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CANADA GOOSE HARVEST AND HUNTER ACTIVITY IN THE 4-COUNTY QUOTA ZONE DURING THE 1995 SEASON

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Abstract: The 1995 4-County Quota Zone (4CQZ) Canada goose hunting season opened 4 November and closed 31 January. The snow goose hunting season opened concurrently with the Canada goose season, however the season was split into 2 segments. The first split was 4 November - 31 January (89 days) and the second split was 10 February - 27 February (18 days). The goose season opened concurrently with the opening of the southern zone for duck hunting. The established season length for Canada goose hunting was 89 days (51 days in 1994) or when a quota of 62,691 geese was harvested with a daily bag limit of 3 Canada geese. Season length for snow, blue and ross geese was 107 days with a bag limit of 10. The 4CQZ is assigned 55% of the statewide MVP and 15% of the non-MVP Canada goose harvest allocation. The statewide Canada goose harvest allocation was 109,600 in 1994 and increased 57% to 172,600 in 1995. A total of 35,414 Canada geese was harvested or 56% of the maximum allowable harvest. A total of 89 commercial clubs (92 in 1994) harvested 77% of the total harvest or 27,401 Canada geese. Goose hunters in Williamson/Jackson counties accounted for 61% (21,668) of the total quota zone harvest, while 22% (7,872) of the harvest occurred in Alexander county and 17% (5,874) in Union county. Goose hunters spent 68,759 days afield (5% greater than 1994), and averaged 0.51 goose per trip (0.40 in 1994). Commercial clubs in Williamson/Jackson counties reported the highest success rates (0.69), followed by Union and Alexander counties with success rates of 0.62 and 0.61, respectively. A total of 1,025 Canada geese was harvested by 2,472 hunters on the Union County Public Hunting Area (UCPHA). Goose hunters (929) on the Horseshoe Lake Public Hunting Area (HSLPHA) harvested 420 geese, and 2,092 hunters harvested 839 geese on the public hunting area at Crab Orchard National Wildlife Refuge (CONWR). Success rates for the Horseshoe Lake, Union County, and CONWR Public Hunting Areas were 0.45, 0.41, and 0.40, respectively. The 1995 mid-December MVP Canada goose count in the quota zone and Mississippi Flyway was 243,500 (142,000 in 1994) and 325,824 (931,119 in 1994), respectively. Major migrations of Canada geese occurred between 28-29 November (128,900) and 4-11 December (107,300). The population finally peaked at 298,000 (294,000 in 1994) in the quota zone on 8 January. The peak wintering population in southern Illinois and western Kentucky was 332,200 Canada geese (8 January) compared to 431,900 in 1994-95. Tail fans (n = 1,930) collected from commercial pickers in Alexander and Williamson/Jackson counties revealed an age ratio of 0.51 immatures/adult (0.82:1 in 1994). Horseshoe Lake Conservation Area (HSLCA) accounted for 34% (6.4 million) of the goose use-days (GUD) in southern Illinois. CONWR and Union County Conservation Areas (UCCA) accounted for 31% (5.9 million) and 19% (3.6 million) of the GUD, respectively. GUD on the wintering refuges in southern Illinois and western Kentucky decreased 11% from 21.3 million in 1994-95 to 19.0 million in 1995-96. No significant losses of waterfowl to disease were observed on the wintering refuges in southern Illinois in 1995-96.

INTRODUCTION

Alexander, Jackson, Union, and Williamson counties comprise the 4CQZ. Located in this region are three major Canada goose wintering areas. The most important and oldest wintering area is the HSLCA in Alexander County. The Department of Natural Resources (DNR) recognized the importance of Horseshoe Lake to Canada geese and established it as a refuge in 1927. Traditionally, the area records the largest amount of GUD in southern Illinois. However, in recent years a shift in refuge distribution is occurring as CONWR has been recording the largest amount of GUD. The HSLCA contains 9,550 acres and encompasses an ancient oxbow of the Mississippi River. Approximately 30 miles north of Horseshoe Lake is the 6,200 acre UCCA. The northern-most wintering refuge in the 4CQZ is CONWR, (44,000 acres) which is located approximately 35 miles northeast of UCCA in Jackson and Williamson counties.

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) 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 intensive, efficient, and accurate methods of monitoring Canada goose harvest in areas where both geese and hunting pressure are heavily concentrated. The quota zone system has been in effect in southern Illinois since 1960, with only minor changes made in regulations through the years. Approximately 77% of the quota zone goose harvest in 1995 occurred on land licensed as commercial clubs.

Goose hunting regulations in the 4CQZ were amended in 1987 to allow three 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 two, except in those blinds where a licensed guide accompanied the hunters. Guide licensing by the DNR was eliminated as part of the 1987 legislation change. The number of hunters allowed per pit or blind increased from a maximum of three to five in 1993. In addition, the frequency of reporting harvest and hunter activity on commercial clubs decreased from twice per week to once per week. Beginning in 1994, reporting frequencies and methods were changed as a result of exceeding the quota in 1993.

METHODS AND MATERIALS

All persons applying for a commercial goose license in the 4CQZ received a registration packet containing daily registration forms, club permits, administrative orders, reporting frequencies and self-addressed, postage paid envelopes. Commercial clubs submitted daily harvest registration forms twice per month and telephoned their harvest and hunter activity twice per week (Monday - Thursday and Friday - Sunday) using a toll-free telephone number throughout the season. Nextlink Interactive of Portland, Oregon was contracted to implement the telephone reporting system at a cost of \$0.50 per call. The zone harvest was updated at each interval by Waterfowl Program Staff at UCCA. All procedures in 1995 were the same as in 1994, including methods of estimating harvest and hunting pressure on outlying non-commercial areas by using the mean percent harvest occurring on those areas from 1973-1981 (Thornburg and Estel 1983).

An automatic answering machine was maintained in the phone system at the UCCA office. Harvest information and results of the most recent aerial inventories were updated once per week as new information became available. Goose hunters, club operators and media representatives were able to get updated information by accessing the goose hotline (618-833-8711) on the progress of the 1995 quota zone goose hunting season.

Canada goose populations on wintering areas in the 4CQZ, Rend Lake and Ballard county, Kentucky were monitored by aerial inventories starting 16 October and ending 27 February. Flights were conducted at weekly intervals, weather permitting. Biologists with the DNR and personnel from CONWR conducted the inventories using the state's Cessna 337.

RESULTS

Population Status, Habitat and Migration Chronology

Population Status

The 1995 spring population survey conducted by the Ontario Ministry of Natural Resources (OMNR) revealed an estimated population of 915,764 (\pm 178,641 at 95% CI) Mississippi Valley Population (MVP) - Canada geese on the breeding grounds. This represented a 9% increase from the 1994 spring estimate of 838,148 and is 2% above the 1991-96 MVP Management Plan goal of 900,000 Canada geese (adults and non-breeders).

Habitat

Aerial surveys yielded estimates of 201,596 active nests (\pm 34,387 at 95% CI) in 1995 compared to 208,777 in 1994 (3.4% less). Nesting effort in 1995 was comparable to the long-term average.

Production surveys yielded estimates of 407,322 Canada geese in 1995 compared to 421,830 in 1994 (-3.4%). The projected fall flight for MVP Canada geese in 1995 was 1.32 million (Leafloor 1995). As a result of the MVP above the spring population (900,000) and fall flight goals (1.2 million) in 1995, liberal harvest strategies were adopted which increased season length, bag limit and allocations.

Migration Chronology

Canada geese began arriving at southern Illinois wintering refuges during the week of 17-23 September. The first aerial inventory was conducted on 16 October and revealed that 9,000 Canada geese (19,000 in 1994) were present in the 4CQZ. Canada goose numbers in the 4CQZ gradually increased from 11,500 on 30 October to 24,300 by opening day (4 November). The first major migration of geese from Wisconsin occurred between 28-29 November, when the population in the 4CQZ increased from 45,900 to 144,700 (Table 1). Another major migration occurred between 4-11 December when the population increased from 144,700 to 243,500. The goose population finally peaked after a series of small migrations between 11 December and 8 January at 298,000 (294,100 in 1994-95) (Figure 1). The Canada goose population in southern Illinois and western Kentucky also peaked on 8 January (332,200) (431,900 in 1995) (Figure 2). Large numbers of Canada geese remained on the wintering refuges through 13 February when warm weather patterns initiated northward migrations to spring staging areas. A small number (50,000) of snow geese wintered in southern Illinois and western Kentucky, however a major migration occurred on 10 February when the population increased from 62,500 to 231,800. Snow geese departed for spring staging areas in large numbers on 25 February. The following survey (27 February) revealed only 24,103 in southern Illinois and western Kentucky.

Canada goose numbers at HSLCA peaked at 175,000 in 1995-96 (76,000 in 1994-95). CONWR and UCCA reported peaks of 107,000 (151,000 in 1994-95) and 61,000 (65,000 in 1994-95), respectively. The 1995 mid-December MVP goose survey in the 4CQZ and Mississippi Flyway was 243,500 (142,000 in 1994) and 325,824 (931,119 in 1994). However, the state of Wisconsin did not conduct a mid-December survey.

GUD and percent totals at 5 refuges in southern Illinois and western Kentucky are shown in Table 2. GUD in southern Illinois and western Kentucky decreased 11% from 21.3 million in 1994-95 to 19.0 million in 1995-96. In 1995-96, HSLCA accounted for 6.4 million GUD (34% of the total), CONWR accounted for 5.9 million GUD (31% of the total), UCCA accounted for 3.6 million GUD (19% of the total), Rend Lake accounted for 1.9 million GUD (10% of the total) and Ballard county, Kentucky 1.1 million GUD (6% of the total).

4CQZ Goose Season, Hunter Participation, Goose Harvest and Hunter Success

4CQZ Goose Season

The 1995 4CQZ Canada goose hunting season opened 4 November and closed 89 days later on 31 January (Table 3). The snow goose hunting season opened concurrently with the Canada goose season, however the season was split into 2 segments. The first segment was 4 November - 31 January (89 days) and the second segment was 10 February - 27 February (18 days). The Canada goose harvest allocation for Illinois increased 57% from 109,600 in 1994 to 172,600 in 1995. The 4CQZ annually receives 55% of the statewide MVP and 15% of the non-MVP Canada goose harvest allocation. The harvest quota assigned to the 4CQZ increased 57% from 39,800 in 1994 to 62,691 in 1995. Canada goose season length increased from 51 days in 1994 to 89 days in 1995. The daily bag limit for Canada geese was increased from 2 in 1994 to 3 in 1995. Shooting hours were extended during the last 3 days of the Canada goose hunting season from 3 p.m. to sunset.

Hunter Participation

Goose hunters spent a total of 68,759 days afield during the 1995 season which was 5% greater than 1994 (Figure 3). A total of 37,492 hunters registered at commercial clubs in 1995 (7% greater than in 1994). An additional 4,564 hunters registered on the public hunting areas at Union county and CONWR (1% less than 1994). An estimated 26,703 days afield occurred on non-commercial areas in 1995 (4% greater than in 1994) (Whitton 1995). The average daily number of hunters in 1995 (772) was 40% less than in 1994 (1,285), however season length was 38 days longer in 1995.

Commercial licenses were issued to 89 clubs in the quota zone in 1995 (3% less than in 1994). Commercial clubs were the most numerous in Williamson/Jackson counties (51), while clubs in Alexander and Union counties numbered 26 and 12, respectively.

Williamson/Jackson counties reported 51% of the hunter-trips on commercial clubs. Approximately 29% of the hunter-trips on commercial clubs occurred in Alexander county, while the remaining 20% occurred in Union county. Williamson/Jackson counties had the greatest number of total hunter-trips (45,293) (4% greater than 1994) in the quota zone with 66%, followed by Alexander county with 19% (13,210) (9% greater than 1994) and Union county with 15% (10,256) (1% greater than 1994) (Table 4).

Hunter use and harvest on the public hunting areas in the quota zone are included in the commercial club totals. The HSLPHA ceased charging hunters a fee for the privilege of hunting in 1992. Therefore, the area is considered a non-commercial area. The remaining two commercial public hunting areas (Union County and CONWR) accounted for 11% of the hunting effort on commercial clubs in 1995. A total of 5,493 hunters registered on three public hunting areas associated with the major wintering refuges (2% greater than 1994). UCPHA accounted for the most hunters (2,472), which represented 45% of the total hunting effort on public hunting areas in the 4CQZ. The CONWR and Horseshoe Lake Public Hunting Areas registered 2,092 (38%) and 929 hunters (17%), respectively (Table 5).

Harvest

A total of 35,414 Canada geese was harvested in the quota zone during the 1995 season (36% greater than 1994) (Figure 3). This was 27,277 geese below the 62,691 Canada goose allocation. Commercial clubs accounted for 77% of the total harvest or 27,401 Canada geese (Figure 4). Approximately 53% of the total harvest on commercial clubs occurred in Williamson/Jackson counties (14,626), 27% in Alexander county (7,400) and 20% in Union county (5,375).

Incidental to the Canada goose harvest, 121 snow geese (92% greater than 1994), 28 white-fronted geese (33% greater than 1994), 105 other geese (118% greater than 1994) and 3,244 ducks (293% greater than 1994) were harvested throughout the 4CQZ. Alexander county accounted for 50% (126) of the snow, white-fronted and other geese category. Union and Williamson/Jackson counties each reported 25% of the incidental goose harvest. Williamson/Jackson counties reported harvesting 51% (1,671) of the ducks, while 28% (903) occurred in Alexander county and 21% (670) in Union county. Mallards comprised 66% of the harvest while the remaining 34% consisted of a variety of species.

The three public hunting areas reported a harvest of 2,284 Canada geese in 1995 (50% greater than 1994). The UCPHA reported 45% of the goose harvest (1,025), while 37% of the harvest was reported at CONWR Public Hunting Area (839), and 18% at HSLPHA (420) (Table 5). The Canada goose harvest (1,864) on the two commercial public hunting areas in the 4CQZ represented 7% (no change from 1994) of the total commercial club harvest.

The 1995 goose harvest on the UCPHA (1,025) was 6% less than the 1989-93 average and 28% greater than the harvest in 1994. The goose harvest at HSLPHA in 1995 (420) was 73% greater than the 1989-93 average, and 460% greater than the harvest in 1994 (Table 6).

The average daily Canada goose harvest for the 1995 season was 398 geese per day. This was 22% less than in 1994 (509) and 45% less than 1993 (719). The greatest harvest occurred during the 3-day reporting period 5-7 January, when 2,846 geese were harvested (949 Canada geese harvested/day) (Table 7). The lowest harvest (159) occurred during the 4-day reporting period 13-16 November (40 Canada geese harvested/day) (Figure 5).

Williamson/Jackson counties accounted for 61% (21,668) of the total goose harvest in 1995. Alexander county followed with 22% (7,872) and Union county 17% (5,874) (Table 8).

The estimated harvest on non-commercial lands in 1995 was 8,013 Canada geese or 23% of the total geese harvested. Approximately 88% of the non-commercial harvest occurred in

Williamson/Jackson counties (7,042), while 6% occurred in Union (499) and 6% in Alexander counties (472).

The 1995 Illinois Waterfowl Hunter Questionnaire Survey revealed a statewide harvest estimate of 95,661 Canada geese (Anderson 1996). The federal harvest estimate indicated that 104,763 Canada geese were harvested statewide (Table 9) (Gamble 1996). The federal harvest estimate (30,871) for the 4CQZ was 15% less than the state estimate (35,414) which is derived from daily registration forms.

Tail fans collected from commercial pickers in 1995-96 (n=1,930) in Alexander and Williamson counties revealed an age ratio of 0.51 immatures per adult (0.82 in 1994 and 1.79 in 1993) (Table 10). Tail fans analyzed from geese harvested at UCPHA and HSLPHA (n=1,445) revealed age ratios of 1.17 immatures per adult (Table 11). Age ratios from the UCPHA and HSLPHA in 1995 were below the long-term average (Table 12). Collectively, tail fans (n=3,375) revealed an age ratio of 0.74 immatures per adult (1.10 in 1994).

Hunter Success

Success rates for Canada goose hunters on commercial clubs in the quota zone increased from 0.50 goose per trip in 1994 to 0.65 in 1995 (Table 13). Commercial clubs in Williamson/Jackson counties reported the highest success rates (0.69), while commercial clubs in Union and Alexander counties reported success rates of 0.62 and 0.61, respectively (Figure 6).

The HSLPHA reported the highest success rate (0.45) on public hunting areas in 1995 (Table 14). The public hunting areas at UCCA and CONWR reported success rates of 0.41 and 0.40, respectively (Table 15).

DISCUSSION

Cool wet planting conditions occurred throughout the spring and into the early summer resulting in reduced crop acreages in southern Illinois. Planting conditions improved by July, however extremely dry conditions existed during pollination and tasseling which was preceded by an early frost. The combination of late planting, lack of moisture and an early frost significantly reduced crop yields on southern Illinois refuges. Despite the wet spring, very dry summer and fall conditions resulted in substantially higher pumping costs to flood wetlands, sloughs and impoundments in 1995.

Dramatic weather fluctuations occurred almost weekly throughout the fall and winter of 1995-96. These extremes included temperature deviations from almost record warm temperatures to near record cold temperatures. Subsequently, these fluctuations influenced waterfowl migrations throughout the state. Significant Canada goose migrations occurred between 28-29 November, 4-11 December and 8-9 January. Major snow goose arrivals and departures occurred on 10-11 February and 25 February, respectively. GUD decreased at the northern wintering refuges (Rend Lake and CONWR) and increased at southern wintering refuges (UCCA, HSLCA). The peak population of Canada geese in the 4-County Quota Zone was 1% greater than 1994, but was 13% below the 20 year average. Increasingly more numbers of Canada geese are wintering in upstate Illinois as a result of warmer climatic conditions, less snowfall, available food, open water and a large population of resident Canada geese serve as a decoy flock.

Overall, the Canada goose harvest in Illinois (95,661) was below the record statewide allocation of 172,600 Canada geese, but was 37% above the 15 year average (60,000). Snow goose hunting continued after the close of the 89 day Canada goose and 70 day white-fronted goose hunting season. Snow goose hunters were given an opportunity to hunt an additional 18 days in February to fulfill the 107 day maximum allowable hunting framework. However, 2 counties were closed to snow goose hunting in February to avoid exposing hunters near each refuge to a "baited situation" which involved artificial manipulation of a food resource. Commercial club operators requested that the long-term practice of mowing standing corn after the Canada goose hunting season continue at Union County Refuge (Union county) and Horseshoe Lake Refuge (Alexander county).

The inability of Congress to agree to a federal budget resulted in a closure of non-essential federal government services in 1995-96. This resulted in the closure of Crab Orchard NWR including the public hunting area from 22 December - 5 January (15 days) despite the fact that the area is operated by a concessionaire. This closure denied access to hunters during a high usage period which resulted in a reduction of hunter activity and goose harvest.

The telephone harvest reporting system was used for the second consecutive year in 1995-96. Fewer user problems occurred, most likely a result of club operators becoming experienced using the toll-free number (1-800-TO-RELICENSE) and voice menu recording system. Overall, 40 commercial clubs failed to telephone in 116 reporting periods. The missing periods were cross referenced to the daily registration forms to determine if hunter activity and harvest occurred during those periods. Overall, an additional 789 Canada geese and 2,251 hunters or 2% were not reported using the telephone system. No detectable disease losses of waterfowl were observed on the wintering refuges in southern Illinois in 1995-96.

The results of the 1995 MVP Canada goose spring population and production surveys exceeded the MVP management plan goals. Therefore, harvest strategies were considerably liberalized in 1995 which allowed Illinois to increase the daily bag limit, harvest allocations and season length. Maintenance of the population and achievement of MVP goals should provide for liberal seasons in 1996 barring a late spring which could lead to poor recruitment.

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Table 1. Canada goose populations on wintering areas in southern Illinois and western Kentucky throughout the fall and winter of 1995-96.

Date	Burning		Campbell Pond	Crab Orchard NWR		Horseshoe Lake CA		Union County CA		Quota Zone Subtotal		Ballard Co. Ky ^a	Cypress Creek NWR	Carlyle Lake	Rend Lake	S. Illinois W. Kentucky Total ^b
	Star Mine															
10-16-95	200	500	500	1,500	6,200	600	9,000	500	0	9,000	500	0	0	0	900	10,400
10-30-95	700	0	0	2,200	7,500	800	11,200	800	0	11,200	800	0	0	0	2,000	14,100
11-06-95	1,500	300	300	12,000	—	3,000	16,800	1,300	100	16,800	1,300	100	0	0	3,500	21,700
11-13-95	200	2,500	2,500	11,500	12,500	2,000	28,700	2,000	0	28,700	2,000	0	0	50	6,000	36,750
11-20-95	1,500	100	100	9,000	7,500	8,000	26,100	1,800	0	26,100	1,800	0	0	0	7,500	35,400
11-27-95	400	0	0	19,000	17,500	9,000	45,900	2,500	100	45,900	2,500	100	0	0	8,500	57,000
12-04-95	1,200	500	500	74,000	37,000	32,000	144,700	7,200	200	144,700	7,200	200	500	33,000	185,900	
12-11-95	7,500	0	0	105,000	84,000	47,000	243,500	26,000	200	243,500	26,000	200	0	0	18,000	293,200
12-20-95	12,000	1,100	1,100	96,000	58,000	36,000	203,100	11,000	1,500	203,100	11,000	1,500	100	38,000	306,700	
12-26-95	13,000	3,000	3,000	107,000	72,000	37,000	232,000	16,500	1,500	232,000	16,500	1,500	0	32,000	306,500	
01-03-96	6,500	0	0	73,000	63,000	43,000	185,500	12,000	5,000	185,500	12,000	5,000	0	0	25,000	236,700
01-08-96	11,000	0	0	70,000	175,000	42,000	298,000	30,000	0	298,000	30,000	0	200	4,000	332,200	
01-17-96	22,000	3,000	3,000	60,000	59,000	61,000	205,000	14,000	1,200	205,000	14,000	1,200	500	3,500	230,500	
01-24-96	6,500	3,000	3,000	66,000	62,000	39,000	176,500	12,000	9,500	176,500	12,000	9,500	1,500	15,000	242,700	
01-29-96	8,000	6,000	6,000	41,000	57,000	40,000	152,000	14,000	2,000	152,000	14,000	2,000	100	24,000	250,100	
02-05-96	16,000	200	200	36,000	55,000	41,000	148,200	25,000	0	148,200	25,000	0	500	23,000	249,700	
02-13-96	7,500	4,000	4,000	22,000	40,000	32,000	105,500	19,000	3,000	105,500	19,000	3,000	17,500	18,000	221,100	
02-27-96	1,500	0	0	250	350	50	2,150	100	150	2,150	100	150	0	0	2,400	

^a Includes Swan Lake, KY.

^b Includes Vandalia Lake, Keck's Marsh and Ten Mile Creek.

Table 2. Canada goose use-days and percent total at 5 refuges in southern Illinois and western Kentucky in 1995-96.

Week	Union County Goose Use		Horseshoe Lk. Goose Use		Crab Orchard Goose Use		Rend Lake Goose Use		Ballard County Goose Use		Total Goose Use Days
	Days	%	Days	%	Days	%	Days	%	Days	%	
10-16-95	8,400	6	86,800	64	21,000	16	12,600	9	7,000	5	135,800
10-30-95	5,600	6	52,500	56	15,400	17	14,000	15	5,600	6	93,100
11-06-95	21,000	11	52,500	27	84,000	44	24,500	13	9,100	5	191,100
11-13-95	14,000	5	87,500	37	80,500	34	42,000	18	14,000	6	238,000
11-20-95	56,000	24	52,500	22	63,000	27	52,500	22	12,600	5	236,600
11-27-95	63,000	16	122,500	31	133,000	34	59,500	15	17,500	4	395,500
12-04-95	224,000	18	259,000	20	518,000	41	231,000	18	45,500	3	1,277,500
12-11-95	423,000	17	756,000	31	945,000	38	162,000	6	189,000	8	2,475,000
12-20-95	216,000	15	348,000	25	576,000	41	228,000	16	48,000	3	1,416,000
12-26-95	296,000	14	576,000	28	856,000	41	256,000	12	104,000	5	2,088,000
01-03-96	215,000	20	315,000	30	365,000	34	125,000	12	40,000	4	1,060,000
01-08-96	378,000	14	1,575,000	56	630,000	23	36,000	1	171,000	6	2,790,000
01-17-96	427,000	32	413,000	31	420,000	31	24,500	2	63,000	4	1,347,500
01-24-96	195,000	20	310,000	32	330,000	34	75,000	8	55,000	6	965,000
01-29-96	280,000	22	456,000	36	287,000	22	168,000	13	91,000	7	1,282,000
02-05-96	328,000	24	440,000	33	288,000	21	184,000	14	104,000	8	1,344,000
02-13-96	448,000	26	560,000	32	308,000	18	252,000	15	154,000	9	1,722,000
02-27-96	350	7	2,450	47	1,750	33	0	0	700	13	5,250
Total	3,598,350	19	6,464,750	34	5,921,650	31	1,946,600	10	1,130,300	6	19,061,650

Table 3. Annual 4-County Quota Zone Canada goose season statistics, 1976-1995.

Year	Quota Size	Season Length	Date Open	Date Closed	Harvest	Percent Success Rate	Pop. Peak	Hunter Use-Days	Comm. Clubs	Free Permits
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	—
1988	37,000	50	11/21/88	01/09/89	39,332	56	560,000	70,460	95	—
1989	51,750	56	11/20/89	01/14/90	42,254	54	731,000	78,699	104	—
1990	71,100	70	11/10/90 11/19/90	11/12/90 01/24/91	31,319	39	540,000	80,885	124	—
1991	72,400	84	11/09/91	01/31/92	26,403	38	350,000	70,210	127	—
1992	39,500	79	11/14/92	01/31/93	17,255	30	372,000	57,877	107	—
1993	30,600	51	11/27/93	01/16/94	36,679	67	475,000	54,437	80	—
1994	39,800	51	12/03/94	01/22/95	25,956	40	294,100	65,559	92	—
1995	62,691	89	11/04/95	01/31/96	35,414	51	298,000	68,759	89	—
20-yr. Avg.	34,777	52	—	—	27,546	49	343,155	57,552	102	—

Table 4. Hunter-trips and harvest of Canada geese in the 4-County Quota Zone during the 1995 season.

	Number of Permits Issued	Hunter Trips	Percent By Permit	Percent By Counties	Harvest	Percent By Permit	Percent By Counties	Success Rate
<u>Alexander County (Horseshoe Lake CA)</u>								
Licensed Clubs ^a	26	12,153	92		7,400	94		61
Other Areas ^b	0	1,057	8		472	6		45
Total	26	13,210	100	19	7,872	100	22	59
<u>Union County (Union County CA)</u>								
Licensed Clubs ^a	12	8,615	84		5,375	92		62
Other Area ^b	0	1,641	16		499	8		30
Total	12	10,256	100	15	5,874	100	17	57
<u>Williamson/Jackson Counties (Crab Orchard NWR)</u>								
Licensed Clubs ^a	51	21,288	47		14,626	68		69
Other Areas ^b	0	24,005	53		7,042	32		29
Total	51	45,293	100	66	21,668	100	61	48
Grand Total	89	68,759		100	35,414		100	51

^a Licensed 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.

^b Other 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 5. Contribution of public hunting areas to the hunting effort and harvest of Canada geese during the 1995 season.

County	Hunter Trips	Percent of County Commercial Club Total	Harvest (%)	Percent of County Commercial Club Total	Percent Success Rate
Horseshoe Lake ^a	929	—	420 (18)	—	45
Union ^b	2,472	28.6	1,025 (45)	19.1	41
Williamson/Jackson ^b	2,092	9.8	839 (37)	5.7	40
All Counties	5,493	13.2	2,284	9.3	42

^a Horseshoe Lake Public Hunting Area is a non-commercial area.

^b Union County and Crab Orchard NWR Public Hunting Areas are licensed clubs.

Table 6. Comparison of the 1995 Canada goose season on the Union County and Horseshoe Lake Public Hunting Areas with the 1994 Canada goose season and the 1989-1993, 5-year average.

	Union County Public Hunting Area (1989-93)			Horseshoe Lake Public Hunting Area (1989-93)		
	1994	1995	1994	1995	1994	1995
Percent of Total County Hunters	24	26	24	5	1	7
Percent of Total County Harvest	17	18	17	2	1	5
Number of Hunters	2,935	2,255	2,472	1,094	375	929
Average Number Hunters Per Day	51	52	33	20	9	15
Harvest	1,093	802	1,025	243	75	420
Percent Success Rate	38	36	41	20	20	28

Table 7. Canada goose harvest in the 4-County Quota Zone throughout the 1995 season.

Date	Canada Goose Harvest						Number Geese Harvested Per Report Period	Total Goose ^a Harvest in Quota Zone
	Alexander		Union		Will/Jackson			
	Hunters	Geese	Hunters	Geese	Hunters	Geese		
11-05-95	230	46	95	35	1,226	649	730	730
11-09-95	73	64	56	16	596	261	341	1,071
11-12-95	104	26	86	32	591	126	184	1,255
11-16-95	76	41	94	23	300	95	159	1,414
11-19-95	72	46	49	5	332	130	181	1,595
11-23-95	88	18	49	5	426	154	177	1,772
11-26-95	187	37	106	15	938	330	382	2,154
11-30-95	120	105	61	37	626	510	652	2,806
12-03-95	276	222	118	66	1,430	1,059	1,347	4,153
12-07-95	245	151	193	105	1,179	699	955	5,108
12-10-95	538	293	336	128	1,738	437	858	5,966
12-14-95	573	326	517	280	2,483	1,222	1,828	7,794
12-17-95	787	583	554	387	2,596	1,375	2,345	10,139
12-21-95	830	512	704	450	2,509	1,652	2,614	12,753
12-24-95	436	193	437	237	1,904	917	1,347	14,100
12-28-95	725	185	657	220	2,483	754	1,159	15,259
12-31-95	973	464	675	282	2,323	603	1,349	16,608
01-04-96	672	399	592	382	2,028	1,436	2,217	18,825
01-07-96	765	540	750	552	2,768	1,754	2,846	21,671
01-11-96	642	794	626	523	2,891	1,084	2,401	24,072
01-14-96	966	676	700	285	2,851	1,196	2,157	26,229
01-18-96	934	789	608	438	2,528	1,421	2,648	28,877
01-21-96	884	238	508	186	2,310	541	965	29,842
01-25-96	583	501	552	472	2,104	1,193	2,166	32,008
01-28-96	785	347	608	422	2,245	899	1,668	33,676
01-31-96	646	276	525	291	1,888	1,171	1,738	35,414
Total	13,210	7,872	10,256	5,874	45,293	21,668	35,414	35,414

^a Includes harvest on non-commercial areas.

Table 8. Total harvest of Canada geese by county in the 4-County Quota Zone, 1992-1995.

County	1992		1993		1994		1995	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Alexander	4,270	25	7,046	19	4,604	18	7,872	22
Union	3,477	20	5,285	15	4,891	19	5,874	17
Williamson/Jackson	<u>9,508</u>	55	<u>24,348</u>	66	<u>16,461</u>	63	<u>21,668</u>	61
Total	17,255	100	36,679	100	25,956	100	35,414	100

Table 9. Canada goose harvest in Illinois, 1976-1995.

Year	Statewide Harvest Obj.	Season Length Quota Z./Upstate	4-Co. Quotas (1,000's)	Statewide Harvest Fed Est./State Est. (1,000's)	Quota Zone Harvest (1,000's)	Upstate Harvest (1,000's) Fed. Est. / State Est.		
1976	28,000	27	70	22.0 (80) ^a	53.7	25.9 (48) ^b	27.8 (52)	
1977	35,000	44	70	29.0 (80)	76.6	30.7 (40)	45.9 (60)	
1978	50,000	69	70	40.0 (80)	118.7	40.5 (34)	78.2 (66)	
1979	35,000	70	70	29.0 (80)	69.0	29.2 (42)	39.8 (58)	
1980	33,000	31	70	27.0 (80)	57.7	27.8 (48)	29.9 (52)	
1981	30,000	50	50	24.0 (80)	51.5	25.3 (49)	26.2 (51)	
1982	27,000	40	40	17.5 (65)	27.2	17.9 (66)	9.3 (34)	
1983	27,000	35	40	17.5 (65)	38.8	18.2 (44)	23.4 (56)	
1984	27,000	25	20	17.5 (65)	31.0	14.6 (47)	16.4 (53)	
1985	27,000	31	20	17.5 (65)	36.9	21.8 (59)	15.1 (41)	
1986	48,000	42	40	24.0 (50)	48.9	25.9 (53)	23.0 (47)	
1987	52,500	50	40	26.3 (50)	45.7	18.6 (41)	27.1 (59)	
1988	74,000	50	50	37.0 (50)	91.0	39.3 (43)	51.7 (57)	
1989	103,500	56	60	51.7 (50)	95.6	42.3 (44)	53.3 (56)	
1990	142,200	70	70	71.1 (50)	93.7	31.3 (33)	62.4 (67)	
1991	144,800	84	90	72.4 (50)	95.4	26.4 (28)	69.0 (72)	
1992	79,000	79	79	39.5 (50)	76.7	17.2 (22)	65.8 (78)	
1993	61,300	51	46	30.6 (50)	94.8	36.6 (39)	76.5 (81)	
1994	109,600	51	51	39.8 (55-15) ^d	77.4	25.9 (38)	65.5 (85)	
1995	172,600	89	93	62.6 (55-15)	104.7	35.4 (34)	73.9 (71)	
20-yr. Avg.	65,325	52	57	34.8	69.2	27.5	44.0	33.0 ^e

^a Percent of statewide harvest allocation.

^b Percent of federal estimate of statewide harvest.

^c Percent of state estimate of statewide harvest.

^d 4-County Quota Zone receives 55% of statewide MVP allocation and 15% non-MVP.

^e 15 year average.

Table 10. Age ratio in the Illinois Canada goose harvest during the 1995 season. Data gathered from tail fans (n = 1,930) collected throughout the season from commercial pickers in Alexander and Williamson counties.

County	Immatures	Adults	Ratio
Alexander	503	933	0.54:1
Williamson	153	341	0.45:1
Total	656	1,274	0.51:1

Table 11. Age ratio in the Canada goose harvest (n = 1,445) on the Union County and Horseshoe Lake Public Hunting Areas during the 1995 season.

	Union County Age Ratio(Sample Size) (621 Im./404 Ad.)	Horseshoe Lake Age Ratio(Sample Size) (157 Im./263 Ad.)
Nov. 04 - Nov. 05	0.85:1 (13)	0.00:0 (0)
Nov. 06 - Nov. 12	7.50:1 (17)	0.00:0 (0)
Nov. 13 - Nov. 19	0.37:1 (11)	0.00:0 (0)
Nov. 20 - Nov. 26	0.87:1 (8)	0.00:0 (0)
Nov. 27 - Dec. 03	0.60:1 (8)	0.00:0 (0)
Dec. 04 - Dec. 10	0.90:1 (40)	1.10:1 (4)
Dec. 11 - Dec. 17	1.39:1 (91)	1.44:1 (22)
Dec. 18 - Dec. 24	1.15:1 (166)	0.28:1 (18)
Dec. 25 - Dec. 31	3.38:1 (114)	0.50:1 (57)
Jan. 01 - Jan. 07	1.40:1 (180)	0.62:1 (89)
Jan. 08 - Jan. 14	1.30:1 (97)	0.50:1 (87)
Jan. 15 - Jan. 21	1.74:1 (137)	0.58:1 (90)
Jan. 22 - Jan. 28	2.02:1 (148)	0.59:1 (35)
Jan. 29 - Jan. 31	1.09:1 (44)	1.25:1 (18)
	1.53:1 (1,025)	0.59:1 (420)
Days Hunted	74	61

Table 12. Age ratios, expressed as immatures per adult, among Canada geese harvested on the Horseshoe Lake and Union County Public Hunting Areas, 1965 to 1995.

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
1988	2.0	1.6
1989	1.5	1.2
1990	0.4	0.7
1991	1.0	1.4
1992	0.5	1.1
1993	1.8	2.3
1994	1.5	2.1
1995	0.6	1.5
30 -Year Avg.	1.44	2.06

Table 13. Success rates for Canada goose hunters on commercial clubs in the 4-County Quota Zone 1986-1995.

County	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Alexander	.56	.31	.62	.38	.59	.35	.38	.71	.39	.61
Union	.69	.31	.66	.71	.54	.46	.36	.77	.52	.62
Williamson/Jackson	.60	.45	.73	.66	.54	.52	.42	.95	.55	.69
All Counties	.61	.36	.67	.65	.46	.45	.36	.85	.50	.65

Table 14. Hunter use, harvest and success rates on the Union County Public Hunting Area 1976-1995.

Year	No. Days Hunted	Number Hunters	Average Number Hunters Per Day	Geese Harvested	Success Rate
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
1988	39	2,618	65	1,664	.64
1989	45	2,782	62	1,318	.47
1990	64	3,644	57	1,467	.40
1991	81	3,571	44	1,062	.30
1992	65	2,618	40	605	.23
1993	44	2,920	73	1,500	.51
1994	43	2,255	52	802	.36
1995	74	2,472	33	1,025	.41
20 Yr. Avg.	47	2,926	69	1,402	.47

Table 15. Hunter use, harvest and success rates on the Horseshoe Lake Public Hunting Area 1976-1995.

Year	No. Days Hunted	Number Hunters	Average Number Hunters Per Day	Geese Harvested	Success Rate
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 ^a	20	806	40	167	.21
1986	33	1,382	42	367	.27
1987	39	1,191	31	196	.16
1988	39	1,714	43	597	.35
1989	45	2,191	49	766	.35
1990 ^a	58	1,406	24	184	.13
1991	81	1,005	12	164	.16
1992	65	746	11	61	.08
1993	41	335	8	42	.12
1994	43	375	9	75	.20
1995	61	929	15	420	.45
20 Yr. Avg.	45	1,465	37	439	.28

^a Horseshoe Lake Public Hunting Area closed due to flooding from Nov. 21-29, 1985 and Jan. 3-8, 1991.

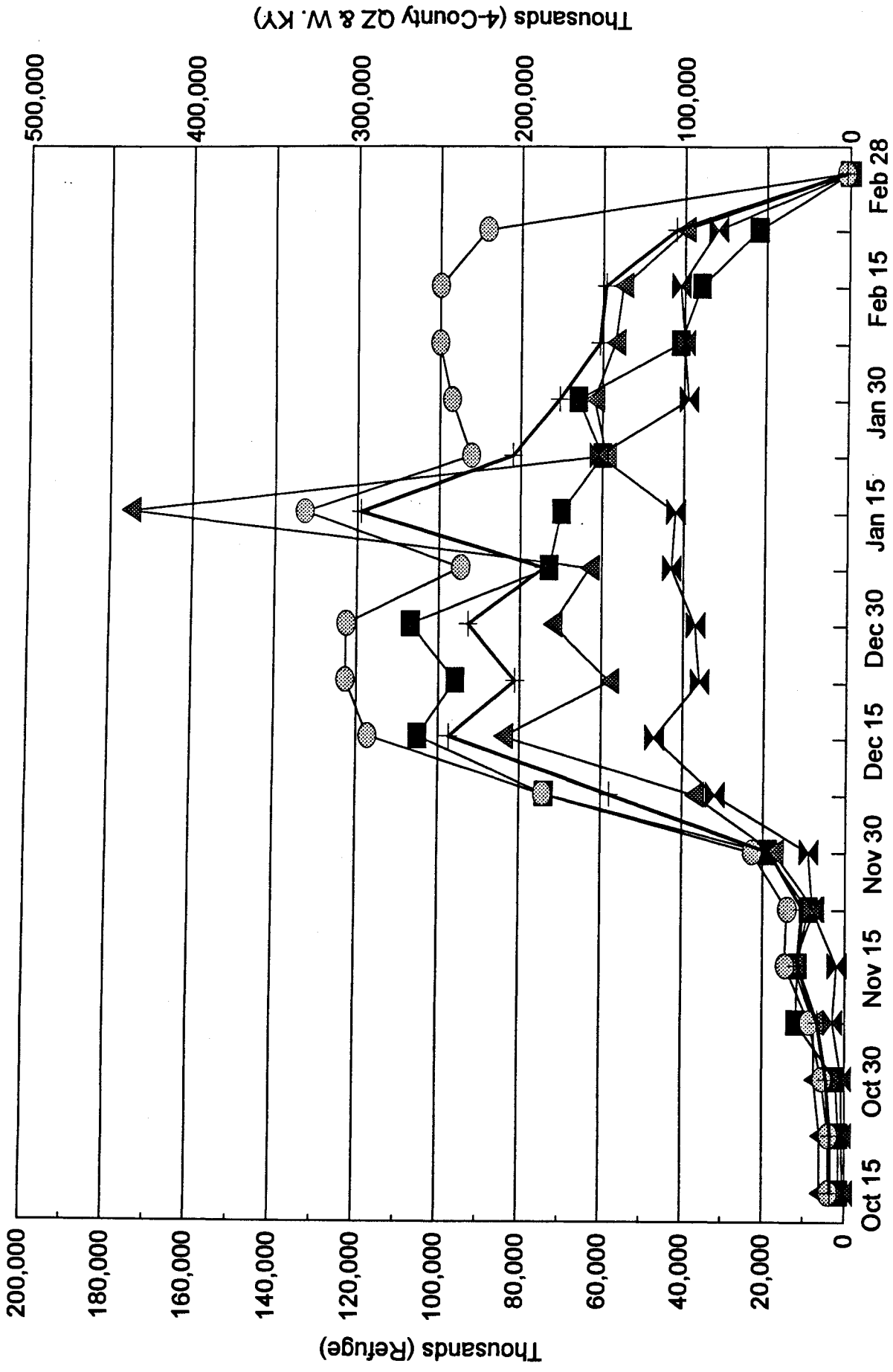
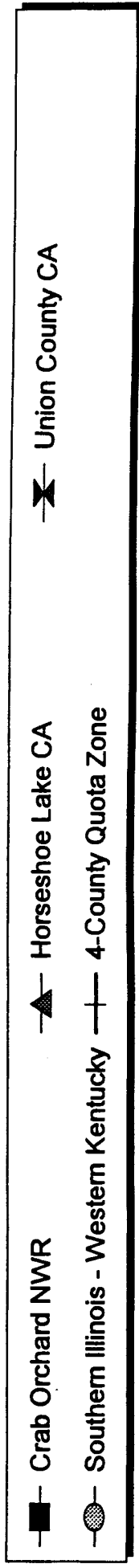
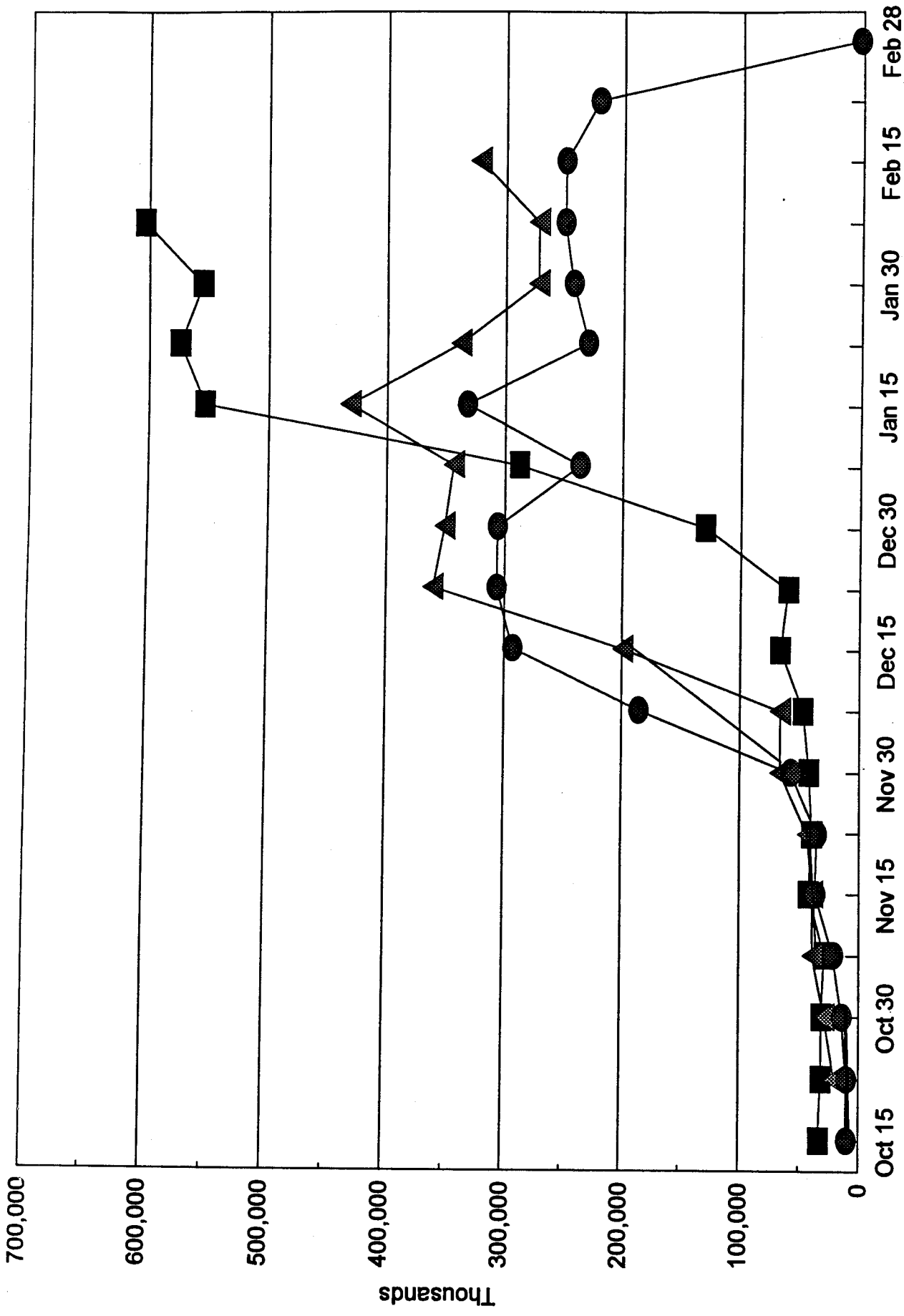


Figure 1. Numbers of Canada geese on three refuges in the 4-County Quota Zone and in southern Illinois and western Kentucky during fall and winter, 1995-96.





1993-1994
 1994-1995
 1995-1996

Figure 2. Number of Canada geese in southern Illinois and Western Kentucky during fall and winter, 1993-1996

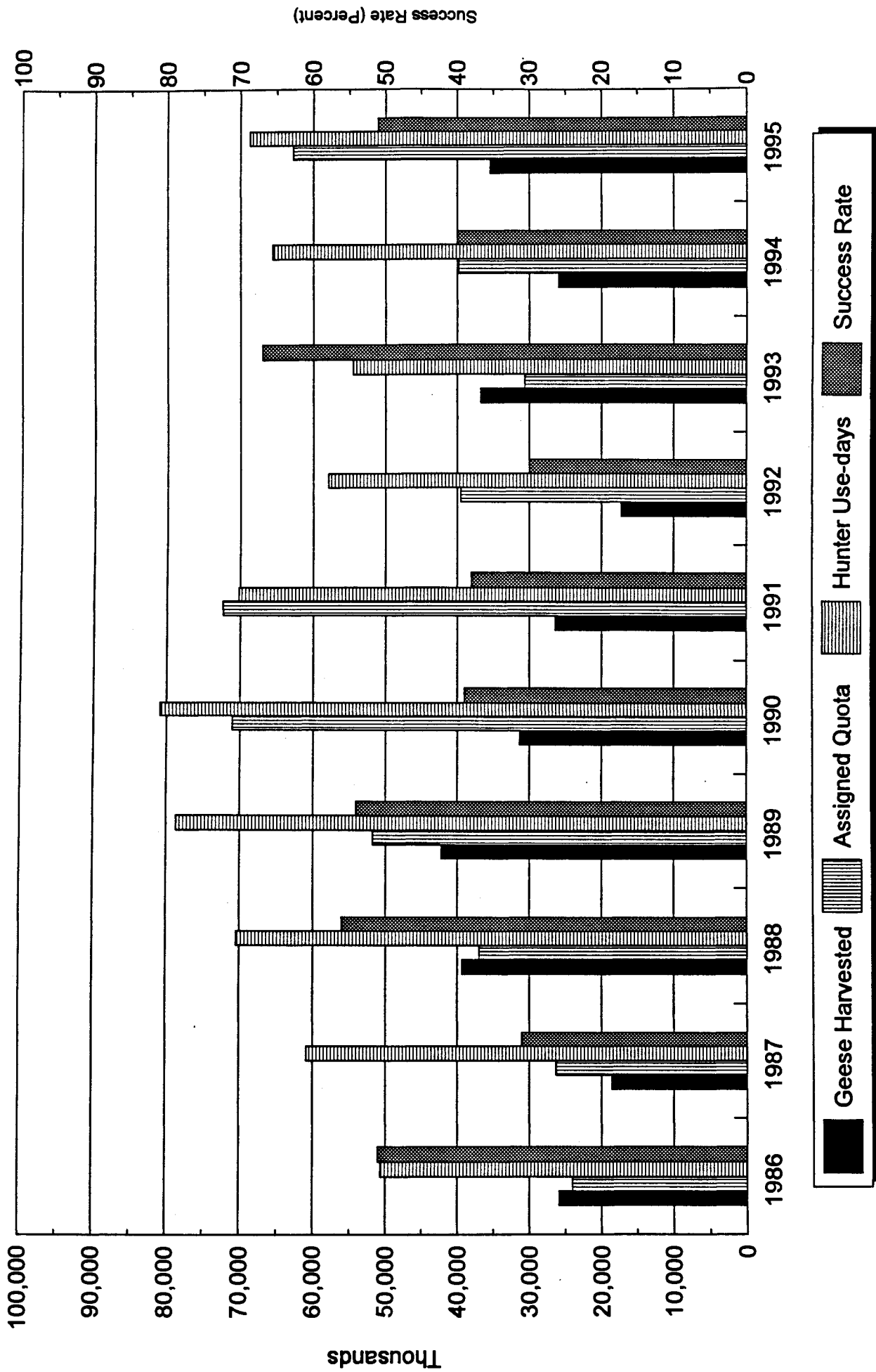


Figure 3. Number of Canada geese harvested, assigned quota, hunter use-days and success rate in the 4-County Quota Zone, 1986-1995.

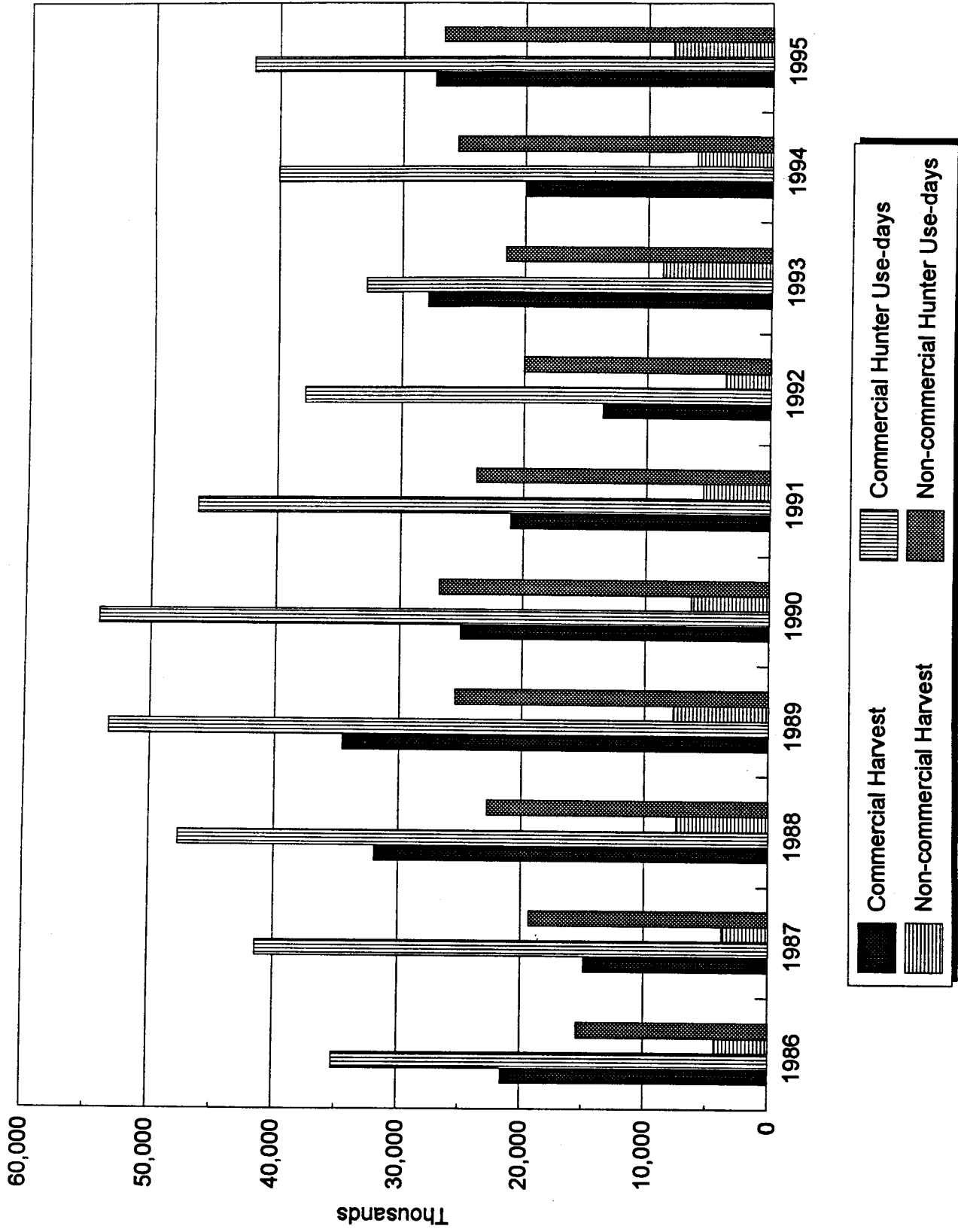


Figure 4. Canada goose harvest and hunter use-days on commercial and non-commercial areas in 1986-1995.

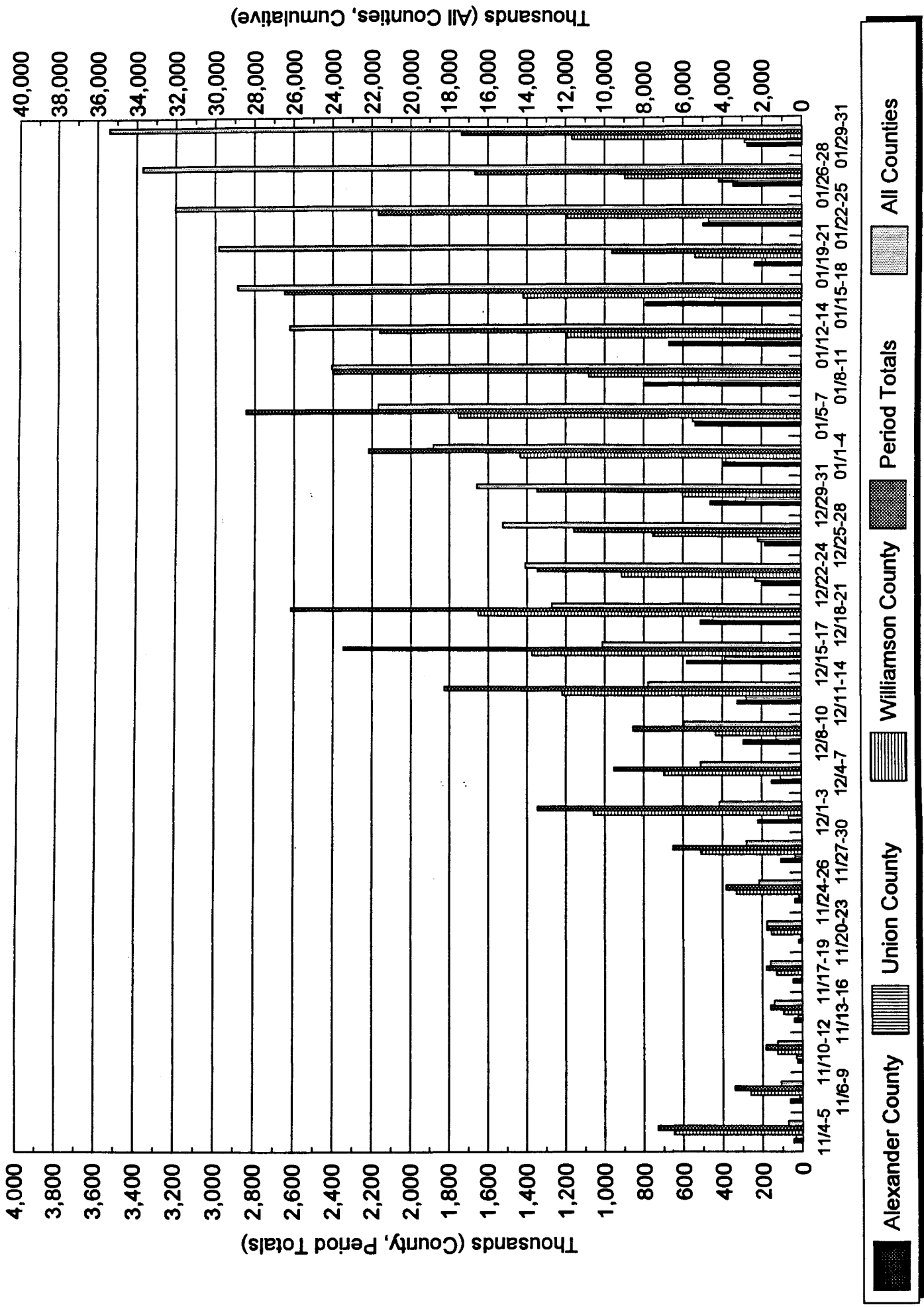


Figure 5. Number of Canada geese harvested per bi-weekly reporting period by county in the 4-County Quota Zone, 1995-96.

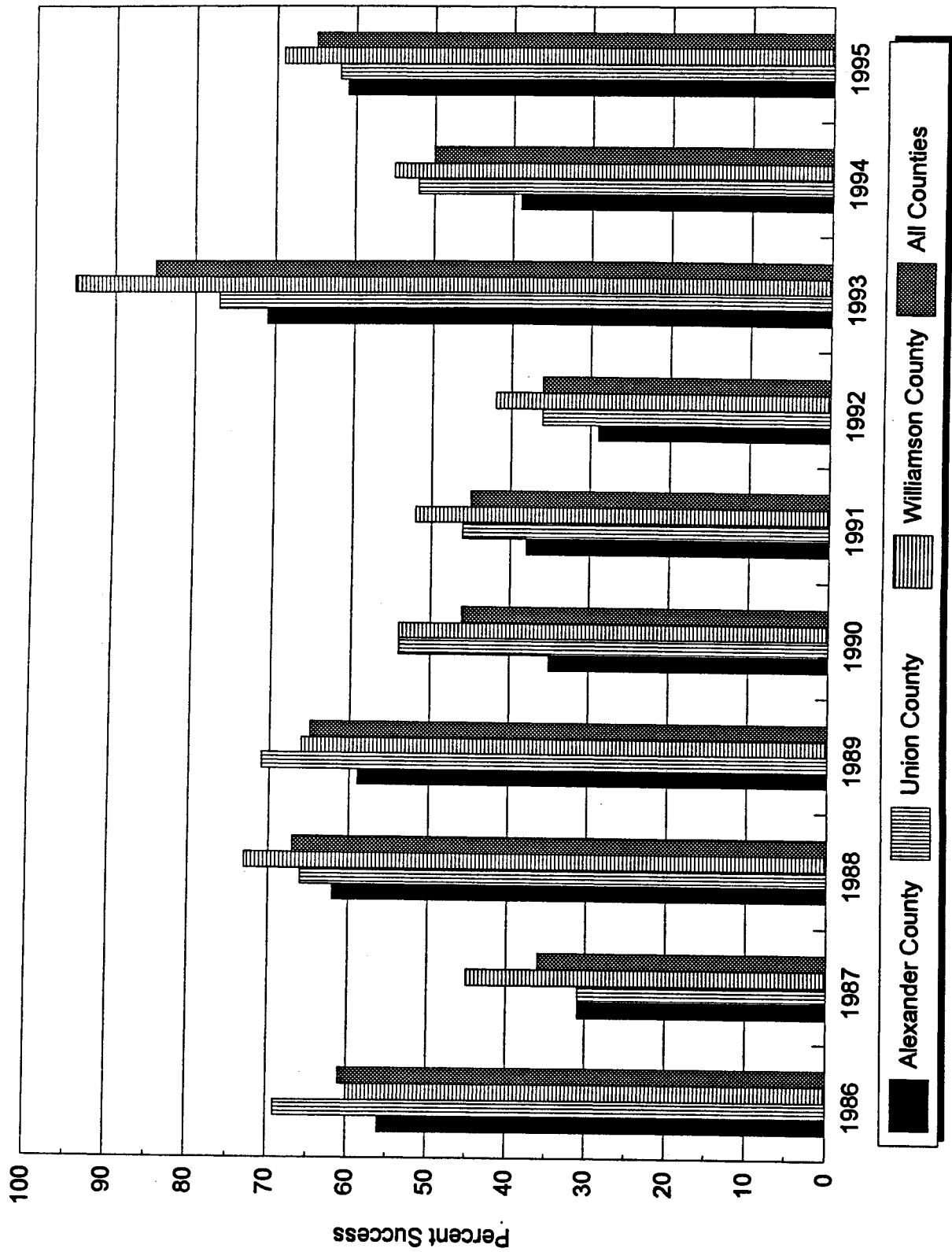


Figure 6. Success rates for Canada goose hunters on commercial clubs in the 4-County Quota Zone, 1986-1995.