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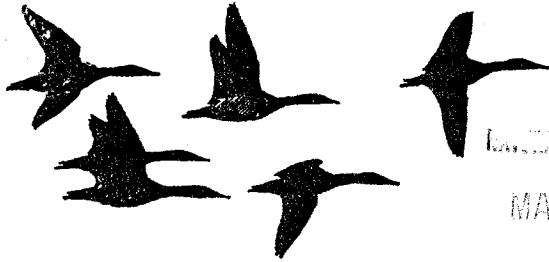
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CANADA GOOSE HARVEST AND HUNTER ACTIVITY IN THE SOUTHERN ILLINOIS QUOTA ZONE DURING THE 1978 SEASON

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Abstract: The 1978 goose season in the southern Illinois quota zone opened on 13 November 1978 and continued to the legal closing date of 20 January 1979, resulting in a 69 day season. Goose hunters made 70,983 trips to the field to harvest 40,490 geese for a success rate of 0.57. The 1978 harvest quota of 40,000 was barely exceeded by 490 geese. The mean number of hunters per day was 1,029. Hunter success was good throughout the season to 1 January 1979, at which time success declined sharply and continued to be fair to poor until the end of the season. Alexander County reported the highest success with 36 percent of the total hunting effort (25,553 hunter-trips), 40 percent of the harvest (16,348 geese) and an overall success rate of 0.64. Union County reported 23 percent of the total hunting effort (16,433 hunter-trips), 27 percent of the total harvest (10,915 geese) and an overall success rate of 0.66. Williamson/Jackson Counties accounted for 41 percent of the total hunting effort (28,947 hunter-trips), 33 percent of the harvest (13,227 geese) and a success rate of 0.46. A total of 146 commercial licenses and 290 free permits were issued during the 1978 goose season. The Canada goose population in the quota zone peaked at 253,000 on 18 December 1978. This was below the 312,000 population peak recorded in 1977 but geese were widely scattered throughout the fall and winter of 1978. Age ratios collected from geese harvested on the public hunting areas at Union County and Horseshoe Lake revealed a relatively low age ratio of 1.2 at both sites for the 1978 season.

INTRODUCTION

The four southern Illinois counties of Alexander, Union, Williamson and Jackson encompass the Horseshoe Lake Refuge, Union County Refuge and the Crab Orchard National Wildlife Refuge and comprise the Southern Illinois Quota Zone. The system of a quota zone with daily registration of all hunters and harvest offers a high degree of precision in monitoring the harvest of Canada geese. The quota zone system has been in effect in southern Illinois since 1960.

Execution of the quota zone harvest monitoring system throughout the season

is a complex task requiring the coordinated efforts of many people. Union County and Horseshoe Lake Site Superintendent Dick Nance and his staff at both sites provided valuable assistance throughout the season. Conservation Police Officers Wayne Wilson and Peter Clarke assisted in distribution of free landowner permits. Maxine Powless in the Union County office assisted greatly by issuing free permits and tabulating the harvest on free areas throughout the season. Ross Adams and staff at the Crab Orchard NWR contributed harvest information from their public hunting areas. The Canada Goose Harvest and Population Study in Illinois is a Federal Aid Pittman-Robertson Project, Number W-43-R(SI)-27.

Although the 1978 season lasted 69 days and was one of the longest seasons on record, most commercial club owners and Illinois goose hunters enjoyed a successful season. The increased quota of 40,000 geese and extremely cold and adverse weather after January 1, 1979 contributed to the long season.

METHODS

The methods and techniques used in monitoring the harvest in the quota zone during the 1978 season remained essentially the same as in past years. Staff at the Union County field office prepared registration packets prior to the season and efficiently distributed licenses and packets to club owners in the quota zone. As in past years, all clubs submitted daily register sheets twice a week and harvest inventories were updated each time by the Union County field office staff. In 1978 the club licensing regulations were changed slightly. Only clubs charging a daily fee for hunting were required to have a paid license in 1977. This was changed in 1978 so that a paid license was required for any area where there was reimbursement of any kind for goose hunting on the property. Only areas with free hunting rights were issued free licenses in 1978.

An automatic answering service was again installed in the phone system at the Union County office. Harvest data and season information was updated on the recording each time a harvest count was made. Interested goose hunters and club operators could call the number to obtain the most recent information on the progress of the 1978 season.

Aerial Canada goose inventories, conducted weekly (weather permitting) by biologists with the Illinois Department of Conservation and the Fish and Wildlife Service, provided population data for all of the areas throughout the season.

Age ratios of Canada geese were determined by examining the tail fans of geese harvested at the Union County and Horseshoe Lake Public Hunting Areas. Tail fans were also collected from geese being processed by commercial pickers in Union and Alexander Counties. These were stored individually in envelopes until after the season when they were examined by biologists.

RESULTS AND DISCUSSION

The 1978 goose season in the quota zone opened 13 November 1978 and closed 69 days later on 20 January 1979. This was the longest season in recorded history. The only other year when the season progressed to the legal closing of

20 January was in 1973 when a 63 day season was recorded. The 40,000 quota for the 1978 season was the largest quota in recorded history. This compares with a 1977 quota of 29,000 and a 1976 quota of 22,000.

Hunting Pressure

Goose hunters reported a total of 70,983 trips to the quota zone during the 1978 goose season (Table 1). This represents a 24 percent increase in total hunter activity from 1977 when 57,472 hunter trips were taken during a 44 day season. The number of hunters averaged 1,029 per day throughout the 1978 season. This was a 21 percent decrease from the 1977 daily average of 1,306 hunters. The relative hunting intensity in each county remained essentially unchanged from 1977 with 36 percent of the hunter trips occurring in Alexander County, 22 percent in Union County and 41 percent in Williamson/Jackson Counties.

The total number of hunting areas in the quota zone increased from 419 in 1977 to 436 in 1978 for a 4 percent increase. Due to the change in the regulations, the number of commercial clubs requiring paid licenses increased significantly from 72 in 1977 to 146 in 1978. The number of free permit areas showed a corresponding decline in numbers from 347 in 1977 to 290 in 1978. As in the past, the Crab Orchard area continued to support the greatest number of hunting clubs and the heaviest hunting pressure (Table 1).

Relative hunting intensity on public hunting areas in the quota zone remained essentially the same as in 1977 with 22 percent of the total hunting effort. Public hunting areas accounted for 13 percent of the Alexander County hunter-trips, 32 percent of the Union County hunter-trips and 22 percent of the hunter-trips in Williamson/Jackson Counties. During the 1978 season a total of 15,486 hunter-trips were made to public hunting areas in the quota zone (Table 2).

Hunter Success

Goose hunters in the quota zone reported a success rate of 0.57 birds per trip for the 1978 season (Table 1). This compares with a success rate of 0.53 in 1977 (Table 3). Union County had the highest success rate of the counties in the quota zone with 0.66. Alexander County followed with a success rate of 0.64 and Williamson/Jackson Counties trailed with a success rate of 0.46. Hunters on licensed commercial clubs in Union County enjoyed the highest success rate in the quota zone with 0.69 birds per hunting trip. Commercial clubs in Alexander and Williamson/Jackson Counties trailed with a success rate of 0.46.

Hunters on free permit areas averaged 0.51 birds per trip in Alexander County, 0.31 in Union County and 0.26 birds per trip in Williamson/Jackson Counties (Table 1).

The highest success rate on public lands occurred in Union County where a 0.63 success rate was reported. Hunters on public lands in Alexander County experienced a 0.43 success rate and 0.17 birds per trip were harvested on public lands in Williamson/Jackson Counties (Table 2).

The most significant changes in success rates from the 1977 season occurred

in Union County. The overall success rate for the county increased from 0.35 in 1977 to 0.66 in 1978. The success rate on public lands in Union County showed a corresponding increase from 0.28 in 1977 to 0.63 in 1978. The success rate in Alexander County also increased significantly from 0.57 in 1977 to 0.64 in 1978. Williamson/Jackson Counties, however, exhibited a marked decrease in success rate from 0.59 in 1977 to 0.46 in 1978.

Harvest

During the 1978 season goose hunters harvested 40,490 geese in the quota zone. Table 1 shows a complete breakdown of the harvest by county and by type of permit. Licensed commercial clubs in the quota zone harvested 35,430 geese or 87 percent of the total number of geese harvested. This represents a significant increase over the 77 percent recorded in 1977 but can be explained by the change in the licensing regulations in 1978.

Table 4 compares the county harvest by number and permit for the last 5 years. Hunters in Alexander County harvested the greatest number of geese with 16,348, which comprised 40 percent of the total harvest (36 percent in 1977). Williamson/Jackson Counties followed with a harvest of 13,227 geese for 33 percent of the total harvest (51 percent in 1977) and Union County harvest 10,915 geese for 27 percent of the total quota zone harvest (13 percent in 1977).

The average number of geese harvested per day of the 1978 season was 587. This represents a 16 percent decrease in the average daily harvest from 1977. The greatest number of geese harvested during a reporting period was 6,002. This number was reported during the first 4 days of the season (13 November-16 November 1978). The least number was 395 geese harvested between 7 January and 11 January 1979 (Table 5).

The total number of geese harvested on public hunting areas in the quota zone was 6,120. This represented 15 percent of the total harvest (Table 2). The Union County Public Hunting Area surpassed the other public areas in the quota zone with a harvest of 3,441 geese. This was a 258 percent increase over the 962 geese harvested on this area during the 1977 season. The harvest on the Horseshoe Lake Public Hunting Area also increased from 678 geese in 1977 to 1,457 geese in 1978 for a 115 percent increase. The harvest on public hunting areas in Williamson/Jackson Counties decreased markedly from 1,914 geese in 1977 to 1,106 geese in 1978 for a 58 percent decline.

Population Status

The Canada goose population in the quota zone peaked at 253,000 on 18 December 1978 (Table 6, Figure 1). This inventory was substantially less than the all time high of 405,000 reported in December of 1977. However, large numbers of geese were inventoried on many other areas throughout the state indicating that the geese remained widely scattered throughout the winter of 1978. At the time the population peaked in the quota zone, 45,000 geese were inventoried at Ballard County Refuge in Kentucky and 55,000 geese were observed at Rend Lake. Peak populations at each of the wintering refuges in the quota zone were 65,000 at Crab Orchard NWR,

92,000 at Union County Refuge and 110,000 at Horseshoe Lake Refuge (Table 6; Figure 2).

The first inventory of 142,000 geese on 16 October 1978 represents the highest number of geese for this early in the season in recent years (Figure 3). This compares with 85,700 in 1977, 47,000 in 1976, 107,800 in 1975 and 82,300 in 1974.

The most significant change in the population structure in the quota zone during the 1978 season was the decline in the number of geese at Crab Orchard NWR starting around 1 December 1978. Numbers of geese at Crab Orchard never did build to the usual 90-100,000 level as in the past few years. Instead, numbers declined to less than 5,000 birds late in the season (Figure 2).

Age ratios throughout the 1978 goose season remained relatively low (Table 7). Age ratios at Horseshoe Lake were the lowest since 1973 and at Union County the 1.2 immatures per adult ratio was the lowest since 1972 (Table 8). Early season age ratios were significantly lower than the 4.5 and 3.6 age ratios recorded at Union County and Horseshoe Lake respectively during the 1977 season. Lower immature to adult ratios on the wintering areas throughout the 1978 season substantiate estimates by the U.S. Fish and Wildlife Service of a 23 percent decline in MVP Canada goose production in the spring of 1978.

LITERATURE CITED

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- Roetker, F., N. J. Foltz, and W. L. Anderson. 1978. Canada goose harvest and hunter activity in the southern Illinois quota zone during the 1977 season. Illinois Dept. of Conservation, Migratory Bird Sect., Periodic Rpt. No. 23. 12pp.

Table 1. Hunter-trips and harvest of Canada geese in the southern Illinois quota zone during the 1978 season.

County	Hunter Trips	Percent By		Harvest	Percent By		Success Rate
		Permit	Counties		Permit	Counties	
<u>Alexander (Horseshoe Lake)</u>							
Licensed Clubs ^a (35) ^D	23,920	96		15,508	95		0.65
Free Permits (38)	<u>1,633</u>	<u>06</u>		<u>840</u>	<u>05</u>		0.51
Total	25,553	100	36	16,348	100	40	0.64
<u>Union County</u>							
Licensed Clubs (24)	15,148	92		10,506	96		0.69
Free Permits (22)	<u>1,335</u>	<u>08</u>		<u>409</u>	<u>04</u>		0.31
Total	16,483	100	22	10,915	100	27	0.66
<u>Williamson/Jackson (Crab Orchard NWR)</u>							
Licensed Clubs (87)	14,514	50		9,416	71		0.65
Free Permits (230)	<u>14,433</u>	<u>50</u>		<u>3,811</u>	<u>29</u>		0.26
Total	28,947	100	41	13,227	100	33	0.46
<u>Grand Total</u>	<u>70,983</u>		100	<u>40,490</u>		100	<u>0.57</u>

^a Licensed clubs are those areas that charge a daily fee for hunting and areas covered by lease or other monetary agreement. Free permits represent all other areas where goose hunting takes place. Each type of permit requires the same type of registration.

^b Numbers of permits issued.

Table 2. Contribution of public hunting areas to the hunting effort and harvest of Canada geese during the 1978 season.

County	Hunter-Trips	Percent of Total	Harvest	Percent of Total	Success Rate
Alexander ^a	3,381	13	1,457	9	0.43
Union ^b	4,998	30	3,441	32	0.69
Union ^c	669	02	116	01	0.17
Williamson/Jackson ^d	2,119	07	234	2	0.11
Williamson/Jackson ^e	4,319	15	872	7	0.20
All counties	15,486	22	6,120	15	0.40

^a

Horseshoe Lake Public Hunting Area, a licensed club.

^b

Union County Public Hunting Area, a licensed club.

^c

Firing Line on U.S. Forest Service Land, a free permit.

^d

Crab Orchard NWR Public Hunting Area, a licensed club.

^e

"Free-Lance Hunting" on Crab Orchard NWR Land, a free permit.

Table 3. Success rates for Canada goose hunters in the southern Illinois quota zone, 1973 to 1978.

County	1973	1974	1975	1976	1977	1978
Alexander	0.46	0.57	0.55	0.49	0.56	0.64
Union	0.49	0.56	0.80	0.62	0.35	0.66
Williamson/Jackson	0.27	0.40	0.43	0.65	0.59	0.46
All counties	0.41	0.49	0.57	0.59	0.53	0.57

Table 4. Harvest of Canada geese by county in the southern Illinois quota zone, 1974 to 1978^a

County	1974		1975		1976		1977		1978	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Alexander	10,624	43	9,176	37	7,613	30	11,111	36	16,348	40
Union	5,591	23	8,629	34	5,984	23	3,927	13	10,915	27
Williamson/Jackson	8,458	34	7,270	29	12,268	47	15,709	51	13,227	33
Total	24,673	100	25,075	100	25,865	100	30,747	100	40,490	100

^a

These harvest data are from daily registers of licensed clubs and permit areas, and regulations pertaining to these have changed through the years. Beginning in 1974, licensed clubs were only those areas that charged a daily fee and all others were required to have a free permit. In 1978 a licensed club was any area for which money changed hands for hunting either daily or annually. All other goose hunting areas were required to have a free permit and register hunters and harvest in the same manner as licensed clubs.

Table 5.
Goose harvest in the quota zone throughout the 1978-79 season

Date	Commercial Clubs						Will-Jack.		Non-Commercial Areas		Total	
	Alexander		Union		Will-Jack.		Non-Commercial Areas		Total			
	Hunters	Geese	Hunters	Geese	Hunters	Geese	Hunters	Geese	Hunters	Geese		
11-16-78	1,850	2,513	1,189	1,268	1,527	1,796	750	425	5,316	6,002		
11-19-78	3,140	3,573	1,988	1,615	2,597	2,598	2,480	836	10,205	8,622		
11-23-78	4,313	4,740	2,784	2,117	3,719	3,274	4,303	1,308	15,119	11,439		
11-26-78	6,279	5,910	3,896	2,643	5,013	3,946	6,130	1,662	21,318	14,161		
11-30-78	7,401	6,571	4,941	3,124	5,971	4,455	6,911	1,901	25,224	16,051		
12-3-78	9,716	7,649	5,883	3,684	7,118	5,147	8,333	2,381	31,050	18,861		
12-7-78	11,080	8,469	6,942	4,454	8,046	5,864	9,279	2,688	35,347	21,475		
12-10-78	12,966	9,402	7,971	5,006	9,155	6,551	10,434	3,008	40,526	23,967		
12-14-78	14,571	10,088	8,854	5,583	9,958	7,145	11,205	3,216	44,588	26,032		
12-17-78	16,181	10,867	9,656	6,019	10,723	7,481	12,405	3,450	48,965	27,817		
12-24-78	18,660	12,170	11,210	7,448	12,186	8,240	14,073	4,098	56,129	31,956		
12-28-78	19,917	12,608	12,070	7,952	12,739	8,432	14,516	4,241	59,242	33,233		
12-31-78	21,387	13,633	13,014	8,648	13,658	8,943	15,974	4,575	64,033	35,799		
1-4-79	21,744	13,900	13,275	8,758	13,884	9,063	16,387	4,757	65,290	36,478		
1-7-79	22,675	14,493	13,781	9,092	14,167	9,231	16,919	4,946	67,542	37,762		
1-11-79	22,948	14,659	13,960	9,208	14,313	9,321	17,034	4,969	68,255	38,157		
1-20-79	23,845	15,451	15,035	10,390	14,509	9,416	17,340	5,050	70,729	40,307		
Final	23,920	15,508	15,148	10,506	14,514	9,416	17,401	5,060	70,983	40,490		

GRAND TOTAL: 70,983 40,490

Table 6. Canada goose populations on wintering areas throughout the fall and winter of 1978.

DATE:	FALLARD COUNTY	HORSESHOE LAKE	UNION COUNTY	CRAB ORCHARD	REND LAKE	CAMPBELL POND	TOTAL
10-16-78	3,500	50,000	25,000	55,000	4,500	4,000	142,000
10-24-78	5,000	46,000	25,000	57,000	5,000	3,500	141,500
10-30-78	5,000	49,000	28,000	60,000	5,000	4,000	151,000
11-08-78	5,000	50,000	25,000	65,000	5,000	4,000	154,000
11-14-78	N.C.	62,000	25,000	53,000	8,000	6,000	154,000
11-28-78	8,000	68,000	40,000	55,000	28,000	11,000	210,000
12-14-78	45,000	63,000	92,000	20,000	55,000	13,000	288,000
12-18-78	45,000	110,000	92,000	34,000	42,000	17,000	340,000
01-04-79	75,000	70,000	74,000	4,000	62,000	15,000	335,000
01-16-79	85,000	15,000	30,000	3,000	32,000	0	165,000
01-22-79*	88,500	18,000	25,000	3,000	30,000	0	164,500
02-20-79	10,000	35,000	45,000	15,000	50,000	2,000	157,000

*Miss. River (Ballard Co.-Reelfoot) 1,000
 Reelfoot Refuge, Tenn. 15,000
 Big Lake, Ark. 1,000
 Wapanocca NWR, Ark. 83,000
 N.E. Arkansas (scattered) 1,000
 Total 101,000

Table 7. Age ratios expressed as immatures per adult, for Canada geese harvested throughout the 1978 season or the Union County and Horseshoe Lake Public Hunting Areas.

	Union County Public Hunting Area	Horseshoe Lake Public Hunting Area
Nov. 13-22	1.8 (374)*	1.5 (256)
Nov. 23-Dec. 2	1.6 (422)	1.3 (283)
Dec. 3-12	1.4 (579)	1.4 (341)
Dec. 13-22	1.0 (515)	1.0 (186)
Dec. 23-Jan. 1	1.2 (383)	1.0 (132)
Jan. 2-11	1.2 (195)	.8 (121)
Jan. 12-20	---	.5 (79)
Entire Season	1.2 (2468)	1.2 (1398)

* Sample Size

Table 8. Age ratios, expressed as immatures per adult, among Canada geese harvested on the Horseshoe Lake and Union County public hunting areas, 1965 to 1978.

Year	Horseshoe Lake	Union County
1965	--	3.7
1966	1.1	2.6
1967	0.8	1.7
1968	1.2	2.2
1969	0.9	1.2
1970	0.9	3.4
1971	1.4	2.8
1972	0.8	1.1
1973	0.8	1.6
1974	1.8	2.5
1975	2.6	4.1
1976	2.5	2.7
1977	1.7	1.3
1978	<u>1.2</u>	<u>1.2</u>
MEAN	1.36	2.29

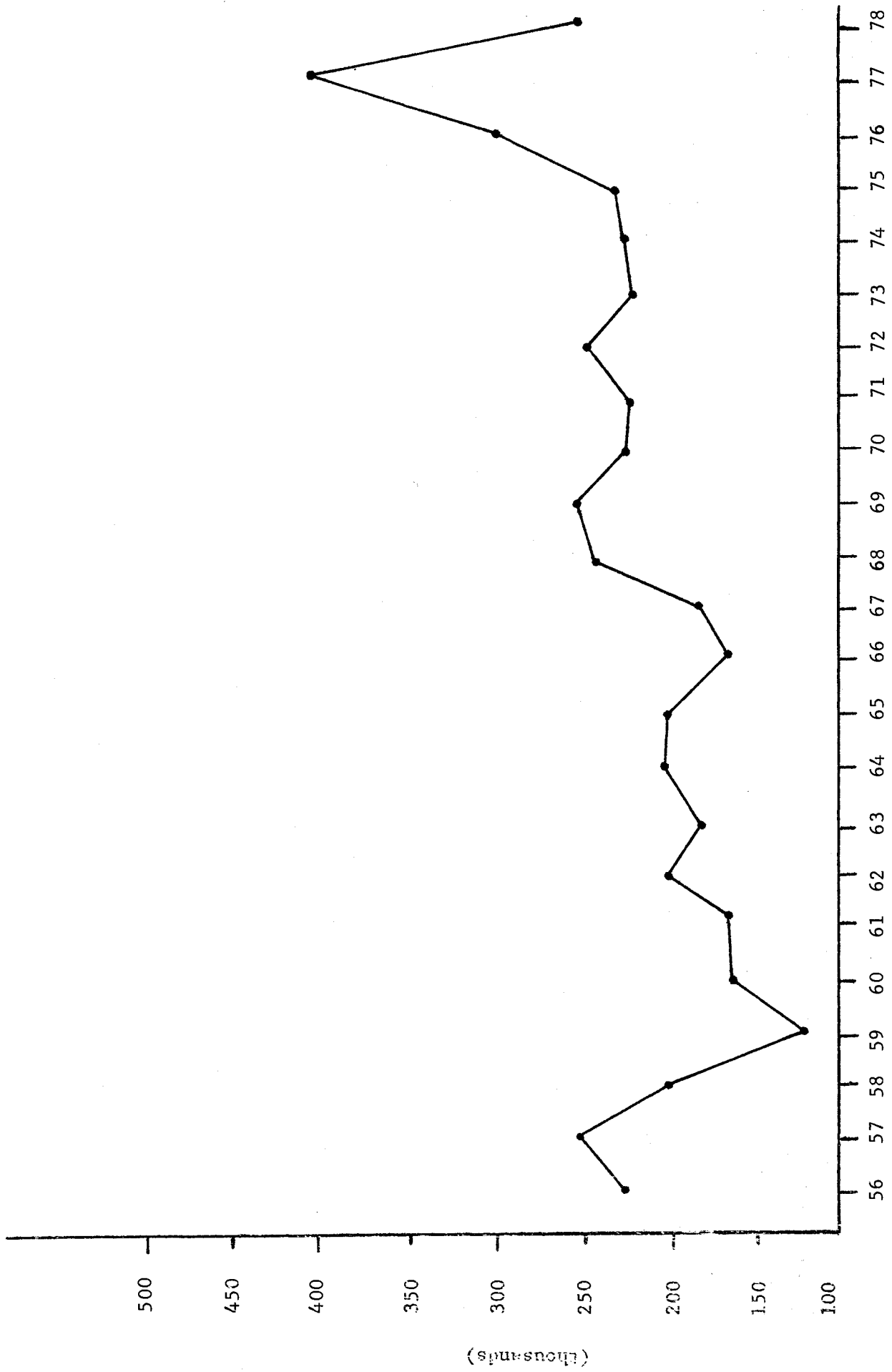


Figure 1. Peak populations of Canada geese in the southern Illinois quota zone, 1956 to 1978.

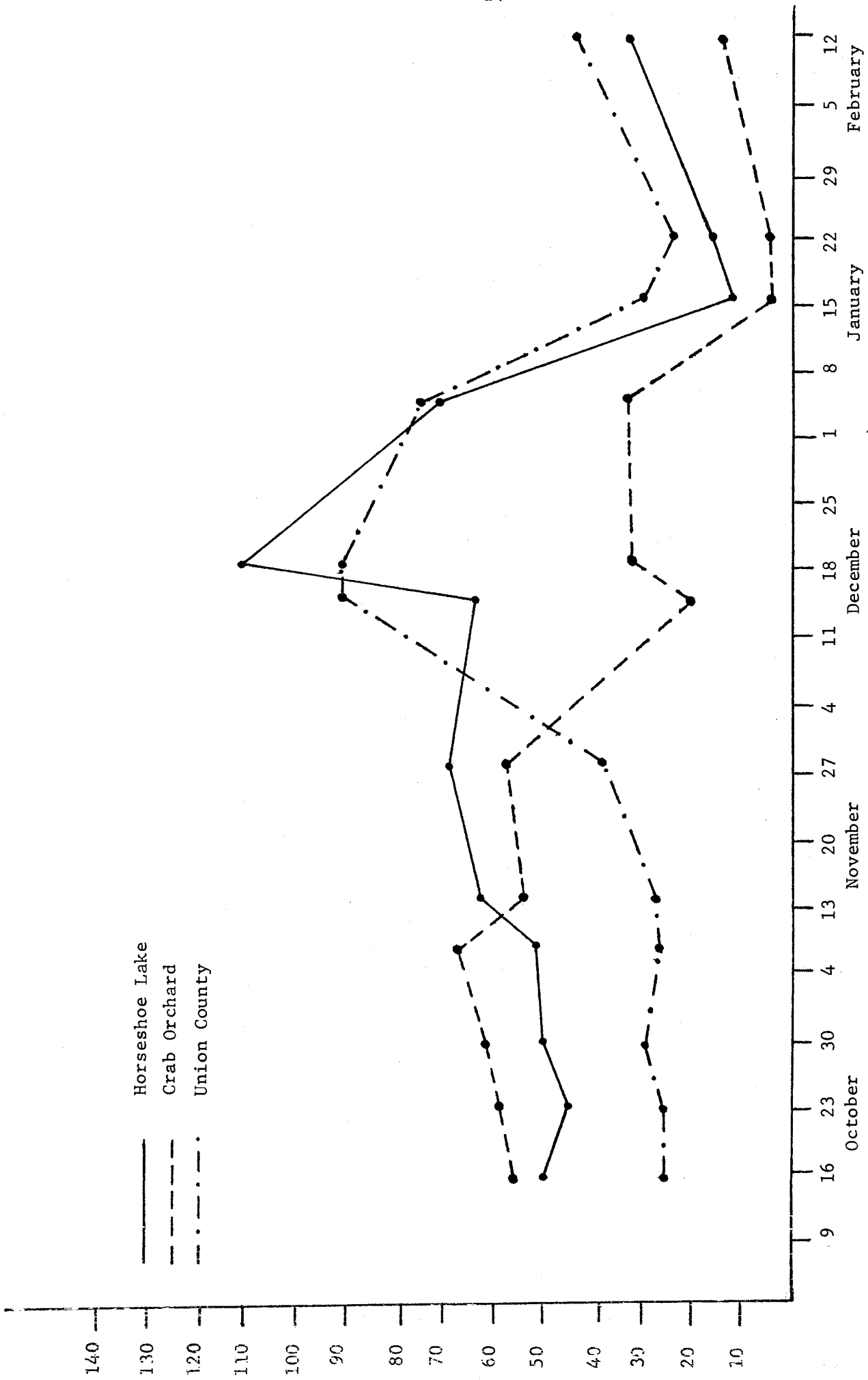


Figure 2. Numbers of Canada geese on the three refuges in the southern Illinois quota zone during fall and winter, 1978-9.

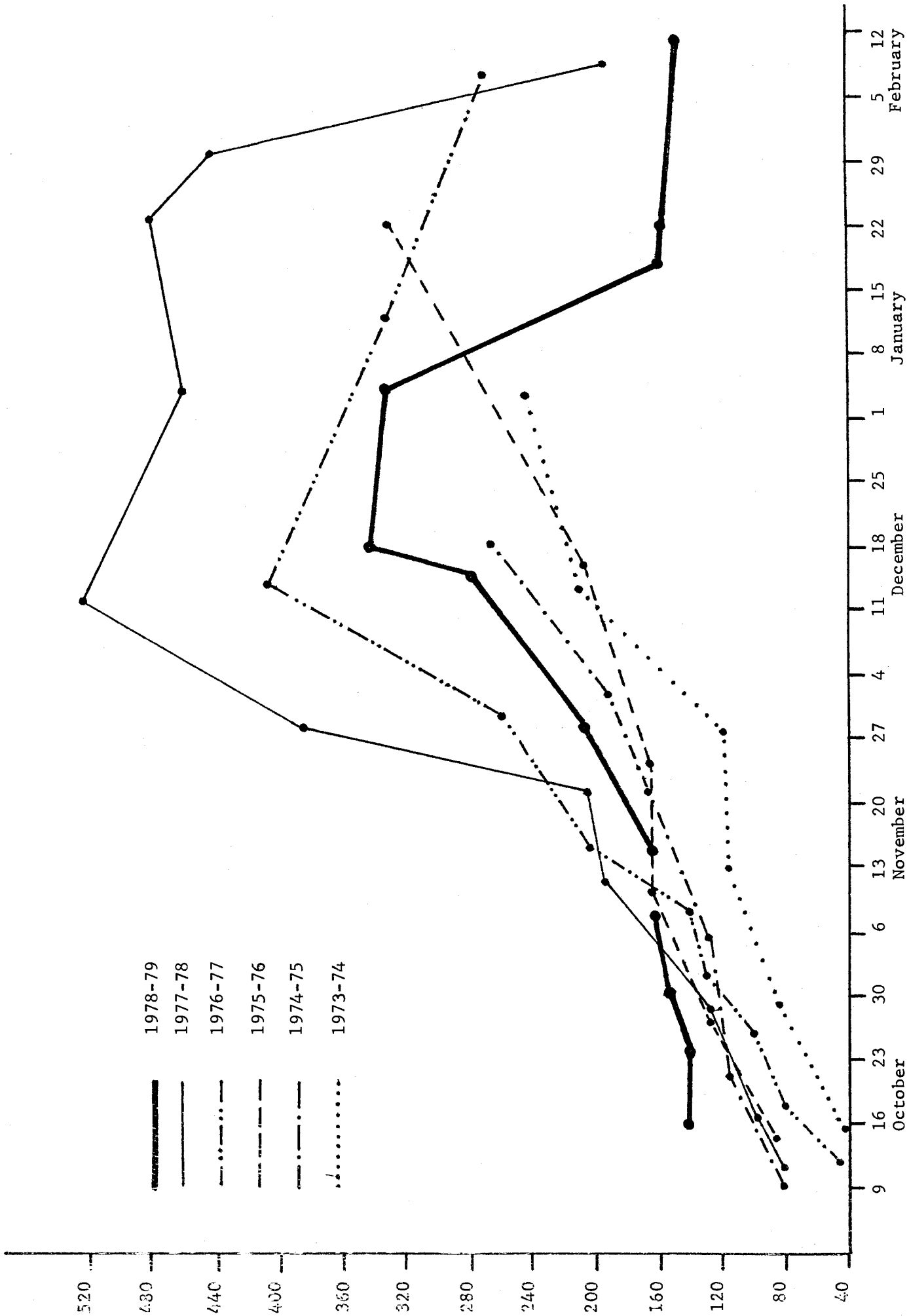


Figure 3. Numbers of Canada geese in southern Illinois (quota zone, Rend Lake, and Ballard County, Kentucky, combined) during fall and winter, 1973-74 to 1978-79.