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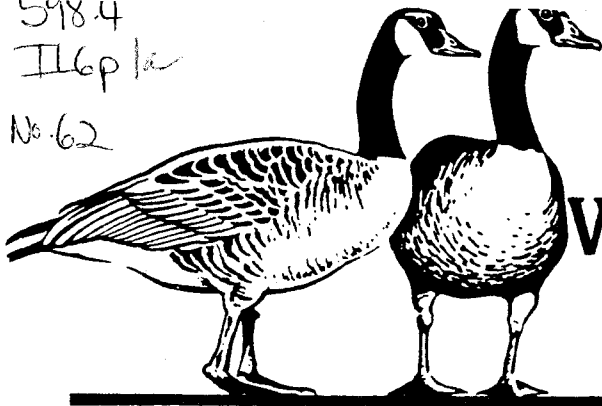
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WATERFOWL PROGRAM

ILLINOIS DEPARTMENT OF CONSERVATION

DIVISION OF WILDLIFE RESOURCES

NATURAL HISTORY SURVEY

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CANADA GOOSE HARVEST AND HUNTER ACTIVITY
IN THE SOUTHERN ILLINOIS QUOTA ZONE DURING
THE 1987 SEASON

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Abstract: The 1987 4-County Southern Illinois Quota Zone (quota zone) goose hunting season opened 16 November and closed 50 days later on 4 January with a total harvest of 18,585 Canada geese. The established season length was 50 days or when a quota of 26,300 was harvested. The Crab Orchard region accounted for 51% (9,409) of the total quota zone harvest while 29% (5,427) occurred in Alexander County and 20% (3,749) in Union County. A total of 99 commercial clubs was licensed and harvest on non-commercial areas was estimated using mean percent harvest in past years. Goose hunters made 60,804 trips (up 10,141) to the quota zone and averaged .31 goose per trip (down .20). Commercial clubs in the Crab Orchard region reported the highest hunter success rate (.45). Clubs in Union and Alexander counties followed with nearly identical success rates of .31 and .30 goose per hunter-trip. A total of 587 geese was harvested by 3,637 hunters on public hunting areas at Union County and Horseshoe Lake, and 2,848 hunters took 517 geese on the public hunting area at Crab Orchard. The Canada goose population in the quota zone peaked at 492,000 on 11 January 1987 (331,000 in 1986). The 1987 mid-December MVP Canada goose count in the quota zone was 156,000 (327,000 in 1986). By 21 December the population had increased to 431,850 which suggested that the majority of the MVP was migrating at the time of the mid-December count. The peak wintering population of 611,300 on 11 January in southern Illinois and Ballard County, Kentucky represented an all time high, well above the 500,000 MVP management objective. Tail fans (n=2,297) collected from geese harvested in Union, Alexander and Williamson-Jackson counties revealed an age ratio of .89:1 immatures/adult which indicated a below-average production year. A late migration (17-21 December) from east-central Wisconsin, mild weather and many adult geese in the flock resulted in a poor goose hunting season in the quota zone in 1987.

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INTRODUCTION

The quota zone in southern Illinois is composed of Alexander, Union, Williamson and Jackson counties. Within this 4-county region are 3 major Canada goose wintering areas. In Alexander County, the Horseshoe Lake State Fish and Wildlife Area contains 7,900 acres and encompasses an ancient oxbow of the Mississippi River. Approximately 30 miles north of Horseshoe Lake is the 6,200 acre Union County State Fish and Wildlife Area. The third important goose wintering area in this southern Illinois region is the Crab Orchard National Wildlife Refuge, a 44,000 acre federally owned area in Williamson and Jackson counties. This area surrounds Crab Orchard Lake and is located 35 miles northeast of Union County.

The quota zone system requires that all goose hunters hunting on licensed areas register and report their harvest daily. All commercial clubs (those receiving compensation for goose hunting on their land) are required to apply for a license at a cost of \$15.00 per blind or pit. This system of hunter registration is recognized as one of the most efficient and accurate methods of monitoring Canada goose harvest in local areas where geese are concentrated and hunting pressure is intense. The quota zone system has been in effect in southern Illinois since 1960 with only minor changes made in regulations through the years. Approximately 85% of the quota zone goose harvest occurs on licensed commercial clubs.

Goose hunting regulations in the quota zone were amended for the 1987 season to allow 3 persons to occupy a pit or blind for taking or attempting to take Canada geese on commercial clubs. In the past, the number of hunters was restricted to 2 except in those blinds where a licensed guide accompanied the hunters. Guide licensing by the Department of Conservation was eliminated as part of the 1987 legislation change.

METHODS AND MATERIALS

All landowners applying for a commercial goose license in the quota zone received registration packets containing daily registration sheets, club permit, administrative order and self-addressed envelopes. Commercial clubs submitted daily harvest sheets twice weekly throughout the season and the zone harvest was updated at each interval by Union County field office personnel. All procedures in 1987 were the same as in 1986, including methods of estimating harvest and hunting pressure on outlying non-commercial areas by using the mean percent harvest occurring on those areas in past years (Thornburg and Estel 1983).

An automatic answering machine was maintained in the phone system at the Union County office. Harvest information and results of the most recent aerial inventories were updated each time a harvest count was made. In this way, interested goose

hunters, club operators, and media services were able to get immediate information on the progress of the 1987 quota zone goose season.

Canada goose populations on wintering areas in the quota zone, Reard Lake and Ballard County, Kentucky were monitored by aerial inventories starting 13 October and ending 25 January. Flights were conducted at weekly intervals, weather permitting. Biologists with the Illinois Department of Conservation (IDOC) and the U.S. Fish and Wildlife Service (USFWS) conducted the inventories using the state's Cessna 210 or Cessna 337.

RESULTS AND DISCUSSION

The 1987 quota zone goose season opened on 16 November and closed 50 days later on 4 January. The harvest quota within the zone was increased 10% from 24,000 in 1986 to 26,300 in 1987 but the season length remained at 50 days (Table 1). The early migration of Canada geese arrived on schedule at southern Illinois wintering areas on 21 September 1987. Mild weather throughout the flyway resulted in a delayed late winter migration. Normally, this major migration occurs in early December, however, it occurred between 17-22 December in 1987. The number of geese on wintering areas increased from 156,000 to 431,850 during these 5 days. Hunter success improved in the quota zone following this migration but within a short time harvest rates again declined. Warm, sunny weather in the quota zone continued to plague hunters for the remainder of the 50-day season. The final harvest of 18,585 geese fell 7,715 short of the 26,300 quota. Goose numbers were at record levels for this time of year, however, many adult geese in the population and a decline in off-refuge feeding patterns prevented hunters from harvesting the 1987 quota.

Hunting Pressure

Goose hunters reported a total of 60,804 days afield during the 1987 season which was an increase of 10,141 days over 1986. This included 41,461 hunter-trips on commercial clubs (35,248 in 1986) with an additional 6,485 hunters on public hunting areas at Union County, Horseshoe Lake and Crab Orchard NWR. An estimated 12,858 hunter-trips occurred on non-commercial areas where hunters were not required to report. The average daily number of hunters (1,216) was similar to the 1,206 hunters per day reported during the 1986 season (Thornburg 1987).

Commercial licenses were issued to 99 clubs in the quota zone in 1987 (97 in 1986). Commercial clubs were most numerous in the Crab Orchard area (46), while clubs in Alexander and Union counties numbered 37 and 16, respectively.

Forty percent of the hunter-trips on commercial clubs was

reported in Alexander County, 34% in Williamson-Jackson Counties, and 26% in Union County. The Crab Orchard region supported the greatest number of hunter-trips in the quota zone with 49% (Table 2).

Hunter use on public hunting areas in the quota zone is included in the commercial club totals. In 1987, these areas accounted for 16% of the hunting effort on commercial clubs. The Crab Orchard NWR public hunting area accommodated the most hunters (2,848) in 1987. This represented 44% of the total hunting effort on public hunting areas in the quota zone (Table 3). In past years, Union County contributed the largest percentage of total hunting effort on public hunting areas.

Harvest

A total of 18,585 geese was harvested in the quota zone during the 1987 season. This was 7,715 geese below the assigned harvest quota of 26,300. The goose hunting season lasted the full 50 days since the quota was not achieved. Commercial clubs harvested 14,882 geese or 80% of the total harvest. Forty-three percent of the harvest on commercial clubs occurred in Williamson-Jackson Counties (6,351 geese), 34% in Alexander County (5,101 geese), and 23% in Union County (3,430 geese).

Fifty-one percent of the total harvest occurred on areas within Williamson-Jackson Counties (9,409 geese), 29% occurred in Alexander County (5,427 geese) and 20% in Union County (3,749 geese) (Table 2).

Public hunting areas contributed a harvest of 1,104 geese in 1987. Forty-seven percent of the harvest occurred at Crab Orchard (517 geese), 35% at Union County (391 geese), and 18% at Horseshoe Lake (196 geese) (Table 3). Canada goose harvest on public hunting areas in the quota zone represented 7.7% of the total commercial club goose harvest. Goose harvest on the Union and Horseshoe Lake public hunting areas was again well below the 1978-1982, 5-year average (Table 4).

The average daily goose harvest for the 1987 season was 372 geese per day. This was down considerably from 616 in 1986. As usual the greatest harvest occurred during the first three days of the season. Goose harvest declined to a low of 273 per day prior to the delayed arrival (17-21 December) of new geese from Wisconsin. Late December migrants (350,000 geese) bolstered slumping harvest rates temporarily but did not significantly increase daily harvest for the remainder of the season (Table 5). Except in 1984, the Crab Orchard region has led the other areas in total goose harvest for the last five years (Table 6).

The estimated harvest on non-commercial private lands in 1987 was 3,703 geese. The largest percentage (83%) occurred in

Williamson-Jackson Counties, 9% in Alexander County, and 8% in Union County.

Hunter Success

Hunter success in the quota zone declined from .51 goose per trip in 1986 to .31 in 1987 (Table 7). This represents the lowest success rate in 9 years. Commercial clubs in the Crab Orchard region reported the highest success rate (.45) while commercial clubs in Union and Alexander counties reported success rates of .31.

The public hunting area at Crab Orchard NWR reported the highest success rate of .18 for the 1987 hunting season. The Union and Horseshoe Lake public hunting areas each reported a success rate of .16. Hunter success on the Union County PHA was the lowest on record (Table 8), while the Horseshoe Lake PHA was the lowest since 1982 (Table 9).

Population Status

The Canada goose population in the quota zone peaked at 492,000 on 11 January 1988 (Table 10, Figure 1). This was double the December 1986 peak (239,000). Canada geese arrived on schedule at southern Illinois and western Kentucky wintering areas on 21 September 1987. The major, early migration occurred 2-4 October when a cold front and north winds moved through the region. This brought the total number of geese to 88,500. Smaller migrations occurred in late October and early November, resulting in goose populations totaling 120,800 by opening day of the hunting season. The major, late winter migration was delayed until 17-21 December when the population in the quota zone and western Kentucky increased to 521,850 geese (Figure 2). The population continued to increase to 611,300 on 11 January 1988 (331,000 in 1986).

Individual refuges in southern Illinois reported record peak numbers of Canada geese compared to previous years: Union County - 132,000, Horseshoe Lake - 170,000, Crab Orchard - 177,000 and Rend Lake - 110,000 (Figure 3). Weather conditions throughout Illinois and northern latitudes were mild which contributed to the late migration of geese to southern Illinois.

Age ratios in the harvest indicated a below-average production year in 1987. Analysis of goose tail fans collected from commercial pickers in Union, Alexander and Williamson counties revealed an age ratio for the season of .89 immatures per adult (Table 11). Similar age ratios of .94 and 1.02 were observed in geese harvested on the public hunting areas at Horseshoe Lake and Union County (Table 12). These age ratios were well below the long-term average (Table 13).

CONCLUSIONS

The Mississippi Valley Population of Canada geese, as determined by the mid-December flyway inventory (565,000), did not surpass the 1985 record high (619,000) but was higher than the 1986 inventory (516,000). Population changes each year can be attributed to spring production fluctuations, variable harvest levels and inventories which may or may not accurately survey the entire population. Harvest objectives in the major MVP states (Illinois, Wisconsin, Michigan, Indiana, Kentucky and Tennessee) were not met in 1987. Flyway harvest was therefore conservative on a flock that remains well above the 500,000 population management objective.

Continued increases in the MVP resulted in liberalization of harvest regulations established for the 1985 and 1986 seasons. The upstate season length in 1987 remained at 40 days, however, the daily bag limit was increased from one to two geese. The Rend Lake Quota Zone daily bag limit was also increased to two geese per day and the opening date of the hunting season was set to concur with the opening date of the 4-County Quota Zone season. Statewide harvest allocation was increased 10% from 48,000 to 52,500 in 1987.

The 1987 Illinois Waterfowl Hunter Questionnaire Survey revealed a statewide harvest estimate of 36,103 total Canada geese (31,410 MVP, 87%) (Anderson 1988). This survey confirms that the statewide and 4-County Quota Zone harvests in 1987 were well below the assigned harvest objectives established by the Flyway Council and U.S. Fish and Wildlife Service (Table 14).

The future status of the MVP is optimistic as the flock continues to increase. If production surveys indicate another record fall flight prediction, more liberal harvest quotas can be expected in 1988.

LITERATURE CITED

- Anderson, W.L. 1989. Illinois waterfowl harvest, hunter activity and attitudes toward duck season dates, shooting hen mallards and September giant Canada goose season in 1987. Illinois Dept. of Conservation, Waterfowl Program, Periodic Rpt. No. 61. 14pp.
- Thornburg, D.D. 1987. Canada goose harvest and hunter activity in the southern Illinois quota zone during the 1986 season. Illinois Dept. of Conservation, Waterfowl Program, Periodic Rpt. No. 58. 6pp.
- _____. 1987. Waterfowl harvest and hunter use in the Rend Lake quota zone during the 1986 waterfowl season. Illinois Dept. of Conservation, Waterfowl Program. Periodic Rpt. No. 57. 7pp.
- _____, and B.L. Estel. 1983. Canada goose harvest and hunter activity in the southern Illinois quota zone during the 1982 season. Illinois Dept. of Conservation, Waterfowl Program. Periodic Rpt. No. 42. 24pp.

Table 1. Annual Southern Illinois Quota Zone Goose Season Statistics, 1974-1987.

| Year | Quota Size | Season Length | Date Open | Date Closed | Harvest | Avg. Daily | | Pop. Peak | Hunter Trips | No. of | |
|------|------------|---------------|-----------|-------------|---------|--------------|---------|-----------|--------------|-------------|--------------|
| | | | | | | Success Rate | Peak | | | Comm. Clubs | Free Permits |
| 1974 | 22,000 | 38 | 11/25/74 | 01/01/75 | 24,673 | .49 | 217,000 | 49,971 | 60 | 230 | |
| 1975 | 22,000 | 30 | 11/23/75 | 12/23/75 | 25,075 | .57 | 180,000 | 44,310 | 58 | 239 | |
| 1976 | 22,000 | 27 | 11/22/76 | 12/18/76 | 25,865 | .59 | 316,000 | 44,080 | 61 | 296 | |
| 1977 | 29,000 | 44 | 11/21/77 | 01/03/78 | 30,747 | .53 | 405,000 | 57,472 | 72 | 347 | |
| 1978 | 40,000 | 69 | 11/13/78 | 01/20/79 | 40,490 | .57 | 253,000 | 70,983 | 146 | 290 | |
| 1979 | 29,000 | 70 | 11/09/79 | 01/17/80 | 29,193 | .42 | 248,000 | 69,414 | 137 | 307 | |
| 1980 | 27,000 | 31 | 11/03/80 | 12/03/80 | 27,835 | .68 | 220,000 | 40,888 | 113 | 332 | |
| 1981 | 24,000 | 50 | 11/09/81 | 12/28/81 | 25,328 | .44 | 180,000 | 56,964 | 109 | 358 | |
| 1982 | 17,500 | 40 | 11/08/82 | 12/17/82 | 17,863 | .42 | 166,000 | 42,432 | 106 | --- | |
| 1983 | 17,500 | 35 | 11/14/83 | 12/18/83 | 18,164 | .44 | 207,000 | 41,124 | 101 | --- | |
| 1984 | 17,500 | 25 | 11/12/84 | 12/06/84 | 14,607 | .46 | 272,000 | 31,515 | 92 | --- | |
| 1985 | 17,500 | 31 | 11/11/85 | 12/11/85 | 21,767 | .58 | 245,000 | 37,820 | 89 | --- | |
| 1986 | 24,000 | 42 | 11/17/86 | 12/28/86 | 25,858 | .51 | 239,000 | 50,663 | 97 | --- | |
| 1987 | 26,300 | 50 | 11/16/87 | 01/04/88 | 18,585 | .31 | 492,000 | 60,804 | 99 | --- | |

Table 2. Hunter-trips and Harvest of Canada Geese in the Southern Illinois Quota Zone during the 1987 Season.

| | Number of Permits Issued | Hunter Trips | Percent By Permit | Percent By Counties | Harvest | Percent By Permit | Percent By Counties | Success Rate |
|--|--------------------------------|-----------------|-------------------------|---------------------------|--------------|-------------------------|---------------------------|-----------------|
| <u>Alexander (Horseshoe Lake)</u> | | | | | | | | |
| Licensed Club ^a | 37 | 16,495 | 92 | | 5,101 | 94 | | .31 |
| Other Areas ^b | | <u>1,434</u> | <u>8</u> | | <u>326</u> | <u>6</u> | | <u>.23</u> |
| | Total: | 17,929 | 100 | 30 | 5,427 | 100 | .29 | .30 |
| <u>Union County</u> | | | | | | | | |
| Licensed Clubs ^a | 16 | 10,931 | 84 | | 3,430 | 92 | | .31 |
| Other Areas ^b | | <u>2,082</u> | <u>16</u> | | <u>319</u> | <u>8</u> | | <u>.15</u> |
| | Total: | 13,013 | 100 | 21 | 3,749 | 100 | .20 | .29 |
| <u>Williamson/Jackson (Grab Orchard NWR)</u> | | | | | | | | |
| Licensed Clubs ^a | 46 | 14,035 | 47 | | 6,351 | 67 | | .45 |
| Other Areas ^b | | <u>15,827</u> | <u>53</u> | | <u>3,058</u> | <u>33</u> | | <u>.19</u> |
| | Total: | 29,862 | 100 | 49 | 9,409 | 100 | .51 | .32 |
| Grand Total | 99 | 60,804 | | 100 | 18,585 | | 100 | .31 |

^aLicensed clubs are those areas that charge a daily fee for hunting and areas covered by lease or other monetary agreement. Number of hunter trips and harvest are reported directly by daily registration of hunters.

^bOther areas represent all other areas where goose hunting occurs. In 1982, the free permit was eliminated and hunters were no longer required to register to hunt on free areas. Number of hunter-trips and harvest were estimated using a 9-year mean percent harvest and percent hunter-trips occurring on free areas in each of the counties in past years.

Table 3. Contribution of Public Hunting Areas to the Hunting Effort and Harvest of Canada Geese during the 1987 Season.

| County | Hunter Trips | Percent of | | Harvest (%) | Percent of | | Success Rate |
|---------------------------------|-----------------|---------------------------------|------------|-------------|---------------------------------|------------|-----------------|
| | | County Commercial Club Total | Commercial | | County Commercial Club Total | Commercial | |
| Alexander ^a | 1,191 | 7.2 | | 196 (18) | 3.8 | | .16 |
| Union ^b | 2,446 | 22.4 | | 391 (35) | 11.4 | | .16 |
| Williamson/Jackson ^c | 2,848 | 20.3 | | 517 (47) | 8.1 | | .18 |
| All Counties | 6,485 | 15.7 | | 1,104 | 7.7 | | .17 |

^a Horseshoe Lake Public Hunting Area is a licensed club.

^b Union County Public Hunting Area is a licensed club.

^c Crab Orchard NWR Public Hunting Area is a licensed club.

Table 4. Comparison of the 1987 Season on the Union County and Horseshoe Lake Public Hunting Areas with the 1986 Season and the 1978-1982, 5-Year Average.

| | Union County Public Hunting Area | | | Horseshoe Lake Public Hunting Area | | |
|---------------------------------|----------------------------------|-------|-------|------------------------------------|-------|-------|
| | 5-Year Avg. (78-82) | 1986 | 1987 | 5-Year Avg. (78-82) | 1986 | 1987 |
| Percent of Total County Hunters | 32 | 21 | 19 | 11 | 09 | 07 |
| Percent of Total County Harvest | 34 | 14 | 10 | 07 | 04 | 04 |
| Number of Hunters | 3,835 | 2,628 | 2,446 | 2,081 | 1,382 | 1,191 |
| Average Number Hunters Per Day | 79 | 80 | 49 | 43 | 42 | 24 |
| Harvest | 2,318 | 1,052 | 391 | 745 | 367 | 196 |
| Success Rate | .61 | .40 | .16 | .36 | .27 | .16 |

Table 5. Goose Harvest in the Quota Zone throughout the 1987 Season.

| Date | Canada Goose Harvest** | | | | *Total Harvest in Quota Zone Geese | *Harvest Per Report Period Geese | | |
|----------|------------------------|-------|------------------|-------|--|--|--------------------------|-------|
| | Alexander Hunters | Geese | Union Hunters | Geese | | | Will./Jackson Hunters | Geese |
| 11-22-87 | 3,260 | 895 | 1,673 | 371 | 2,597 | 1,573 | 3,687 | 3,687 |
| 11-26-87 | 4,275 | 1,115 | 2,213 | 427 | 3,236 | 1,811 | 4,336 | 649 |
| 11-29-87 | 5,765 | 1,233 | 2,998 | 489 | 4,452 | 2,073 | 4,917 | 581 |
| 12-03-87 | 6,617 | 1,298 | 3,545 | 553 | 5,389 | 2,392 | 5,529 | 612 |
| 12-06-87 | 7,698 | 1,450 | 4,077 | 623 | 6,163 | 2,621 | 6,107 | 578 |
| 12-10-87 | 8,673 | 1,658 | 4,871 | 787 | 6,999 | 2,941 | 6,981 | 874 |
| 12-13-87 | 9,679 | 1,835 | 5,593 | 877 | 7,722 | 3,196 | 7,645 | 664 |
| 12-17-87 | 10,610 | 2,161 | 6,428 | 1,061 | 8,685 | 3,607 | 8,803 | 1,158 |
| 12-20-87 | 11,938 | 2,731 | 7,357 | 1,594 | 9,652 | 4,238 | 10,926 | 2,123 |
| 12-24-87 | 12,643 | 3,166 | 7,845 | 1,809 | 10,502 | 4,678 | 12,275 | 1,349 |
| 12-27-87 | 13,808 | 4,009 | 8,814 | 2,375 | 11,510 | 5,142 | 14,479 | 2,204 |
| 12-31-87 | 15,212 | 4,776 | 9,936 | 2,965 | 12,804 | 5,826 | 16,952 | 2,473 |
| 01-03-88 | 16,314 | 5,072 | 10,792 | 3,360 | 13,758 | 6,184 | 18,229 | 1,277 |
| 01-04-88 | 16,495 | 5,101 | 10,931 | 3,430 | 14,035 | 6,351 | 18,585 | 356 |

* Includes Harvest on Non-Commercial Areas

** Reported Harvest by Commercial Clubs

Table 6. Total Harvest of Canada Geese by County in the Southern Illinois Quota Zone, 1984 to 1987.

| County | 1984 | | 1985 | | 1986 | | 1987 | |
|--------------------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|
| | Number | Percent | Number | Percent | Number | Percent | Number | Percent |
| Alexander | 5,952 | 41 | 6,919 | 32 | 8,390 | 32 | 5,427 | 29 |
| Union | 3,387 | 23 | 5,186 | 24 | 7,770 | 30 | 3,749 | 20 |
| Williamson/Jackson | <u>5,268</u> | <u>36</u> | <u>9,662</u> | <u>44</u> | <u>9,698</u> | <u>38</u> | <u>9,409</u> | <u>51</u> |
| Total: | 14,607 | 100 | 21,767 | 100 | 25,858 | 100 | 18,585 | 100 |

Table 7. Success Rates for Canada Goose Hunters in the Southern Illinois Quota Zone, 1979-1987.

| COUNTY | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 |
|--------------------|------|------|------|------|------|------|------|------|------|
| Alexander | .37 | .79 | .42 | .51 | .48 | .53 | .59 | .55 | .30 |
| Union | .50 | .72 | .56 | .45 | .52 | .49 | .58 | .63 | .31 |
| Williamson/Jackson | .41 | .60 | .40 | .36 | .38 | .39 | .56 | .42 | .45 |
| All Counties | .42 | .68 | .44 | .42 | .44 | .46 | .58 | .51 | .31 |

Table 8. Hunter Use, Harvest and Hunter Success on the Union County Public Hunting Area 1974-1987.

| Year | No. Days Hunted | Number Hunters | Average Number Hunters Per Day | Geese Harvested | Success Rate |
|------|-----------------|----------------|--------------------------------|-----------------|--------------|
| 1974 | 38 | 2,980 | 93 | 1,964 | .66 |
| 1975 | 30 | 2,489 | 96 | 2,292 | .92 |
| 1976 | 27 | 2,302 | 99 | 1,832 | .80 |
| 1977 | 44 | 3,045 | 82 | 962 | .32 |
| 1978 | 69 | 4,998 | 83 | 3,441 | .69 |
| 1979 | 70 | 5,524 | 81 | 2,800 | .51 |
| 1980 | 31 | 2,681 | 86 | 2,325 | .87 |
| 1981 | 47 | 3,647 | 78 | 1,927 | .53 |
| 1982 | 34 | 2,327 | 68 | 1,098 | .47 |
| 1983 | 35 | 2,269 | 76 | 1,074 | .47 |
| 1984 | 21 | 1,696 | 81 | 735 | .43 |
| 1985 | 26 | 2,073 | 80 | 969 | .47 |
| 1986 | 33 | 2,628 | 80 | 1,052 | .40 |
| 1987 | 39 | 2,446 | 63 | 391 | .16 |

Table 9. Hunter Use, Harvest and Hunter Success on the Horseshoe Lake Public Hunting Area 1974-1987.

| Year | No. Days Hunted | Number Hunters | Average Number Hunters Per Day | Geese Harvested | Success Rate |
|-------|-----------------|----------------|--------------------------------|-----------------|--------------|
| 1974 | 38 | 2,724 | 82 | 1,527 | .58 |
| 1975 | 30 | 2,373 | 91 | 960 | .40 |
| 1976 | 27 | 2,154 | 94 | 562 | .26 |
| 1977 | 44 | 2,439 | 66 | 678 | .28 |
| 1978 | 69 | 3,381 | 56 | 1,457 | .43 |
| 1979 | 70 | 2,514 | 37 | 434 | .17 |
| 1980 | 31 | 1,427 | 46 | 1,194 | .84 |
| 1981 | 47 | 1,986 | 42 | 494 | .25 |
| 1982 | 34 | 1,097 | 32 | 146 | .13 |
| 1983 | 35 | 1,153 | 38 | 374 | .32 |
| 1984 | 21 | 1,070 | 51 | 404 | .38 |
| 1985* | 20 | 806 | 40 | 167 | .21 |
| 1986 | 33 | 1,382 | 42 | 367 | .27 |
| 1987 | 39 | 1,191 | 31 | 196 | .16 |

* Horseshoe Lake Public Hunting Area closed due to flooding from Nov. 21-29, 1985.

Table 10. Canada Goose Populations on Wintering Areas throughout the Fall and Winter of 1987-88.

| DATE | BALLARD CO. | HORSESHOE LAKE | UNION CO. | CRAB ORCHARD* | REND LAKE | MERMET | CACHE RIVER BOTTOMS | BURNING STAR MINE | TOTAL |
|----------|-------------|----------------|-----------|---------------|-----------|--------|------------------------|----------------------|---------|
| 10-13-87 | 3,000 | 20,000 | 12,000 | 47,500 | 6,000 | -- | -- | -- | 88,500 |
| 10-19-87 | 4,000 | 32,000 | 12,000 | 53,300 | 6,000 | -- | -- | -- | 107,300 |
| 10-27-87 | 3,500 | 37,000 | 16,000 | 49,000 | 5,000 | -- | -- | -- | 110,500 |
| 11-02-87 | 4,500 | 32,000 | 14,000 | 54,050 | 9,000 | -- | -- | -- | 113,550 |
| 11-09-87 | 3,500 | 45,000 | 18,000 | 52,300 | 9,000 | -- | -- | -- | 127,800 |
| 11-18-87 | 2,700 | 40,000 | 14,000 | 54,100 | 10,000 | -- | -- | -- | 120,800 |
| 11-23-87 | 8,000 | 44,000 | 15,000 | 58,500 | 10,000 | -- | -- | -- | 135,500 |
| 12-09-87 | 11,000 | 42,300 | 18,000 | 64,800 | 12,000 | -- | -- | -- | 148,100 |
| 12-16-87 | 13,000 | 45,000 | 34,000 | 46,000 | 18,000 | -- | -- | -- | 156,000 |
| 12-21-87 | 22,000 | 163,850 | 105,000 | 163,000 | 68,000 | -- | -- | -- | 521,850 |
| 12-29-87 | 28,000 | 112,000 | 132,000 | 177,000 | 50,000 | -- | -- | -- | 499,000 |
| 01-04-88 | 36,000 | 160,000 | 112,000 | 190,000 | 50,000 | 500 | 23,000 | -- | 571,500 |
| 01-11-88 | 45,300 | 170,000 | 120,000 | 172,000 | 74,000 | -- | -- | 30,000 | 611,300 |
| 01-25-88 | 22,000 | 55,000 | 90,000 | 54,000 | 110,000 | 6,000 | 2,000 | 500 | 339,500 |

* Includes Campbell Pond

Table 11. Age Ratio in the Illinois Canada Goose Harvest during the 1987 Season. Data Gathered from Tail Fans Collected throughout the Season from Commercial Pickers in Alexander County, Union County, and Williamson/Jackson Counties.

| Area | Immatures | Adults | Ratio |
|-----------------------------|-----------|--------|-------|
| Alexander County | 402 | 415 | 1.0:1 |
| Union County | 599 | 613 | 1.0:1 |
| Williamson/Jackson Counties | 83 | 185 | 0.4:1 |
| Total: | 1,084 | 1,213 | 0.9:1 |

Table 12. Age Ratio in the Canada Goose Harvest on the Union County and Horseshoe Lake Public Hunting Areas during the 1987 Season.

| Date | Horseshoe Lake P.H.A. Age Ratio / Sample Size (Immatures/Adult) | | Union County P.H.A. Age Ratio / Sample Size (Immatures/Adult) | |
|-------------------------|---|-----|---|-----|
| Nov. 17 ^a | --- | 0 | 5.3:1 | 19 |
| Nov. 18 - Nov. 26 | 0.6:1 | 23 | 1.8:1 | 26 |
| Nov. 27 - Dec. 04 | 0.5:1 | 12 | 1.1:1 | 15 |
| Dec. 05 - Dec. 12 | 1.0:1 | 28 | 1.6:1 | 29 |
| Dec. 13 - Dec. 20 | 0.4:1 | 30 | 0.8:1 | 113 |
| Dec. 21 - Dec. 28 | 1.4:1 | 64 | 0.6:1 | 71 |
| Dec. 29 - Jan. 03 | 1.4:1 | 39 | 1.1:1 | 104 |
| Total for 50-Day Season | 0.9:1 | 196 | 1.0:1 | 377 |

^a First Day of Hunting

Table 13. Age Ratios, Expressed as Immatures Per Adult, among Canada Geese Harvested on the Horseshoe Lake and Union County Public Hunting Areas, 1965 to 1987.

| Year | Horseshoe Lake | Union County |
|------|----------------|--------------|
| 1965 | --- | 3.7 |
| 1966 | 1.1 | 2.6 |
| 1967 | 0.8 | 2.6 |
| 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 | 1.2 | 1.2 |
| 1979 | --- | 2.8 |
| 1980 | 3.2 | 4.5 |
| 1981 | 2.6 | 2.2 |
| 1982 | 1.3 | 2.7 |
| 1983 | 1.0 | 0.9 |
| 1984 | 2.6 | 3.2 |
| 1985 | 1.7 | 1.8 |
| 1986 | 1.4 | 1.3 |
| 1987 | 0.9 | 1.0 |
| MEAN | 1.5 | 2.3 |

Table 14. Canada Goose Harvest in Illinois, 1966-1987.

| Year | Statewide Harvest Objective | Season Length Quota Zone | Upstate | 4-County Quotas (1,000s) | Fed. Est. of Statewide Harvest (1,000s) | State Est. of Statewide Harvest (1,000s) | Quota Zone Harvest (1,000s) | Upstate Harvest Fed. Est. | State Est. (1,000s) |
|------|-----------------------------|--------------------------|---------|--------------------------|---|--|-----------------------------|---------------------------|------------------------|
| 1966 | 20,000 | 40 | 45 | 16.0 (80) ^a | 28.0 | 28.0 | 18.7 (67) ^b | 9.3 (33) ^b | 19.0 (42) ^c |
| 1967 | 20,000 | 31 | 50 | 16.0 (80) | 35.4 | 35.4 | 20.2 (57) | 15.2 (43) | 11.7 (40) |
| 1968 | 20,000 | 42 | 50 | 16.0 (80) | 21.2 | 21.2 | 21.4 (100) | ---- (0) | 13.2 (42) |
| 1969 | 25,000 | 30 | 37 | 20.0 (80) | 29.4 | 29.4 | 20.3 (69) | 9.1 (31) | 8.5 (37) |
| 1970 | 35,000 | 44 | 55 | 28.0 (80) | 37.7 | 37.7 | 27.5 (73) | 10.2 (27) | 15.6 (42) |
| 1971 | 28,000 | 38 | 50 | 22.0 (80) | 34.4 | 34.4 | 24.6 (72) | 9.8 (28) | 21.4 (45) |
| 1972 | 28,000 | 52 | 70 | 22.0 (80) | 33.7 | 33.7 | 15.8 (47) | 17.9 (53) | 17.5 (48) |
| 1973 | 28,000 | 63 | 70 | 24.0 (85) | 28.5 | 28.5 | 22.9 (80) | 5.6 (20) | |
| 1974 | 28,000 | 38 | 70 | 22.0 (80) | 47.1 | 47.1 | 24.7 (52) | 22.4 (48) | |
| 1975 | 28,000 | 30 | 70 | 22.0 (80) | 44.8 | 44.8 | 25.1 (56) | 19.7 (44) | |
| 1976 | 28,000 | 27 | 70 | 22.0 (80) | 53.7 | 53.7 | 30.7 (40) | 27.8 (52) | |
| 1977 | 35,000 | 44 | 70 | 29.0 (80) | 76.6 | 76.6 | 40.5 (34) | 45.9 (60) | |
| 1978 | 50,000 | 69 | 70 | 40.0 (80) | 118.7 | 118.7 | 29.2 (42) | 78.2 (66) | |
| 1979 | 35,000 | 70 | 70 | 29.0 (80) | 69.0 | 69.0 | 27.8 (48) | 39.8 (58) | |
| 1980 | 33,000 | 31 | 70 | 27.0 (80) | 57.7 | 57.7 | 25.3 (49) | 29.9 (52) | |
| 1981 | 30,000 | 50 | 50 | 24.0 (80) | 51.5 | 51.5 | 17.9 (66) | 26.2 (51) | 19.0 (42) ^c |
| 1982 | 27,000 | 40 | 40 | 17.5 (65) | 27.2 | 27.2 | 18.2 (44) | 9.3 (34) | 11.7 (40) |
| 1983 | 27,000 | 35 | 40 | 17.5 (65) | 38.8 | 38.8 | 14.6 (47) | 23.4 (56) | 13.2 (42) |
| 1984 | 27,000 | 25 | 20 | 17.5 (65) | 31.0 | 31.0 | 21.8 (59) | 15.1 (41) | 8.5 (37) |
| 1985 | 27,000 | 31 | 20 | 17.5 (65) | 36.9 | 36.9 | 25.9 (53) | 23.0 (47) | 15.6 (42) |
| 1986 | 48,000 | 42 | 40 | 24.0 (50) | 48.9 | 48.9 | 18.6 (41) | 27.1 (59) | 21.4 (45) |
| 1987 | 52,500 | 50 | 40 | 26.3 (50) | 45.7 | 45.7 | | | 17.5 (48) |

^a Percent of Statewide Harvest Objective

^b Percent of Federal Estimate of Statewide Harvest

^c Percent of State Estimate of Statewide Harvest

1966-1973 Average Percent of Statewide Harvest Occurring Upstate - 29%

1974-1981 Average Percent of Statewide Harvest Occurring Upstate - 54%

1982-1985 Average Percent of Statewide Harvest Occurring Upstate - 48%

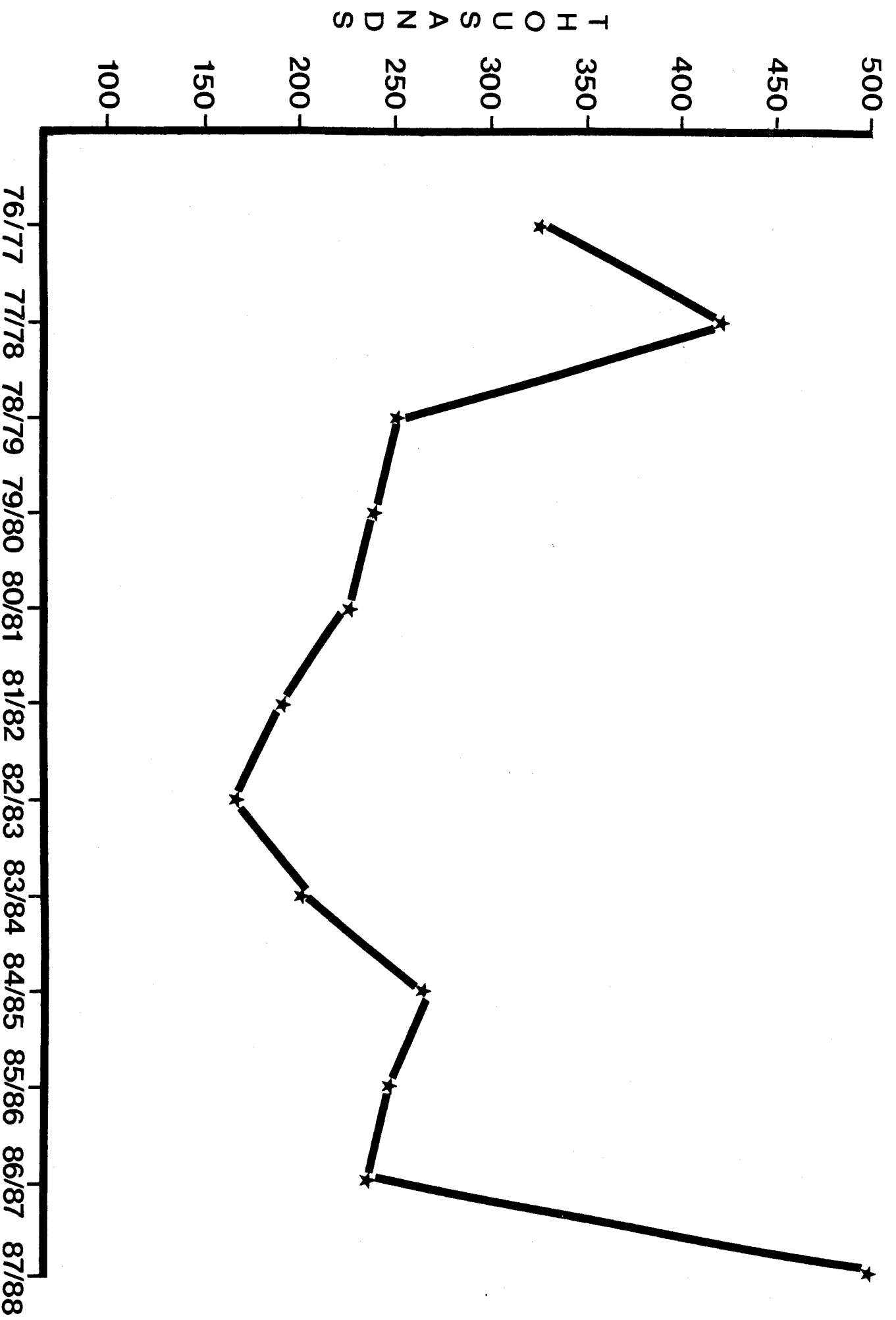


Figure 1. Peak Populations of Canada Geese in the Southern Illinois Quota Zone, 1976 to 1987.

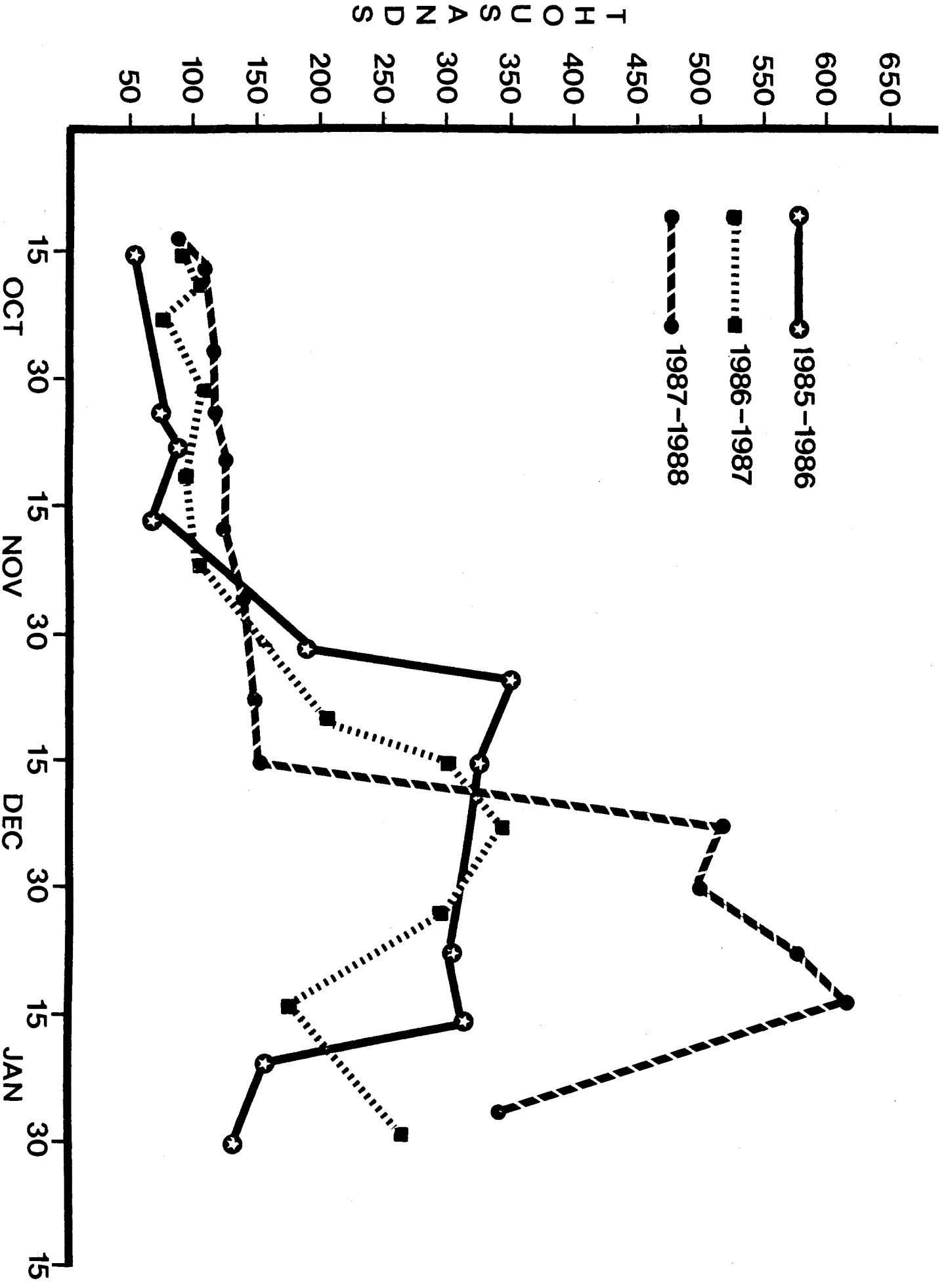


Figure 2. Number of Canada Geese in Southern Illinois and Western Kentucky during Fall and Winter, 1985 to 1987.

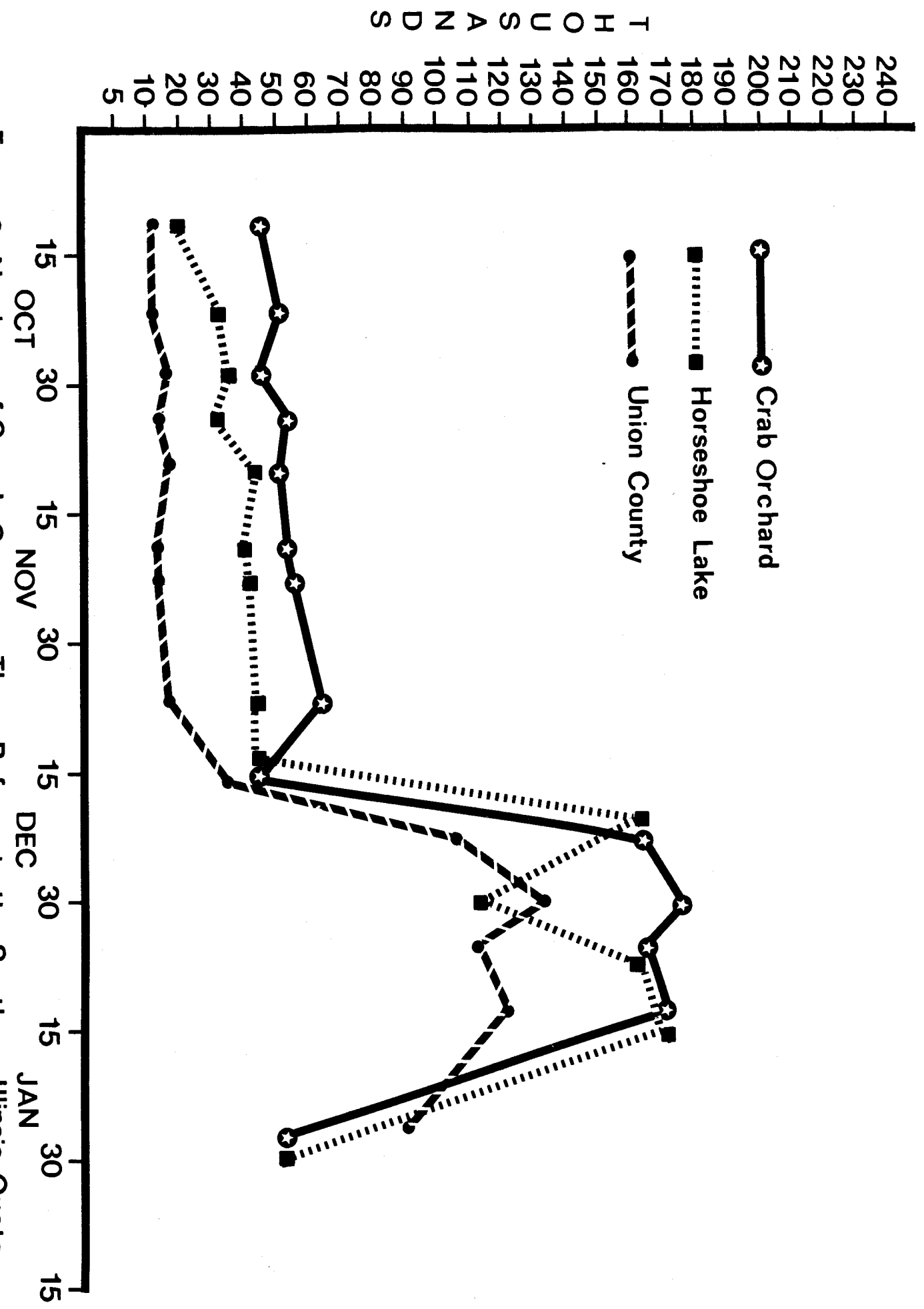


Figure 3. Numbers of Canada Geese on Three Refuges in the Southern Illinois Quota Zone During Fall and Winter 1987-1988