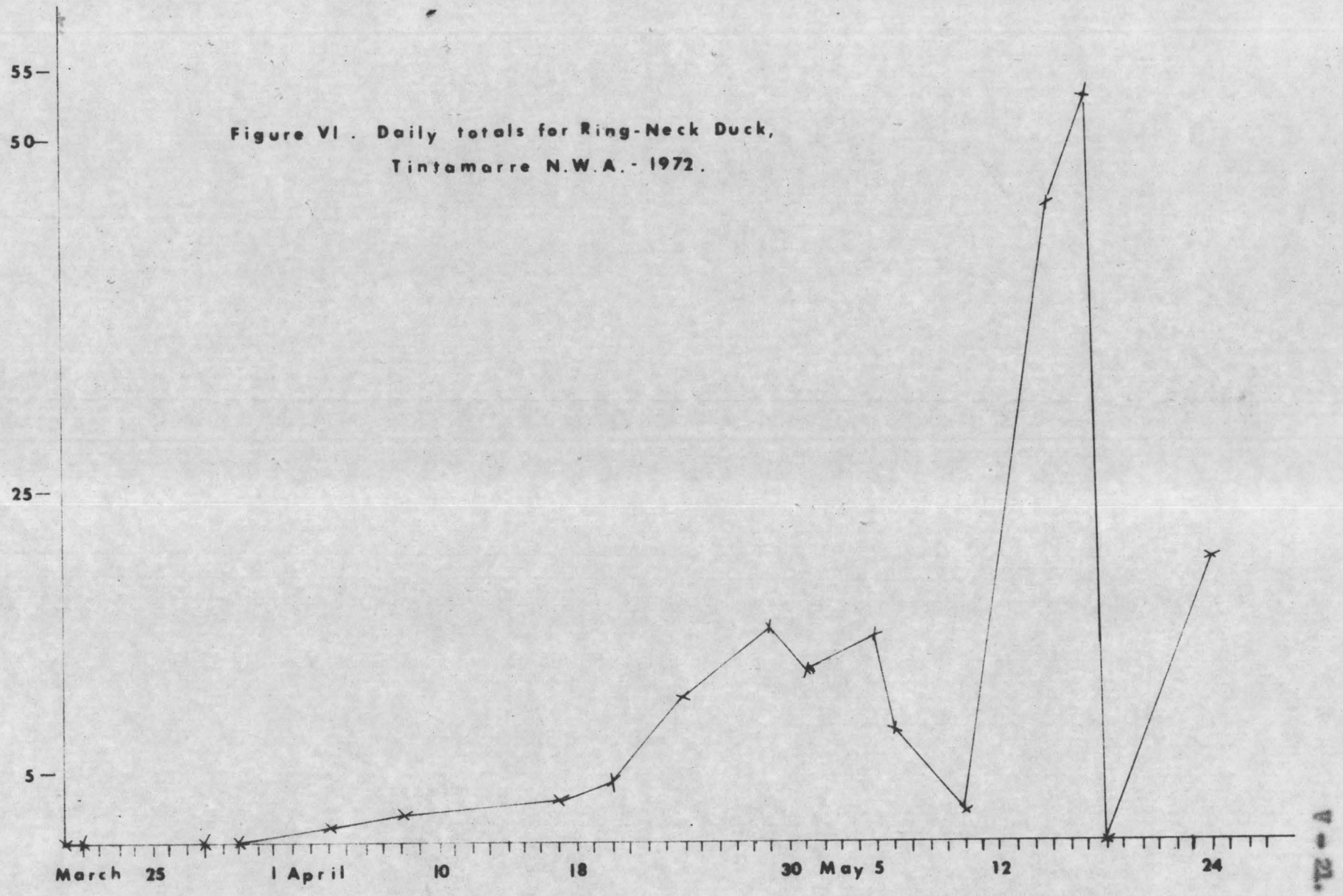


Figure VI. Daily totals for Ring-Neck Duck, Tintamarre N.W.A. - 1972.

VI - Cole's Island Marsh

Procedure

Cole's Island was visited on eight separate occasions between March 21 and May 8. Observations were most frequently made from a railway signal tower located approximately half-way along the eastern side of the marsh. From this vantage point all of the marsh could easily be seen. On April 11 the marsh was visited by ski-doo.

Results

Daily totals for species and pairs of waterfowl observed here are given in Table 1. Figure I presents daily totals for Canada geese. Weather and ice conditions for Cole's Island Marsh are given in Table 2. Figure II is a map showing Cole's Island Marsh, Ram Pasture Marsh and observation sites on each.

Discussion

Very little in the way of waterfowl breeding behaviour was observed at this location. The black duck reached its population peak here on April 22 and that of the Canada goose occurred on May 1, 1972. Had more emphasis been placed on surveying this marsh it is likely that a clearer picture of population trends would have been obtained for all species.

Table 1. Species, daily totals and pairs of waterfowl - Cole's Island, Spring 1972

Species	March			April			May	
	21	23	26	11	18	24	1	8
Canada goose				6	23		100	15
Black duck					(2)10*	(7)22	(6)12	(5)16
Green-w. teal							34	
Pintail						(1) 2		

* (pairs) total

Table 2. Weather and Ice conditions for the Cole's Island Marsh - Spring 1972

Date	Weather conditions	Ice conditions
March 21	Cloud cover 5% Wind 5-7 mph Temperature 21°F	The entire marsh is covered with ice and snow - no open water.
March 23	Cloud cover 100% Wind 5-10 mph Temperature 36°F Rain	Ditto
March 26	Cloud cover 100% Wind 20 mph Temperature 30°F	A small portion of the marsh, along the tops of dikes has blown clear of snow and vegetation is showing.
April 11	Cloud cover 15% Wind 3-5 mph Temperature 40°F	Cole's Island Marsh is in much the same condition it was on March 26. There has been an extention of snow blown areas.
April 18	Cloud cover 0% Wind 5-8 mph Temperature 36°F.	About two-thirds of the marsh is clear of ice. Last week's series of high tides was the chief factor governing this condition. Here and there, scattered about the marsh are large ice chunks which have been deposited by the tide.
April 24	Cloud cover 65% Wind 15-20 mph Temperature 37°F.	Ninety per cent of the marsh is free of snow and ice.
May 1	Cloud cover 35% Wind 5-7 mph Temperature 38°F	Ice has completely disappeared from the marsh.
May 8	Cloud cover 15% Wind 0-5 mph Temperature 42°F	

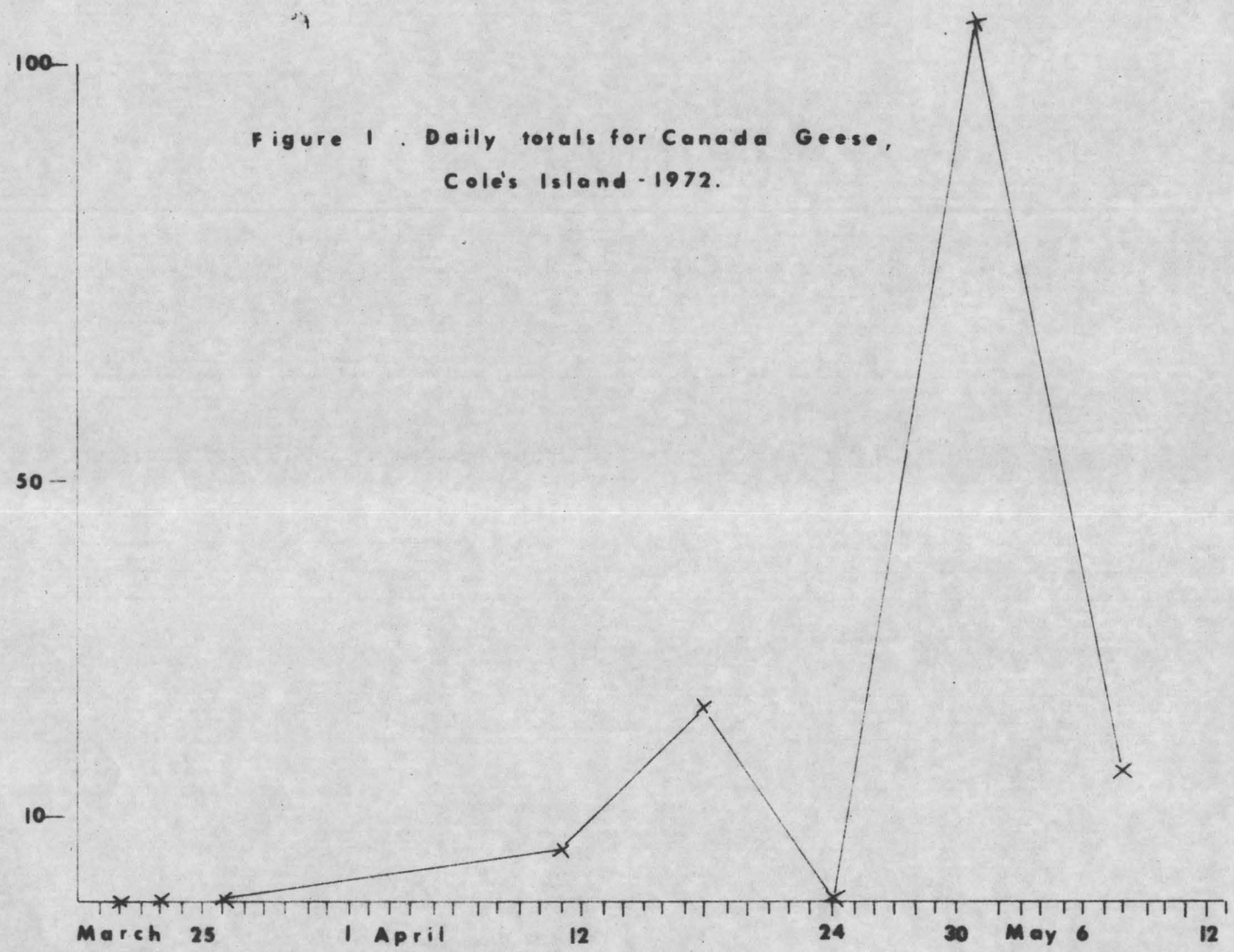


Figure 1 . Daily totals for Canada Geese, Cole's Island - 1972.

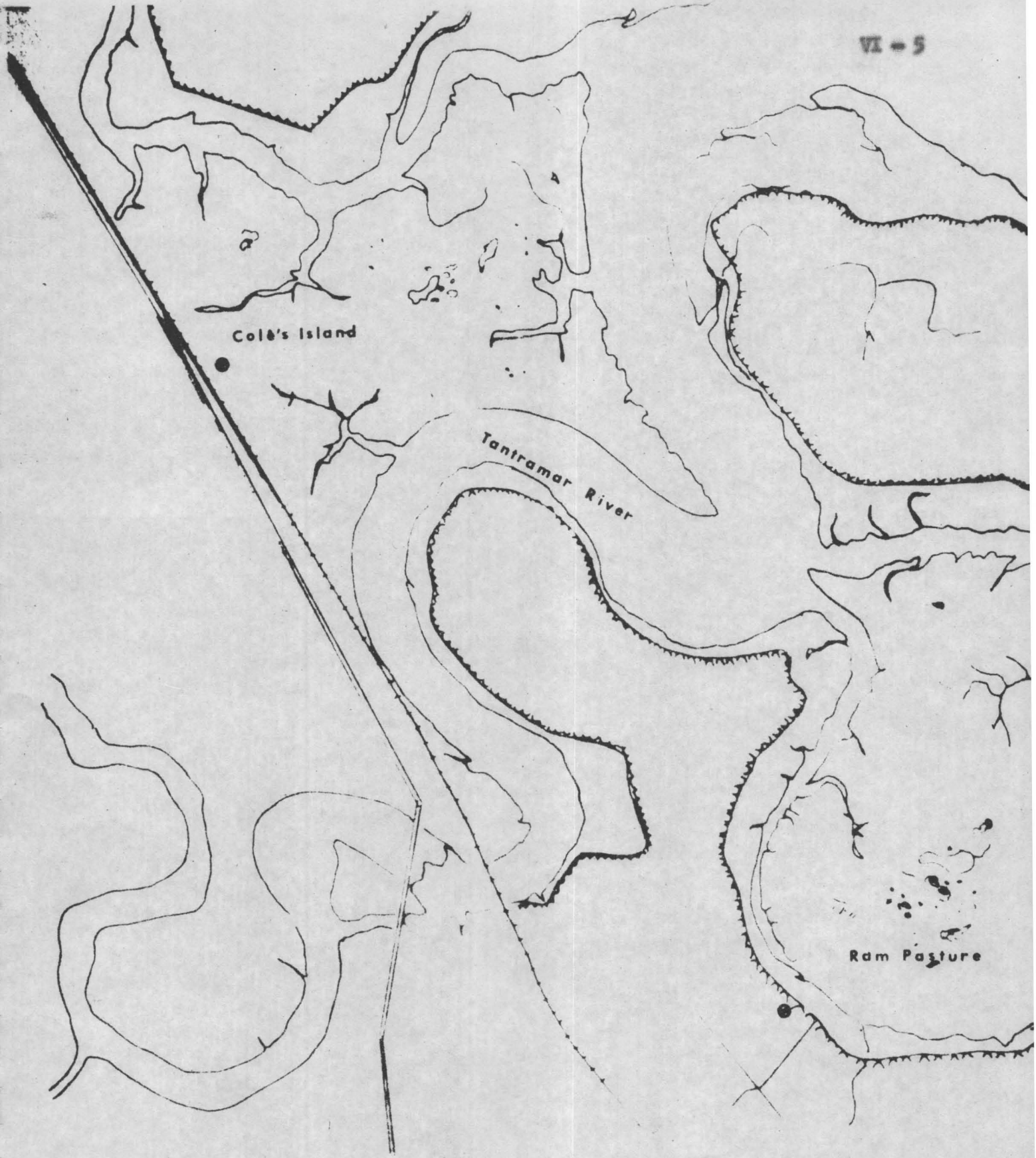


Figure II : Cole's Island and Ram Pasture Marshes.
● – Observation Points

VII - Ram Pasture

Procedure

The Ram Pasture was visited nine times between March 21 and May 8. Usually observations were made from the western edge of the town dump. On three occasions the marsh was visited on foot, the access route being a dike bordering the northern side of the marsh. This method of surveying the Ram Pasture didn't appear to produce results very different from those obtained by using a spotting scope on the western side of the marsh.

Results

Table 1 gives daily totals for species and pairs of waterfowl observed on the Ram Pasture. Figure I presents daily totals for Canada geese. Weather and ice conditions are presented in Table 2.

Discussion

As on the Cole's Island Marshes, little waterfowl breeding activity was observed here. This is undoubtedly a result of the great distance that often separated the observer and the waterfowl.

Also, it is again felt that had more emphasis been placed on surveying these marshes, a more complete picture of population trends in the waterfowl utilising it would have been obtained.

On April 20, both Canada geese and black duck reached their population peaks of 250 and 48 respectively. On only one occasion were species of waterfowl other than those mentioned above observed on this marsh.

Table 1. Species, daily totals and pairs of waterfowl - Ram Pasture, Spring 1972

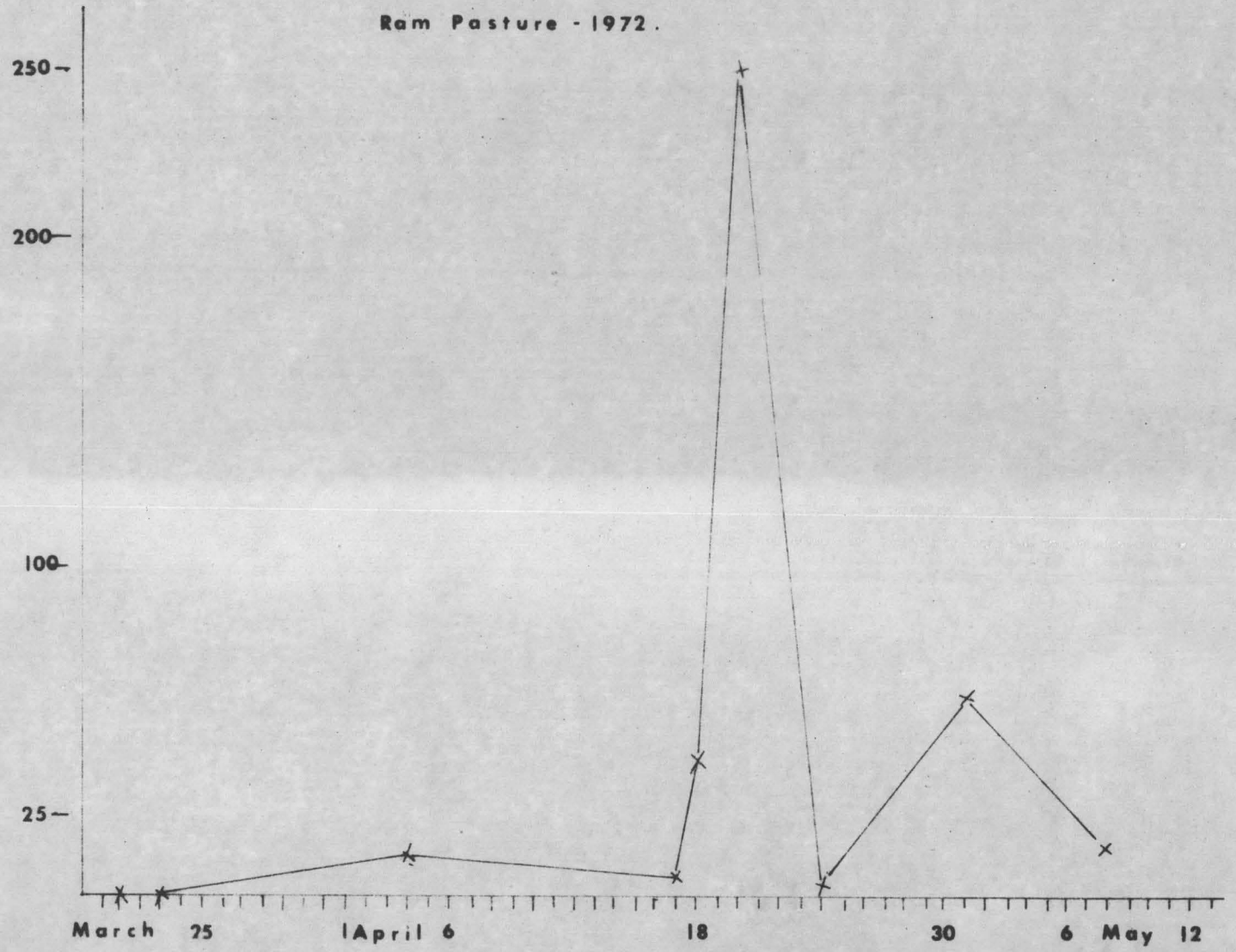
Species	March		April					May	
	21	23	4	17	18	20	24	1	8
Canada goose			12	5	41	250	3	60	13
Black duck			(1)*2		(2)5	(6) 48	(1) 7	(2) 4	
Pintail							(3) 6		
Green-w. teal							4		
Mallard							(1) 2		

* (pairs) total

Table 2. Weather and ice conditions for the Ram Pasture - Spring 1972

Date	Weather conditions	Ice conditions
March 21	Cloud cover 0% Wind 5 mph Temperature 20°F	The Ram Pasture is completely covered with ice and snow.
March 23	Cloud cover 100% Wind 5-10 mph Temperature 33°F	Conditions the same as March 21.
April 4	Cloud cover 100% Wind 8 mph Temperature 35°F	The marsh is beginning to clear along the edge of the tidal creeks.
April 14	Cloud cover 0% Wind 0-5 mph Temperature 36-40°F.	Approximately 50% of the Ram Pasture is free of ice. Large chunks of ice are scattered here and there having been deposited by the tide.
April 20	Cloud cover 60% Wind 0-5 mph Temperature 36°F	Only about one-quarter of the marsh is still covered with ice.
April 24	Cloud cover 65% Wind 5-10 mph Temperature 36°F	Very little ice present - only in some of the tidal creeks.
May 1	Cloud cover 35% Wind 5-7 mph Temperature 38°F	Ice and snow have completely disappeared from the Ram Pasture Marsh.
May 8	Cloud cover 20% Wind 5-7 mph Temperature 36°F.	

Figure 1. Daily totals for Canada Geese, Ram Pasture - 1972.



Appendix I. Climatological data for the past 10 years for March, April and May at Moncton, New Brunswick. Data from the Atmospheric Environment Service, Department of the Environment - Canada. Monthly Meteorological Summary.

March

Year	Maximum Temp.	Minimum Temp.	Mean Temp.	Rainfall	Snowfall	Total Precip.	Mean Windspeed	Hours Sunshine	Days with Precip	Degree Days
1963	53	- 3	23	0.16	39.6	4.38	14.5	150.6	10	1286
1964	54	- 7	26	1.50	33.3	4.42	16.8	120.1	17	1205
1965	44	5	27	0.81	13.3	2.41	13.1	149.4	13	1177
1966	54	7	31	2.34	17.8	4.46	9.9	144.7	17	1041
1967	40	- 8	18	0.14	57.6	7.11	11.4	141.4	18	1439
1968	52	- 8	28	3.04	16.6	5.28	10.5	131.7	19	1131
1969	48	0	27	1.29	22.9	4.18	11.7	128.9	17	1176
1970	48	0	27	0.93	21.6	3.92	9.9	147.1	15	1163
1971	52	7	28	0.63	42.3	6.67	11.2	140.7	16	1127
1972	51	- 6	22	1.29	52.2	10.02	11.2	103.5	22	1344

April

Year	Maximum Temp.	Minimum Temp.	Mean Temp.	Rainfall	Snowfall	Total Precip.	Mean Windspeed	Hours Sunshine	Days with Precip	Degree Days
1963	59	15	34	0.74	41.9	6.52	15.6	140.0	14	929
1964	60	11	36	2.30	10.7	3.37	12.7	189.6	9	867
1965	61	16	37	0.43	12.2	1.70	11.1	167.6	12	844
1966	60	21	37	0.13	8.6	1.36	10.0	169.8	9	844
1967	52	11	31	0.67	11.1	2.22	11.6	183.1	10	1003
1968	73	21	40	2.80	TR	2.80	12.7	177.5	16	746
1969	73	3	36	2.11	12.8	3.47	10.1	171.6	17	865
1970	69	20	37	0.85	7.8	2.00	9.5	177.7	10	828
1971	65	18	38	3.24	18.2	6.15	11.0	148.2	16	804
1972	62	15	33	0.03	41.0	3.42	8.5	153.9	16	956

May

Year	Maximum Temp.	Minimum Temp.	Mean Temp.	Rainfall	Snowfall	Total Precip.	Mean Windspeed	Hours Sunshine	Days with Precip.	Degree Days
1963	81	27	50	2.45	TR	2.45	13.2	242.9	11	467
1964	84	24	50	1.72	0	1.72	13.9	228.2	10	469
1965	76	26	49	2.03	0	2.03	10.8	181.7	13	502
1966	84	24	49	3.15	1.0	3.30	10.3	234.6	12	492
1967	62	29	43	6.65	5.4	7.62	12.0	149.0	19	678
1968	76	28	47	1.41	0	1.41	8.9	207.1	11	542
1969	85	28	47	2.93	TR	2.98	11.7	230.1	15	544
1970	77	27	50	2.90	0	2.90	8.9	193.4	13	455
1971	78	32	51	4.99	0	4.99	8.0	166.3	19	417
1972	89	22	49	3.84	TR	3.84	9.8	266.9	9	495