Status of Wildlife Populations, Fall 1994 and 1982-1993 Hunting and Trapping Harvest Statistics

compiled by
Margaret H. Dexter

Section of Wildlife
Minnesota Department of Natural Resources
St. Paul, Minnesota

This report should be cited as follows:

Dexter, M.H., compiler. 1994. Status of wildlife populations, fall 1994 and 1982-1993 hunting and trapping harvest statistics. Unpub. Rep., Section of Wildlife, Minn. Dept. Nat. Res., St. Paul, Minnesota. 141pp.

Note: Data in this report may change as a result of future verification and more comprehensive analysis.

Status of Wildlife Populations, Fall 1994

and

1981-93 Hunting and Trapping Harvest Statistics

This is the 18th year that the Wildlife Populations and Research Unit has compiled this booklet; it is primarily an administrative document intended for DNR personnel. (Since 1984 we have also generated a companion volume containing annual summaries of activities and findings from each ongoing research project in the Unit).

Most of the field work associated with collection of census and survey data for farmland and forest wildlife is performed by wildlife biologists and managers (conservation officers also participate in August roadside counts). The Farmland and Forest Wildlife Population and Research groups coordinate these activities, analyze and interpret data, and prepare recommendations for harvest regulations and season setting.

Much of the census and survey work for wetland species is done by personnel in the Wetland Wildlife Populations and Research Group.

Most of the hunting and trapping harvest estimates are calculated and summarized by St. Paul central office personnel.

CONTENTS

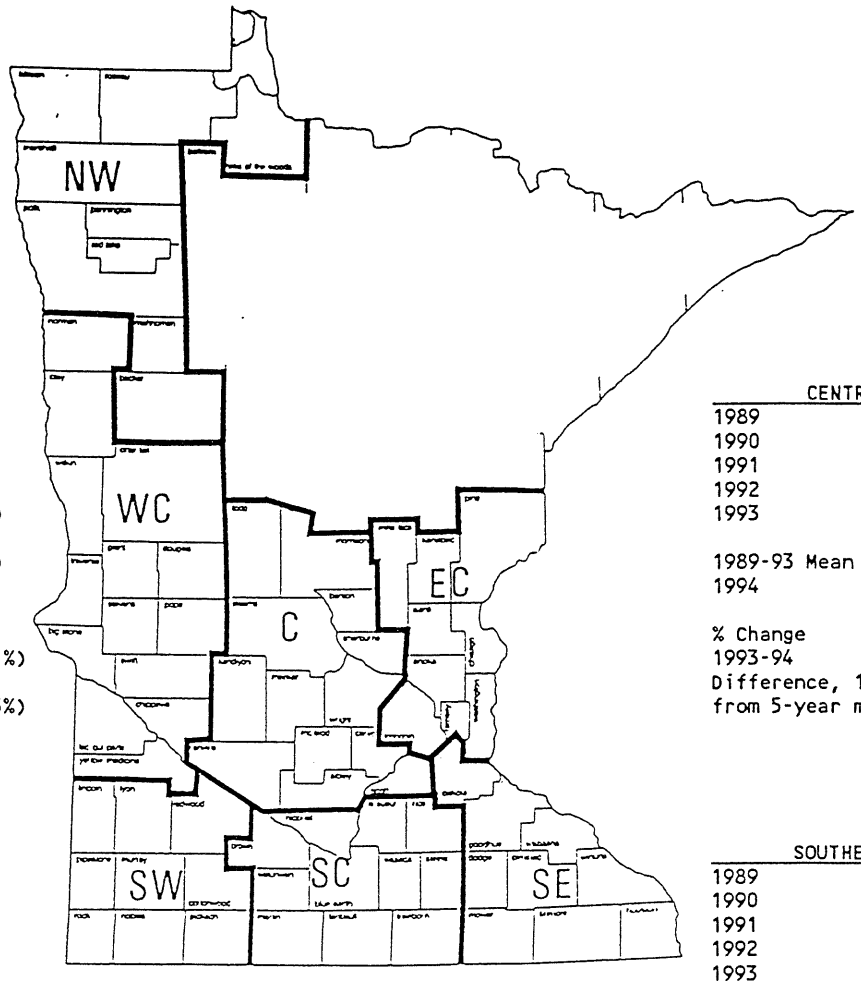
Index

FARMLAND WILDLIFE POPULATIONS
Wildlife Research Group
Rt 1, Box 181
Madelia, MN 56062
(507) 642-8478

WEST CENTRAL	
1989	33
1990	46
1991	78
1992	30
1993	11 (14)
1989-93 Mean	39 (40)
1994	25
% Change 1993-94	+132% (+83%)
Difference, 1994 from 5-year mean	-36% (-38%)

STATEWIDE	
1989	40
1990	58
1991	77
1992	44
1993	24 (30)
1989-93 Mean	49 (50)
1994	45
% Change 1993-94	+84% (+49%)
Difference, 1994 from 5-year mean	-8% (-10%)

EAST CENTRAL	
1989	54
1990	72
1991	88
1992	51
1993	20 (25)
1989-93 Mean	57 (58)
1994	31
% Change 1993-94	+55% (+26%)
Difference, 1994 from 5-year mean	-46% (-47%)



SOUTH CENTRAL	
1989	40
1990	62
1991	79
1992	47
1993	31 (38)
1989-93 Mean	52 (53)
1994	61
% Change 1993-94	+99% (+61%)
(Difference, 1994 from 5-year mean	+17% (+15%)

CENTRAL	
1989	42
1990	61
1991	80
1992	47
1993	23 (28)
1989-93 Mean	51 (52)
1994	30
% Change 1993-94	+30% (+5%)
Difference, 1994 from 5-year mean	-41% (-42%)

SOUTHWEST	
1989	32
1990	60
1991	84
1992	37
1993	16 (19)
1989-93 Mean	46 (46)
1994	52
% Change 1993-94	+232% (+169%)
Difference, 1994 from 5-year mean	+13% (+13%)

SOUTHEAST	
1989	43
1990	54
1991	51
1992	63
1993	52 (64)
1989-93 Mean	53 (55)
1994	81
% Change 1993-94	+56% (+26%)
Difference, 1994 from 5-year mean	+53% (+47%)

Figure 1. Ring-necked pheasants seen per 100 miles of August roadside count route, 1989-94, and percent change 1993-94 for routes surveyed both years. Numbers in parentheses are adjusted for the correction to the 1993 pheasant index.

Table 1. County, regional, and statewide August roadside count indices for ring-necked pheasants in Minnesota, 1989-1994.

Region and County	Miles surveyed 1994	Pheasants seen per 100 miles							Percent change[a] 1993-94
		1989	1990	1991	1992	1993	1994	1989-93 Mean	
West Central	900	33.1	45.6	78.0	29.5	11.0	24.8	39.4	+132 (+83)[b]
Big Stone	75	36	136	125	19	17	3		
Chippewa	50	52	64	80	58	10	44		
Clay	75	11	0	13	12	1	0		
Douglas	50	0	38	32	52	0	0		
Grant	50	18	8	18	30	24	0		
Lac Qui Parle	75	73	73	252	45	36	116		
Norman	50	0	0	0	0	2	0		
Otter Tail	50	2	18	22	10	0	2		
Pope	50	49	96	156	57	16	88		
Stevens	75	97	103	128	36	3	19		
Swift	75	77	37	108	79	33	53		
Traverse	75	4	0	31	9	0	2		
Wilkin	75	0	1	9	3	0	0		
Yellow Medicine	75	12	31	39	4	5	16		
Central	775	42.3	60.5	80.0	46.6	23.1	29.9	50.5	+30 (+5)
Benton	50	74	24	36	56	8	20		
Carver	50	14	54	38	28	54	40		
Kandiyohi	75	71	51	207	123	44	44		
McLeod	50	154	88	74	52	2	6		
Meeker	75	65	133	272	88	33	51		
Morrison	50	28	36	68	0	38	44		
Renville	50	0	0	0	0	0	0		
Scott	50	42	140	28	62	28	2		
Sherburne	50	0	0	42	12	2	0		
Sibley	75	17	63	79	49	0	58		
Stearns	100	2	16	39	20	41	41		
Todd	50	100	78	88	12	8	0		
Wright	50	38	116	28	70	20	42		
East Central	425	53.6	72.0	88.2	51.3	20.2	31.3	57.1	+55 (+26)
Anoka	50	16	108	76	6	0	6		
Chisago	75	115	131	164	136	77	59		
Hennepin	25	44	164	0	36	4	0		
Isanti	75	48	45	105	5	1	20		
Kanabec	50	0	40	8	2	6	30		
Mille Lacs	50	138	102	190	104	34	28		
Pine	50	0	8	66	36	12	28		
Washington	50	36	8	6	58	0	56		

Table 1. Continued.

Region and County	Miles surveyed 1994	Pheasants seen per 100 miles							Percent change[a] 1993-94
		1989	1990	1991	1992	1993	1994	1989-93 Mean	
Southwest	475	32.0	59.6	83.6	37.5	15.6	51.8	45.7	+232 (+169)
Cottonwood	50	14	26	58	26	24	12		
Jackson	50	32	90	22	12	4	98		
Lincoln	50	18	60	390	174	20	86		
Lyon	50	48	32	48	0	0	32		
Murray	50	40	52	10	32	44	4		
Nobles	75	16	33	47	31	7	53		
Pipestone	50	20	64	86	20	38	90		
Redwood	50	0	22	8	32	2	40		
Rock	50	108	170	102	14	6	50		
South Central	800	39.6	61.8	79.0	47.2	30.8	61.3	51.7	+99 (+61)
Blue Earth	75	37	16	--	11	3	51		
Brown	75	52	41	47	5	4	60		
Faribault	75	21	15	7	--	1	12		
Freeborn	75	37	60	52	23	45	73		
LeSueur	75	32	145	323	224	111	113		
Martin	75	3	41	19	19	16	44		
Nicollet	75	52	72	37	5	1	9		
Rice	75	71	87	127	76	73	99		
Steele	50	12	86	116	72	34	74		
Waseca	75	73	95	36	43	49	112		
Watonwan	75	36	29	25	3	1	31		
Southeast	500	43.4	53.6	51.0	63.4	52.2	81.2	52.7	+56 (+26)
Dakota	50	14	6	6	56	10	12		
Dodge	50	94	62	34	94	18	84		
Fillmore	50	56	16	48	134	162	134		
Goodhue	50	10	38	16	22	0	20		
Houston	50	0	26	52	14	6	60		
Mower	75	65	88	59	25	15	91		
Olmsted	75	83	128	131	151	180	228		
Wabasha	50	20	36	70	28	34	22		
Winona	50	18	28	0	22	0	2		
Statewide	3875	39.8	57.5	76.9	44.2	24.3	44.7	48.5	+84 (+49)

[a] Percent change for 1993-94 calculated only for routes surveyed both years.

[b] Figures in parentheses are the per cent changes from 1993-94 based on the adjusted 1993 pheasant indices.

Table 2. Statewide pheasant population parameters calculated from August roadside count results, 1989-94.

Population Parameter	1989	1990	1991	1992	1993	1994	1989-93 Mean	Percent change[a] 1993-94
Cocks/100 Miles	2.9	4.9	5.9	3.8	2.6	3.8	4.0	+47
Hens/100 Miles	4.6	7.8	10.6	6.5	2.6	5.5	6.4	+112
Broods/100 Miles	5.2	7.9	12.1	6.3	3.3	6.5	7.0	+99
Mean Brood Size	6.2	5.7	5.0	5.4	5.9	5.5	5.6	-7
Broods/100 Hens	113.0	101.0	114.6	98.0	126.0	118.0	110.5	-6
Median Hatch Date	Jun 6	Jun 9	Jun 2	Jun 8	Jun 4	Jun 6	Jun 6[b]	

[a] Percent change for 1993-94 calculated only for routes surveyed both years.

[b] Median hatch date, 1989-93.

Table 3. Regional and statewide August roadside count indices for gray (Hungarian) partridge, 1989-94.

Agricultural Region	Miles Surveyed 1994	Partridges seen per 100 miles							Percent change[a] 1993-94
		1989	1990	1991	1992	1993	1994	1989-93 Mean	
Northwest	475	24.8	20.4	15.3	1.7	0.0	0.2	12.4	NA[b]
West Central	900	20.0	14.8	15.5	6.3	0.8	2.2	11.3	+186
Central	775	13.1	19.5	11.6	5.5	1.9	7.4	10.3	+280
East Central	425	0.0	0.0	0.7	0.0	0.0	0.0	0.1	0
Southwest	475	93.5	101.5	66.5	11.8	3.2	36.0	55.3	+1040
South Central	800	84.1	62.7	23.9	10.1	1.0	22.1	36.4	+2113
Southeast	500	42.0	34.6	18.4	10.4	11.8	23.4	23.4	+98
Statewide[c]	4350	39.7	35.2	20.9	6.7	2.4	12.5	20.1	+422

[a] Percent change 1993-94 for routes surveyed both years only.

[b] NA is Not Applicable.

[c] Statewide means include the Northwest agricultural region.

Table 4. Statewide gray (Hungarian) partridge population parameters calculated from August roadside count results, 1989-94.

Population Parameter	1989	1990	1991	1992	1993	1994	1989-93 Mean	Percent change[a] 1993-94
Adults/100 Miles	9.9	11.8	8.0	2.4	0.8	2.8	6.6	+232
Broods/100 Miles	3.3	3.3	2.1	0.7	0.1	1.2	1.9	+783
Mean Brood Size	9.1	7.1	6.1	6.0	11.2	7.9	7.9	-29
Broods/100 Adults	33.3	28.0	26.1	30.1	16.2	43.1	26.7	+166
Median Hatch Date	Jun 21	Jun 21	Jun 23	Jun 23	Jun 29	Jun 22	Jun 23[b]	

[a] Percent change 1993-94 for routes surveyed both years only.

[b] Median hatch date, 1989-93.

Table 5. August roadside count indices for selected farmland wildlife species and percent change 1993-94 by agricultural region.

Agricultural Region	Miles Surveyed 1994	Animals seen per 100 miles driven											
		Eastern Cottontail			White-tailed Jackrabbit			Mourning dove			White-tailed deer		
		1993	1994	Percent change[a]	1993	1994	Percent change[a]	1993	1994	Percent change[a]	1993	1994	Percent change[a]
Northwest	475	0.4	0.0	-100	0.6	0.0	-100	82.1	63.6	-23	15.8	20.8	+32
West Central	900	1.1	1.1	0	0.0	0.6	NA	175.4	282.4	+60	11.4	15.9	+36
Central	775	3.1	4.0	+29	0.3	0.1	-67	179.5	189.4	+6	5.2	3.9	-25
East Central	425	8.5	4.9	-42	0.0	0.2	NA	86.8	86.6	0	8.0	4.7	-41
Southwest	475	2.1	2.3	+10	0.2	0.2	0	92.8	158.5	+71	10.1	9.7	-4
South Central	800	5.7	5.4	-6	0.2	1.0	+400	100.2	133.5	+33	2.9	5.5	+91
Southeast	500	7.8	6.4	-18	0.4	0.0	-100	165.2	153.2	-7	15.6	13.4	-14
Statewide[b]	4350	3.8	3.4	-11	0.2	0.4	+100	133.5	167.1	+25	9.2	10.3	+12

[a] Percent change 1993-94 calculated only for routes surveyed both years.

[b] Statewide means include the Northwest agricultural region.

Table 6. Statewide August roadside count indices for selected farmland wildlife species, 1990-94.

Species	Animals seen per 100 miles driven					Percent change[a]
	1990	1991	1992	1993	1994	1993-94
Ring-necked pheasant[b]	57.5	76.9	44.2	24.3	44.7	+84
Gray partridge (Hun)	35.2	20.9	6.7	2.4	12.5	+422
Mourning dove	255.6	248.3	222.2	133.5	167.1	+25
Eastern cottontail	6.7	5.3	4.7	3.8	3.4	-11
White-tailed jack rabbit	1.4	0.8	0.6	0.2	0.4	+100
White-tailed deer	7.2	10.9	9.5	9.2	10.3	+12
Sharp-tailed grouse	0.05	0.29	0.09	0.02	0.00	-100
Greater prairie-chicken	0.02	0.00	0.00	0.00	0.00	0
Sandhill crane	6.19	2.87	3.19	2.58	4.71	+81
Badger	0.00	0.02	0.00	0.00	0.02	NA
Gray & fox squirrel	0.85	1.38	0.93	1.30	0.83	-37
Gray & red fox	0.91	0.56	0.67	0.43	0.67	+53
Striped & spotted skunk	0.55	0.22	0.09	0.16	0.25	+57

[a] Percent change 1993-94 calculated only for routes surveyed both years.

[b] Ring-necked pheasant means do not include the Northwest agricultural region.

Table 7. Animals seen per 100 miles of August roadside count for 5 species in Minnesota, statewide, 1955-1994.[a]

Year	Animals seen per 100 miles driven									
	Ring-necked Pheasant	Gray Partridge		Eastern Cottontail		White-tailed Jackrabbit		Mourning Dove	
1955	368.1	9.9		17.8		7.0		324.5	
1956	290.0	6.6		13.0		5.6		422.6	
1957	272.6	5.5		11.2		6.3		274.5	
1958	409.1	8.7		14.8		8.5		326.0	
1959	266.8	9.3		6.2		4.0		311.4	
1960	276.3	4.4		9.8		3.6		300.8	
1961	336.0	4.5		9.4		3.5		392.4	
1962	197.4	5.8		7.9		2.7		334.6	
1963	248.1	5.1		7.4		3.6		396.5	
1964	149.8	1.6		5.4		2.0		375.9	
1965	77.2	3.6		4.4		1.6		271.6	
1966	105.0	4.9		5.6		1.8		299.6	
1967	61.9	4.6		5.5		2.8		NC[b]	
1968	71.4	3.5		5.8		1.9		293.5	
1969	39.2	3.7		5.1		2.7		245.6	
1970	69.6	9.1		4.9		1.8		348.3	
1971	66.4	10.8		3.7		2.1		415.4	
1972	47.3	7.5		3.9		1.9		349.8	
1973	63.3	19.1		5.8		1.9		428.2	
1974	76.3	12.0		6.2		1.5		380.8	
1975	34.8	14.6		3.3		1.3		405.8	
1976	44.8	17.6		5.2		2.2		407.4	
1977	85.0	32.1		6.8		2.4		409.8	
1978	79.0	37.0		8.9		3.8		344.5	
1979	54.2	33.9		7.3		3.7		347.9	
1980	104.9	44.6		6.4		2.8		352.2	
1981	133.5	42.9		10.2		2.5		347.6	
1982	60.2	24.5	(22.1)	5.6	(5.2)	1.8	(1.7)	325.0	(313.6)
1983	56.2	24.4	(23.4)	7.2	(6.7)	1.0	(1.0)	298.9	(286.6)
1984	28.6	21.3	(20.0)	3.3	(2.9)	0.9	(0.8)	292.0	(279.2)
1985	34.6	40.7	(37.0)	4.8	(4.4)	1.3	(1.2)	273.7	(270.1)
1986	21.2	22.4	(20.6)	4.4	(4.0)	0.4	(0.5)	207.0	(204.1)
1987	50.0	37.1	(33.4)	7.7	(6.9)	0.7	(0.7)	257.1	(252.4)
1988	34.8	41.5	(37.3)	4.3	(4.0)	0.7	(0.7)	252.3	(245.0)
1989	39.8	41.5	(39.7)	5.9	(5.4)	1.7	(1.6)	297.9	(283.4)
1990	57.5	37.1	(35.2)	7.3	(6.7)	1.4	(1.4)	266.0	(255.6)
1991	76.9	21.5	(20.9)	5.7	(5.3)	0.7	(0.8)	252.8	(248.3)
1992	44.2	7.4	(6.7)	5.2	(4.7)	0.6	(0.6)	224.7	(222.2)
1993	24.3	2.7	(2.4)	4.2	(3.8)	0.2	(0.2)	139.8	(133.5)
1994	44.7	14.0	(12.5)	3.8	(3.4)	0.4	(0.4)	179.7	(167.1)

[a] Eight counties in the Northwest agricultural region were added to the August Roadside Count in 1982. Numbers in parentheses are statewide means which include the Northwest agricultural region. These were not calculated for ring-necked pheasants because the Northwest counties are outside the pheasant range.

[b] No count.

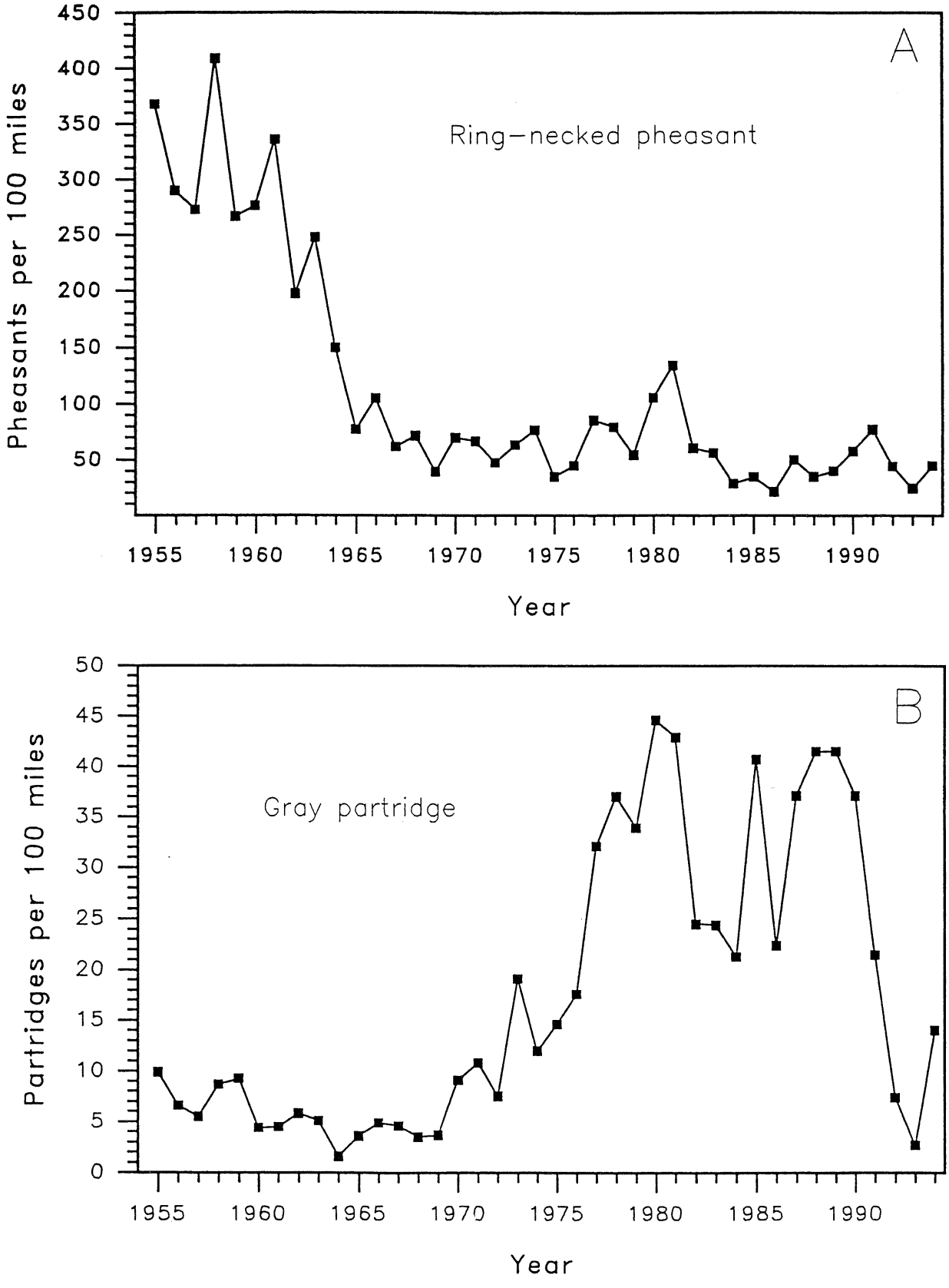


Figure 2. August roadside count indices (birds seen per 100 miles driven) for (A) Ring–necked pheasant and (B) Gray partridge, 1955–1994. Gray partridge means do not include the Northwest agricultural region.

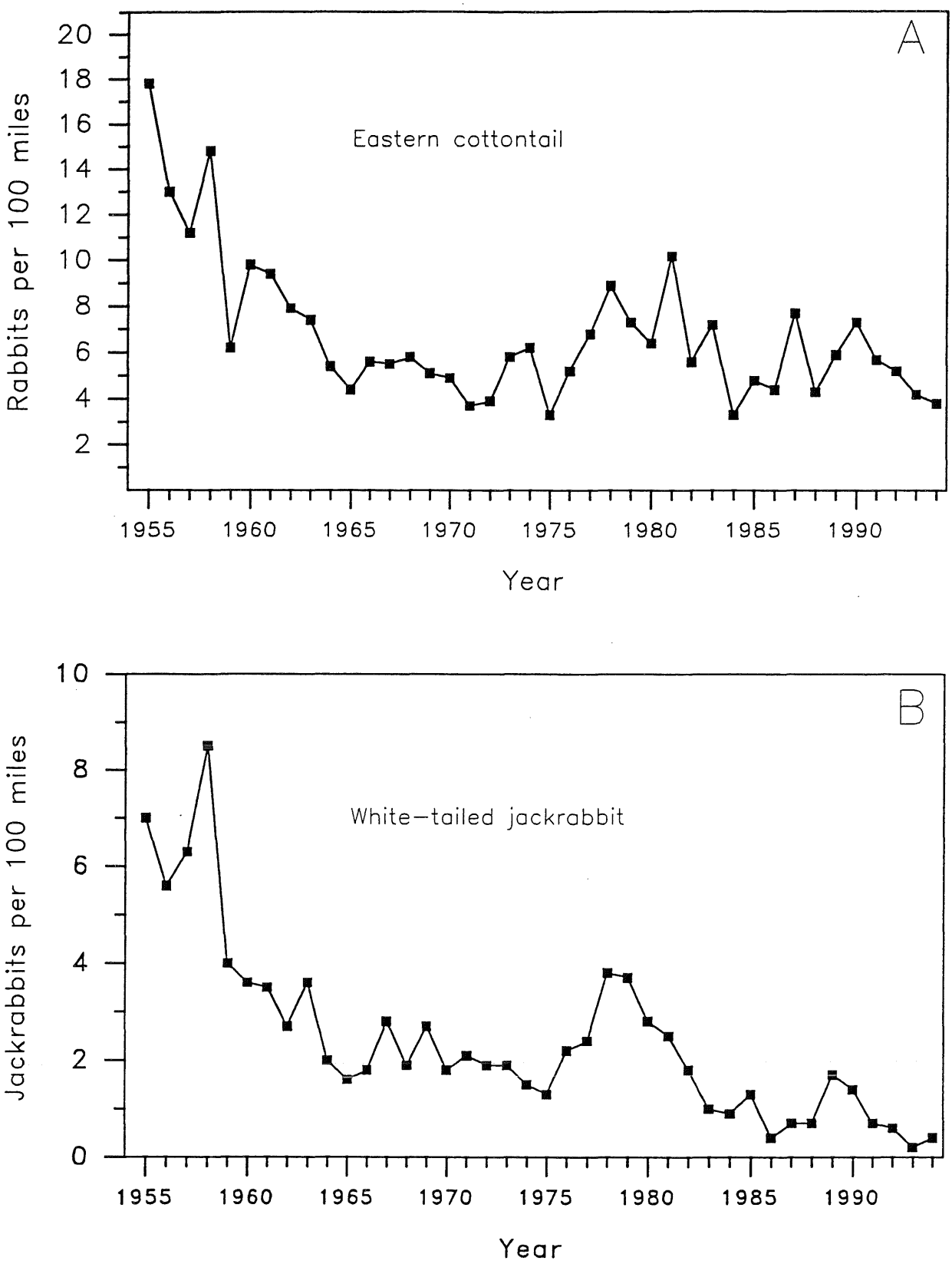


Figure 3. August roadside count indices (animals seen per 100 miles driven) for (A) Eastern cottontail and (B) White–tailed jackrabbit, 1955–1994. Means do not include the Northwest agricultural region.

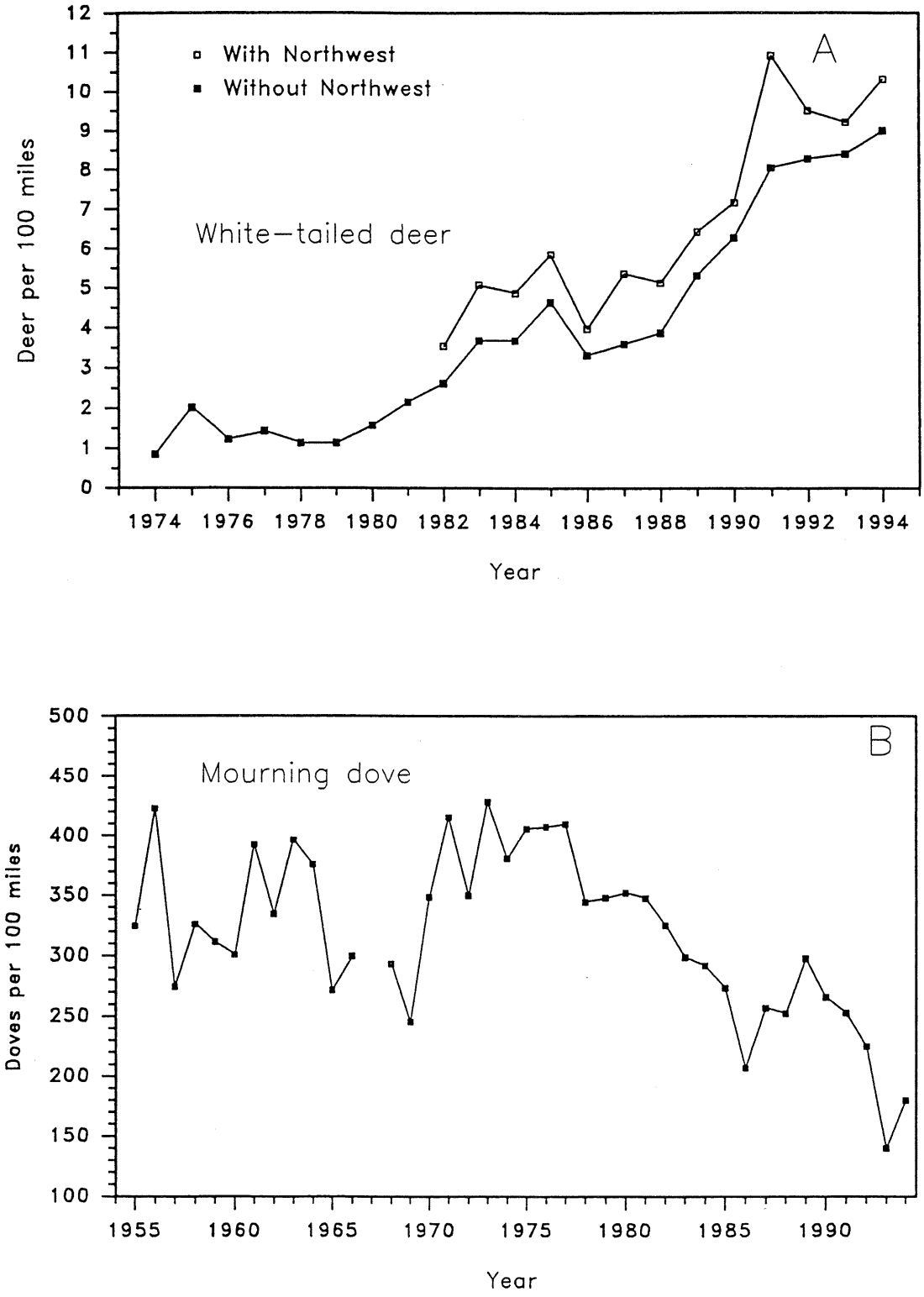


Figure 4. August roadside count indices (animals seen per 100 miles driven) for (A) White–tailed deer, including and excluding the Northwest agricultural region, 1974–1994; and (B) mourning dove, 1955–1994. Dove means do not include the Northwest agricultural region. Doves were not counted in 1967.

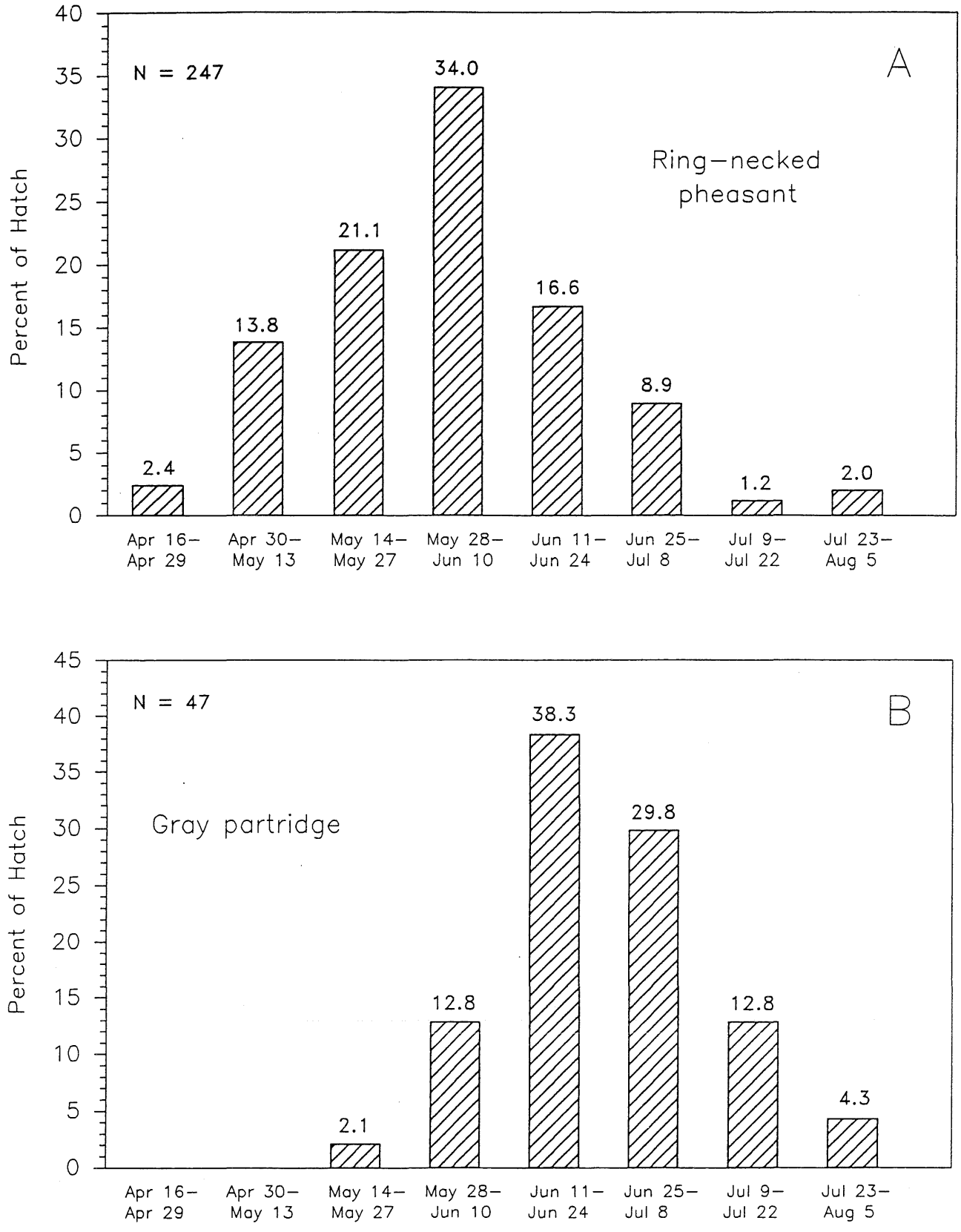


Figure 5. Biweekly distribution of (A) Ring–necked pheasant, and (B) Gray partridge hatch, 1994.

Table 8. Ring-necked pheasants seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1994.

Year	Agricultural region							State-[a] wide
	WC	C	EC	SW	SC	SE	NW	
1955	334.8	163.2	140.0	580.5	620.2	212.0	NO	368.1
1956	248.8	208.1	175.2	357.2	477.5	169.0	COUNT	290.0
1957	260.2	130.4	134.6	336.6	522.2	179.6		272.6
1958	490.3	261.9	300.0	473.4	592.9	125.6		409.1
1959	306.6	187.3	73.1	509.5	412.8	55.3		266.8
1960	367.0	243.4	202.5	294.3	356.8	37.7		276.3
1961	494.3	266.7	254.5	365.8	381.3	115.1		336.0
1962	264.2	140.5	143.8	214.7	239.3	114.0		197.4
1963	443.8	191.5	156.9	251.8	227.4	134.8		248.1
1964	224.5	83.1	26.3	185.3	211.1	83.8		149.8
1965	121.4	38.1	8.7	90.4	98.1	68.8		77.2
1966	109.6	67.2	26.3	108.8	175.5	101.8		105.0
1967	56.4	29.7	10.4	51.5	126.2	81.0		61.9
1968	64.9	39.7	16.9	78.1	124.7	94.0		71.4
1969	12.8	22.3	20.2	33.3	68.3	101.9		39.2
1970	19.7	26.9	8.9	55.2	108.6	194.2		69.6
1971	40.3	44.0	14.8	59.3	76.7	175.2		66.4
1972	19.9	28.0	44.0	37.3	66.7	104.8		47.3
1973	38.3	35.4	53.0	36.2	74.5	168.0		63.3
1974	50.6	73.3	84.7	59.8	93.0	107.5		76.3
1975	13.1	33.7	75.1	6.7	24.6	78.6		34.8
1976	11.9	28.1	68.2	2.1	82.8	80.8		44.8
1977	45.8	84.7	101.4	6.4	145.0	125.8		85.0
1978	36.1	79.9	178.4	23.2	106.0	77.2		79.0
1979	44.6	61.7	100.5	13.4	53.3	54.7		54.2
1980	78.8	116.8	221.2	19.5	110.0	84.9		104.9
1981	123.8	139.1	267.8	75.8	125.8	95.2		133.5
1982[b]	70.8	43.7	155.1	26.1	49.1	28.9	0.0	60.2
1983	89.7	51.5	107.3	10.1	24.9	51.4	0.0	56.2
1984	66.5	13.6	10.1	8.4	25.8	20.6	0.4	28.6
1985	62.9	16.3	41.3	14.3	29.6	31.6	2.5	34.6
1986	19.6	10.7	22.4	19.8	23.5	37.4	0.0	21.2
1987	79.5	36.4	24.5	60.4	41.7	39.0	0.0	50.0
1988	45.3	31.2	40.0	24.7	31.6	30.1	0.0	34.8
1989	33.1	42.3	53.6	32.0	39.6	43.4	0.0	39.8
1990	45.6	60.5	72.0	59.6	61.8	53.6	0.0	57.5
1991	78.0	80.0	88.2	83.6	79.0	51.0	0.0	76.9
1992	29.5	46.6	51.3	37.5	47.2	63.4	0.0	44.2
1993	11.0	23.1	20.2	15.6	30.8	52.2	0.0	24.3
1994	24.8	29.9	31.3	51.8	61.3	81.2	0.0	44.7

[a] Statewide means do not include the Northwest agricultural region because counties there are outside the pheasant range.

[b] Eight counties in the Northwest agricultural region were added to the August Roadside Count in 1982 for all species except ring-necked pheasants.

Table 9. Gray partridges seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1994.

Year	Agricultural region							Statewide Mean	
	WC	C	EC	SW	SC	SE	NW	Without NW	With NW
1955	16.4	8.0	0.0	10.8	9.5	9.0	NO	9.9	
1956	2.9	8.3	0.0	14.7	6.0	7.8	COUNT	6.6	
1957	6.4	4.5	0.0	11.7	7.0	0.2		5.5	
1958	20.4	8.6	0.0	10.2	0.3	6.0		8.7	
1959	13.0	17.3	0.0	20.4	5.3	0.0		9.3	
1960	3.9	6.5	0.0	12.1	0.6	4.9		4.4	
1961	5.6	13.4	0.0	2.1	0.6	0.0		4.5	
1962	2.5	10.4	0.0	3.1	0.3	22.0		5.8	
1963	3.3	10.8	0.0	11.1	0.9	4.8		5.1	
1964	0.9	2.5	0.0	2.0	1.9	2.4		1.6	
1965	5.3	2.9	0.0	6.8	2.3	4.0		3.6	
1966	1.8	3.5	0.0	18.3	0.1	11.4		4.9	
1967	2.6	2.2	0.0	8.2	13.5	0.0		4.6	
1968	4.4	3.1	0.0	9.5	0.0	5.0		3.5	
1969	5.2	2.6	0.0	10.9	0.0	4.5		3.7	
1970	7.1	8.2	0.0	32.8	3.7	4.0		9.1	
1971	12.7	3.8	0.0	28.9	7.2	10.1		10.8	
1972	6.7	3.3	0.0	18.3	1.6	18.4		7.5	
1973	8.2	7.8	0.0	66.9	11.7	26.0		19.1	
1974	6.9	10.3	0.0	27.4	8.4	20.2		12.0	
1975	11.0	2.3	0.0	67.5	8.6	5.6		14.6	
1976	10.6	8.7	0.0	59.3	15.4	22.4		17.6	
1977	16.0	32.8	0.0	93.3	31.0	31.6		32.1	
1978	26.1	22.6	0.2	144.2	30.7	14.8		37.0	
1979	43.0	24.3	0.0	88.5	34.8	12.2		33.9	
1980	57.9	41.7	0.0	99.0	41.2	27.6		44.6	
1981	38.1	26.8	0.5	138.7	44.4	19.0		42.9	
1982[a]	23.6	23.0	0.7	69.7	17.1	16.0	3.6	24.5	22.1
1983	29.3	18.7	0.0	64.6	22.8	8.0	15.2	24.4	23.4
1984	18.2	17.3	0.0	49.7	26.5	16.2	9.5	21.3	20.0
1985	30.7	17.5	0.0	94.9	63.3	42.2	2.2	40.7	37.0
1986	10.1	4.6	0.0	59.6	45.3	20.8	3.5	22.4	20.6
1987	14.7	15.1	0.0	99.2	47.0	66.6	3.6	37.1	33.4
1988	25.9	18.2	3.1	110.7	63.6	40.4	3.8	41.5	37.3
1989	20.0	13.1	0.0	93.5	84.1	42.0	24.8	41.5	39.7
1990	14.8	19.5	0.0	101.5	62.7	34.6	20.4	37.1	35.2
1991	15.5	11.6	0.7	66.5	23.9	18.4	15.3	21.5	20.9
1992	6.3	5.5	0.0	11.8	10.9	10.4	1.7	7.4	6.7
1993	0.8	1.9	0.0	3.2	1.0	11.8	0.0	2.7	2.4
1994	2.2	7.4	0.0	36.0	22.1	23.4	0.2	14.0	12.5

[a] Eight counties in the Northwest agricultural region were added to the August Roadside Count in 1982.

Table 10. Eastern cottontails seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1994.

Year	Agricultural region							Statewide Mean	
	WC	C	EC	SW	SC	SE	NW	Without NW	With NW
1955	8.1	15.0	14.5	20.3	19.6	32.0	NO	17.8	
1956	9.6	16.2	12.4	16.2	12.8	12.7	COUNT	13.0	
1957	6.6	9.7	8.3	18.3	13.7	14.0		11.2	
1958	12.8	13.5	16.2	22.1	17.2	6.5		14.8	
1959	5.0	16.0	5.6	6.5	5.3	2.2		6.2	
1960	5.9	13.6	6.4	15.6	11.9	4.9		9.8	
1961	6.2	12.4	6.1	13.8	10.9	5.6		9.4	
1962	5.6	7.3	4.2	12.6	10.0	8.2		7.9	
1963	6.8	4.2	4.9	11.6	9.3	8.6		7.4	
1964	5.2	3.3	1.0	11.8	6.6	5.4		5.4	
1965	3.9	4.4	0.9	5.4	5.7	5.8		4.4	
1966	5.3	3.2	1.8	9.5	7.5	6.0		5.6	
1967	5.8	4.6	2.1	7.1	8.7	3.2		5.5	
1968	4.6	3.2	3.5	9.3	8.8	5.8		5.8	
1969	3.6	3.9	0.9	9.5	8.3	4.5		5.1	
1970	3.6	5.0	1.5	6.9	5.7	6.2		4.9	
1971	4.8	2.6	1.5	6.7	3.2	2.1		3.7	
1972	3.8	4.7	3.6	4.8	3.5	3.5		3.9	
1973	5.0	8.6	6.0	6.5	5.4	4.2		5.8	
1974	3.4	6.5	14.2	6.5	6.1	6.4		6.2	
1975	2.3	4.4	8.3	1.6	1.5	3.1		3.3	
1976	3.7	5.5	6.5	2.1	6.1	7.6		5.2	
1977	4.8	6.7	12.9	6.4	4.9	7.8		6.8	
1978	5.0	8.6	21.4	11.8	7.3	4.6		8.9	
1979	4.6	7.7	7.5	12.7	8.0	4.4		7.3	
1980	4.4	7.0	9.9	6.7	7.2	3.8		6.4	
1981	7.0	10.3	18.1	9.9	8.4	12.0		10.2	
1982[a]	4.8	6.6	7.8	3.2	6.7	4.9	1.9	5.6	5.2
1983	7.0	5.9	13.2	5.7	3.6	12.2	1.9	7.2	6.7
1984	2.4	2.0	3.5	3.8	4.1	4.8	0.2	3.3	2.9
1985	2.4	4.4	4.7	6.5	5.7	7.6	0.2	4.8	4.4
1986	1.5	4.8	5.9	6.3	5.3	4.8	0.2	4.4	4.0
1987	5.7	7.0	11.5	8.2	6.6	10.6	0.6	7.7	6.9
1988	2.7	3.2	6.4	6.4	3.9	5.9	1.3	4.3	4.0
1989	3.6	5.9	8.9	6.7	4.2	9.2	1.3	5.9	5.4
1990	3.6	6.3	10.6	4.0	6.6	16.8	1.9	7.3	6.7
1991	2.8	5.8	8.9	4.2	6.0	9.2	2.0	5.7	5.3
1992	3.0	6.1	8.5	4.0	4.7	7.2	0.4	5.2	4.7
1993	1.1	3.1	8.5	2.1	5.7	7.8	0.4	4.2	3.8
1994	1.1	4.0	4.9	2.3	5.4	6.4	0.0	3.8	3.4

[a] Eight counties in the Northwest agricultural region were added to the August Roadside Count in 1982.

Table 11. White-tailed jackrabbits seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1994.

Year	Agricultural region							Statewide Mean	
	WC	C	EC	SW	SC	SE	NW	Without NW	With NW
1955	9.0	2.6	1.5	13.0	10.6	1.6	NO	7.0	
1956	5.8	3.7	1.9	10.1	7.7	2.4	COUNT	5.6	
1957	4.8	5.2	0.9	19.5	6.1	1.3		6.3	
1958	7.3	6.4	0.7	20.1	11.9	0.9		8.5	
1959	1.4	0.7	0.4	15.4	7.8	0.6		4.0	
1960	3.7	4.8	0.2	9.8	2.5	0.2		3.6	
1961	3.7	5.0	0.0	6.5	3.5	0.2		3.5	
1962	4.2	2.3	0.2	4.5	2.8	0.7		2.7	
1963	9.7	2.2	0.0	2.4	3.0	1.0		3.6	
1964	2.9	1.3	0.0	3.7	2.4	0.6		2.0	
1965	1.9	1.9	0.2	4.2	1.2	0.4		1.6	
1966	2.3	1.8	0.2	4.6	1.1	0.6		1.8	
1967	5.3	1.2	0.2	4.2	4.0	0.0		2.8	
1968	1.7	0.8	0.0	6.9	1.9	1.0		1.9	
1969	3.1	0.7	0.5	10.1	1.8	0.7		2.7	
1970	4.0	1.5	0.0	1.9	1.3	0.4		1.8	
1971	5.3	1.6	0.0	2.9	0.8	0.0		2.1	
1972	3.6	1.3	0.0	1.5	2.1	0.5		1.9	
1973	4.0	0.2	0.0	2.9	1.7	0.2		1.9	
1974	3.9	1.5	0.0	1.5	0.7	0.0		1.5	
1975	3.2	0.6	0.3	2.1	0.2	0.2		1.3	
1976	4.4	0.6	0.0	5.2	1.7	1.2		2.2	
1977	3.5	2.8	0.2	4.9	1.6	0.8		2.4	
1978	3.4	2.8	0.7	13.1	3.0	1.0		3.8	
1979	4.6	5.3	0.5	6.4	2.7	1.1		3.7	
1980	3.7	1.2	1.2	8.3	1.5	2.7		2.8	
1981	2.1	2.2	0.0	7.2	1.5	3.0		2.5	
1982[a]	2.6	0.9	0.5	4.6	1.1	0.9	1.5	1.8	1.7
1983	2.3	0.9	0.0	0.0	0.9	0.8	1.3	1.0	1.0
1984	1.5	0.8	0.0	1.7	0.4	0.6	0.4	0.9	0.8
1985	1.7	0.4	0.0	3.2	1.5	0.7	1.0	1.3	1.2
1986	0.4	0.4	0.0	0.6	0.9	0.0	1.0	0.4	0.5
1987	1.2	0.3	0.0	0.4	1.0	1.0	0.4	0.7	0.7
1988	0.6	0.4	0.0	2.0	1.0	0.4	0.6	0.7	0.7
1989	2.6	1.1	0.0	2.1	2.4	0.6	1.1	1.7	1.6
1990	2.2	0.4	0.2	1.3	2.1	1.2	2.1	1.4	1.4
1991	1.4	0.7	0.0	0.4	0.4	0.4	2.3	0.7	0.8
1992	0.3	0.8	0.0	1.1	0.8	0.4	0.4	0.6	0.6
1993	0.0	0.3	0.0	0.2	0.2	0.4	0.6	0.2	0.2
1994	0.6	0.1	0.2	0.2	1.0	0.0	0.0	0.4	0.4

[a] Eight counties in the Northwest agricultural region were added to the August Roadside Count in 1982.

Table 12. Mourning doves seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1994.

Year	Agricultural region							Statewide Mean	
	WC	C	EC	SW	SC	SE	NW	Without NW	With NW
1955	334.8	274.6	116.0	539.1	395.7	196.8	NO	324.5	
1956	347.4	552.6	277.7	591.5	461.0	285.9	COUNT	422.6	
1957	303.3	245.9	167.7	243.3	382.8	200.4		274.5	
1958	350.2	296.8	192.3	270.1	455.6	292.8		326.0	
1959	377.4	307.3	220.9	358.0	447.3	94.4		311.4	
1960	273.7	333.5	121.7	336.8	430.4	186.7		300.8	
1961	377.3	372.7	135.7	480.8	563.0	316.7		392.4	
1962	338.1	337.5	215.3	312.5	395.7	314.3		334.6	
1963	636.2	273.2	212.0	506.2	435.4	313.4		396.5	
1964	680.6	256.5	167.1	399.7	395.3	217.4		375.9	
1965	311.7	244.5	185.2	460.0	217.2	270.8		271.6	
1966	363.4	210.2	152.0	505.3	310.9	229.3		299.6	
1967[a]									
1968	411.4	207.7	124.9	261.3	254.2	385.0		293.5	
1969	268.3	280.1	124.9	476.5	132.0	194.9		245.6	
1970	601.2	217.9	113.2	527.1	203.7	273.5		348.3	
1971	580.4	256.9	181.6	365.8	258.9	751.7		415.4	
1972	600.2	233.8	169.0	307.7	229.6	314.3		349.8	
1973	601.7	279.6	288.0	480.3	392.1	329.1		428.2	
1974	588.4	321.1	241.5	352.4	269.1	381.5		380.8	
1975	653.5	302.5	152.9	546.0	338.3	259.8		405.8	
1976	599.9	373.4	224.0	535.7	367.0	281.8		407.4	
1977	699.2	308.2	168.0	679.5	281.5	223.7		409.8	
1978	502.1	326.2	173.9	430.6	275.9	282.4		344.5	
1979	600.7	406.1	138.0	379.5	197.5	212.8		347.9	
1980	695.7	302.1	140.3	421.5	235.0	182.3		352.2	
1981	634.1	284.6	153.0	513.6	213.0	178.9		347.6	
1982[b]	557.3	242.8	175.1	304.0	277.7	213.1	225.1	325.0	313.6
1983	517.0	289.2	130.5	277.9	213.9	193.3	188.6	298.9	286.6
1984	530.9	233.2	128.7	267.4	183.2	269.0	175.6	292.0	279.2
1985	500.6	245.4	93.2	242.5	212.5	151.1	233.9	273.7	270.1
1986	325.0	180.1	115.1	204.0	160.5	180.4	176.8	207.0	204.1
1987	440.9	222.9	104.7	257.3	208.1	161.1	215.2	257.1	252.4
1988	385.7	203.9	121.5	300.0	202.6	210.2	184.4	252.3	245.0
1989	501.4	242.5	125.9	329.7	257.3	180.0	165.9	297.9	283.4
1990	443.1	232.4	128.0	159.4	175.5	353.4	170.3	266.0	255.6
1991	316.9	255.0	187.3	169.5	234.9	287.0	205.8	252.8	248.3
1992	261.2	241.2	134.8	198.3	222.3	236.6	202.1	224.7	222.2
1993	175.4	179.5	86.8	92.8	100.2	165.2	82.1	139.8	133.5
1994	282.4	189.4	86.6	158.5	133.5	153.2	63.6	179.7	167.1

[a] Mourning doves were not counted in 1967.

[b] Eight counties in the Northwest agricultural region were added to the August Roadside Count in 1982.

Table 13. Greater prairie-chicken spring booming ground counts for 14 northwestern counties, 1982-93 (counts coordinated and summarized by AWM Terry Wolfe, Crookston).

County	Number of booming males (Number of booming grounds)											
	1982	1983	1984[b]	1985	1986	1987	1988	1989	1990	1991	1992	1993
Becker	133 (13)	174 (17)	96 (9)	41 (3)	99 (11)	53 (7)	19 (3)	18 (3)	69 (7)	30 (3)	69 (6)	58 (10)
Cass	68 (16)[a]	65 (15)	54 (15)[a]	58 (14)	52 (14)	60 (15)	59 (13)	48 (9)	51 (8)	52 (12)	55 (10)	38 (8)
Chippewa	0	2 (1)	0	0	0	0	0	0	0	0	0	0
Clay	216 (12)[a]	161 (15)	110 (7)	127 (7)	86 (9)[a]	87 (9)	0	83 (8)	307 (18)	411 (28)	654 (45)	366 (36)
Hubbard	3 (1)	3 (1)	5 (1)	16 (6)[a]	16 (4)	22 (5)	24 (4)	19 (5)	29 (5)	24 (5)	18 (2)	17 (3)
Mahnomen	294 (22)	316 (22)	149 (19)	134 (15)	102 (17)	63 (9)	29 (5)	0	46 (6)	21 (3)	143 (13)	76 (76)
Marshall	7 (2)	3 (1)	2 (2)	0	0	0	0	0	1 (1)	0	0	0
Norman	273 (15)	194 (11)[a]	119 (8)	86 (7)	128 (10)	87 (9)	111 (9)	73 (7)	145 (11)	215 (12)	339 (15)	221 (26)
Ottertail	12 (1)	10 (3)	7 (1)	5 (1)	0[a]	0	21 (3)	0	0	1 (1)	4 (1)	16 (2)
Pennington	6 (1)	5 (1)	4 (1)	3 (1)	0	0	0	0	9 (1)	0	0	0
Polk	283 (29)	232 (26)	146 (22)[a]	162 (18)	96 (17)[a]	72 (8)	72 (10)	150 (17)	204 (23)	267 (25)	311 (27)	190 (22)
Red Lake	19 (2)	14 (2)	12 (2)	2 (1)	0	0	0	5 (1)	34 (6)	38 (6)	38 (5)	12 (2)
Wadena	64 (11)	18 (6)	19 (2)	34 (9)[a]	17 (7)[a]	105 (20)	99 (16)	59 (13)	134 (17)	145 (21)	38 (7)	43 (8)
Wilkin	269 (20)	223 (18)	60 (6)	149 (15)[a]	81 (9)[a]	99 (8)	58 (3)	100 (6)	199 (15)	228 (13)	244 (13)	142 (11)
Total	1,648(146)	1,420(139)	783 (95)	817 (97)	677 (98)	648 (90)	492 (66)	555 (69)	1,228(118)	1,432(129)	1,913(144)	1,179(138)
males/ground	11.2	10.2	8.2	8.4	6.9	7.2	7.4	8.0	10.4	11.1	13.3	8.5

[a] Data include only grounds on which counts were conducted. In several counties booming grounds were located but counts were not made, they are not included in the data presented.

[b] Part of the reason for the low number of chickens is incomplete counts of known grounds. This was the case for Polk County and a few others. However, even after allowing for uncounted grounds, chicken numbers were down.

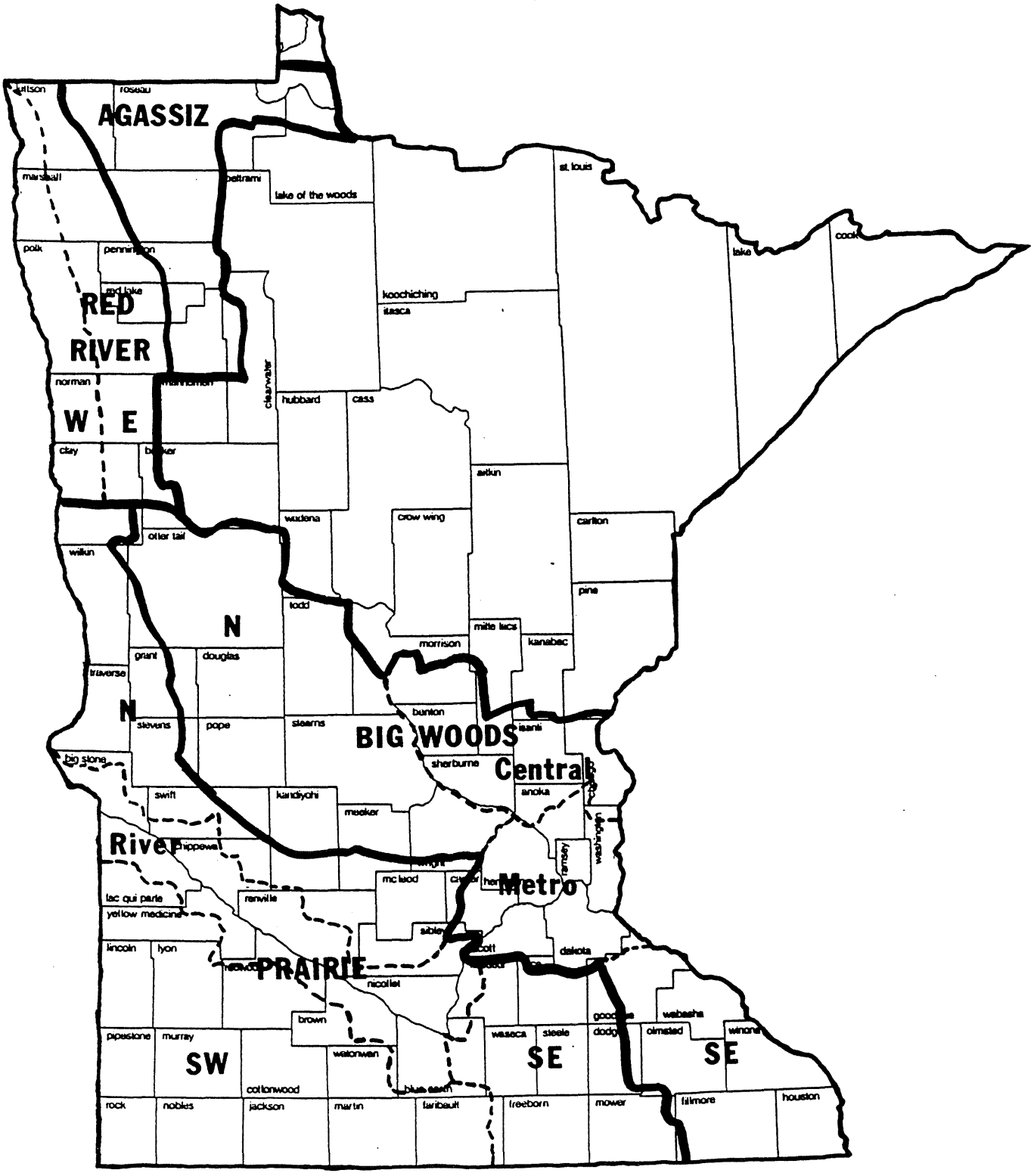


Figure 6. Deer Management Units (DMU) and sub-units in the Farmland Zone.

Table 14. Deer productivity data for the Northwest[a] Deer Management Unit (DMU), 1989-1994. The baseline mean values (1978-1987) are provided as references.

	Fawns			Adults		
Year	n	Percent pregnant	Fetuses/ doe	n	Percent pregnant	Fetuses/ doe
1994	7	14	0.14	13	92	1.38
1993	7	0	0.00	11	100	1.64
1992	13	8	0.08	21	95	1.57
1991	11	9	0.09	15	87	1.60
1990	18	22	0.22	29	93	1.66
1989	14	21	0.29	27	93	1.70
Baseline mean (1978-1987)		31	0.36		90	1.65

[a] Red River (West and East) and Agassiz DMUs were combined into the Northwest DMU due to the small sample size.

Table 15. Deer productivity data for the Big Woods Deer Management Unit, 1989-1994. The baseline mean values (1978-1987) are provided as references.

	Fawns			Adults		
Year Subunit	n	Percent pregnant	Fetuses/ doe	n	Percent pregnant	Fetuses/ doe
1994	46	15	0.17	99	94	1.67
North	8	0	0.00	28	96	1.79
Central	8	0	0.00	14	93	1.64
Metro	28	25	0.29	41	93	1.56
SE	2	0	0.00	16	94	1.75
1993	45	38	0.40	92	93	1.71
1992	65	22	0.25	96	95	1.82
1991	50	20	0.22	71	96	1.76
1990	96	32	0.33	125	95	1.82
1989	51	31	0.31	85	96	1.85
Baseline mean (1978-1987)		44	0.51		94	1.74

Table 16. Deer productivity data for the Prairie Deer Management Unit, 1989-1994. The baseline mean values (1978-1987) are provided as references.

Year / Subunit	Fawns			Adults		
	n	Percent pregnant	Fetuses/ doe	n	Percent pregnant	Fetuses/ doe
1994	32	16	0.22	46	98	1.89
North	7	0	0.00	14	93	1.93
River	18	28	0.39	22	100	2.05
SW	5	0	0.00	8	100	1.50
SE	2	0	0.00	2	100	1.50
1993	39	38	0.41	74	93	1.74
1992	37	19	0.22	44	93	1.93
1991	30	20	0.20	67	94	1.82
1990	43	42	0.45	62	97	1.84
1989	37	38	0.38	54	89	1.65
Baseline mean (1978-1987)		46	0.54		93	1.78

Table 17. Estimated pre-fawning deer density[a] (deer/mi²), permit and harvest summary, and pre-fawning population goals (deer/mi²) by deer management unit (DMU), sub-unit (DMSU), and permit area (PA) in Minnesota's farmland zone, 1993-94.

DMU / DMSU / PA	1993 Density	1993 Total permits issued[b]	1993 Registered harvest Buck	1993 Registered harvest Antlerless	1993 Registered harvest Total[c]	1994 Density	1994 Total permits offered[d]	1994 Projected harvest Buck	1994 Projected harvest Antlerless	1994 Projected harvest Total[c]	Pre-fawning population goal
RED RIVER											
West											
401	1.9	439	315	272	587	1.9	1000	290	577	867	0.8-1.2
402	2.8	651	497	465	962	2.7	1400	466	932	1398	1.7-2.3
Total	2.3	1090	812	737	1549	2.3	2400	756	1509	2265	
East											
403	4.6	631	320	454	774	4.1	600	279	429	708	2.2-2.8
404	6.2	1180	678	747	1425	5.8	1100	597	698	1295	2.7-3.3
405	4.9	1314	559	749	1308	4.4	1600	502	907	1409	2.2-2.8
406	7.2	1144	498	733	1231	6.7	1800	459	1134	1593	2.7-3.3
407	5.9	1487	664	1068	1732	4.9	2400	576	1647	2223	3.6-4.4
408	5.6	1186	515	801	1316	4.7	2000	430	1317	1747	3.6-4.4
Total	5.7	6942	3234	4552	7786	5.1	9500	2843	6132	8975	
RED RIVER TOTAL	4.4	8032	4046	5289	9335	4.0	11900	3599	7641	11240	
AGASSIZ											
201	7.6	400	184	219	403	7.6	300	181	167	348	9.0-11.0
202	11.1	800	272	425	697	10.3	600	236	308	544	10.0-12.0
203	14.1	868	241	348	589	14.1	650	238	260	498	13.5-16.5
204	7.4	1946	769	1003	1772	7.3	2000	749	1028	1777	5.0-6.0
205	9.0	1848	909	1134	2043	8.3	2500	815	1505	2320	6.2-7.4
206	7.3	1691	553	916	1469	6.4	900	487	521	1008	5.3-6.3
207	8.2	1176	387	585	972	7.5	1000	349	496	845	7.7-9.2
208	4.5	809	306	364	670	4.5	800	296	360	656	2.7-3.3
209	4.7	1104	471	527	998	4.4	1500	419	701	1120	2.3-2.7

Table 17. Continued.

DMU / DMSU / PA	1993 Density	1993 Total permits issued[b]	1993 Registered harvest Buck	1993 Registered harvest Antlerless	1993 Registered harvest Total[c]	1994 Density	1994 Total permits offered[a]	1994 Projected harvest Buck	1994 Projected harvest Antlerless	1994 Projected harvest Total[c]	Pre-fawning population goal
AGASSIZ											
210	7.0	1820	618	894	1512	6.3	2000	538	973	1511	2.3-2.7
AGASSIZ TOTAL	7.3	12462	4710	6415	11125	6.9	12250	4308	6319	10627	
BIG WOODS North											
409	15.3	3053	1078	1985	3063	15.8	7000	1038	4655	5693	5.6-6.8
410	8.1	4992	1769	3008	4777	7.7	9000	1638	5243	6881	5.5-6.5
411	10.4	4766	1410	2961	4371	9.0	7000	1250	4209	5459	5.0-6.0
412	6.7	4504	1568	2741	4309	6.1	4700	1377	2814	4191	3.6-4.4
413	7.9	3161	1111	1991	3102	7.1	3500	871	2167	3038	5.0-6.0
414	9.5	3221	1011	2041	3052	8.7	3000	851	1877	2728	8.5-10.0
415	5.3	2456	722	1402	2124	4.9	2200	591	1246	1837	4.5-5.5
416	5.7	1942	686	1144	1830	5.3	2000	561	1164	1725	3.6-4.4
417	5.6	3431	1282	2178	3460	4.8	3150	960	1976	2936	3.5-4.5
418	4.7	2718	855	1538	2393	3.9	2500	628	1397	2025	3.6-4.4
419	6.2	1712	494	806	1300	6.1	1800	441	837	1278	3.0-4.0
429	3.5	617	208	363	571	3.4	1000	187	567	754	3.0-4.0
Total	7.3	36573	12194	22158	34352	6.7	46850	10393	28152	38545	
Central											
221	8.6	2316	971	1919	2890	7.4	1400	767	1168	1935	9.0-11.0
222	12.9	2708	883	2042	2925	10.7	1300	734	1011	1745	10.8-13.2
223	11.5	1876	776	1357	2133	10.4	2000	662	1415	2077	7.0-9.0
224	19.4	250	137	157	294	21.0	350	136	217	353	18.0-22.0
225	10.8	2581	790	2084	2874	6.1	2000	456	1573	2029	7.2-8.8
226	15.5	2490	1097	1909	3006	11.3	3000	679	2183	2862	5.4-6.6
Total	11.5	12221	4654	9468	14122	9.2	10050	3434	7567	11001	

Table 17. Continued.

DMU / DMSU / PA	1993 Density	1993 Total permits issued[b]	1993 Registered harvest Buck	1993 Registered harvest Antlerless	1993 Registered harvest Total[c]	1994 Density	1994 Total permits offered[a]	1994 Projected harvest Buck	1994 Projected harvest Antlerless	1994 Projected harvest Total[c]	Pre-fawning population goal
Metro[e]											
227	13.7	2936	1193	1814	3007	11.6	5000	960	2841	3801	4.8-5.8
235	16.6	180	103	139	242	15.1	175	81	139	220	18.0-22.0
236	16.1	1885	1309	1531	2840	13.8	3000	1002	2130	3132	2.9-3.5
338	4.2	1022	390	541	931	3.6	900	302	487	789	4.5-5.5
339	4.2	871	344	380	724	3.8	1000	282	457	739	3.2-3.8
Total	9.5	6894	3339	4405	7744	8.2	10075	2627	6054	8681	
Southeast											
341	5.9	2171	765	1134	1899	5.3	2100	535	1094	1629	4.5-5.5
342	8.8	1530	673	978	1651	8.1	1500	536	957	1493	8.1-9.9
343	6.0	1664	853	1178	2031	5.5	1700	710	1195	1905	4.5-5.5
344	19.6	1578	723	969	1692	19.2	1500	605	921	1526	18.0-22.0
345	10.3	1541	739	1100	1839	9.3	1400	556	1004	1560	8.1-9.9
346	13.5	2486	942	1803	2745	10.7	1800	680	1213	1893	9.0-11.0
347	7.5	1361	698	1025	1723	6.8	1500	554	1111	1665	5.4-6.6
348	12.3	1836	875	1461	2336	10.5	1500	706	1195	1901	9.0-11.0
349	10.2	2280	1084	1375	2459	9.6	2200	885	1327	2212	9.0-11.0
Total	9.3	16447	7352	11023	18375	8.3	15200	5767	10017	15784	
BIG WOODS TOTAL	8.6	72135	27539	47054	74593	7.6	82175	22221	51790	74011	
PRAIRIE North											
420	4.5	1022	608	843	1451	3.7	1500	413	1179	1592	1.7-2.3
421	3.3	874	578	792	1370	2.6	1300	368	1134	1502	1.6-2.2
422	3.9	577	528	506	1034	3.6	1050	403	897	1300	1.4-2.0
423	3.5	801	440	676	1116	2.6	850	279	708	987	1.3-1.9
424	4.4	1400	776	1277	2053	3.1	1500	421	1350	1771	1.8-2.0

Table 17. Continued.

DMU / DMSU / PA	1993 Density	1993 Total permits issued[b]	1993 Registered harvest Buck	1993 Registered harvest Antlerless	1993 Registered harvest Total[c]	1994 Density	1994 Total permits offered[d]	1994 Projected harvest Buck	1994 Projected harvest Antlerless	1994 Projected harvest Total[c]	Pre-fawning population goal
PRAIRIE North											
425	2.5	637	412	615	1027	2.0	650	270	624	894	1.2-1.8
426	3.8	1080	520	614	1134	3.3	1500	369	985	1354	2.0-3.0
427	2.3	775	446	576	1022	1.8	775	273	573	846	1.3-1.7
428	3.2	1186	431	740	1171	2.2	1000	217	623	840	2.3-2.8
Total	3.5	8352	4739	6639	11378	2.7	10125	3013	8073	11086	
River											
431	5.6	770	466	702	1168	5.3	900	453	810	1263	2.2-2.5
433	6.8	925	625	1118	1743	6.0	1000	606	1168	1774	4.0-5.0
435	5.6	1295	770	1007	1777	5.3	1300	739	1005	1744	3.2-3.8
440	2.8	1039	442	971	1413	2.0	600	367	542	909	3.2-3.8
442	3.8	1075	748	1046	1794	3.5	1075	718	990	1708	3.2-3.8
443	4.1	650	380	606	986	3.6	650	317	595	912	3.2-4.0
Total	4.5	5754	3431	5450	8881	4.1	5525	3200	5110	8310	
Southwest											
446	3.9	700	287	481	768	3.4	700	242	474	716	3.2-4.0
447	2.2	688	318	561	879	1.9	400	264	329	593	2.5-3.1
448	3.1	500	316	527	843	2.6	350	250	370	620	3.2-4.0
449	3.4	775	452	655	1107	3.1	500	413	434	847	3.2-4.0
450	1.4	500	237	369	606	1.3	400	203	294	497	1.2-1.8
451	2.7	425	401	469	870	2.7	450	353	489	842	2.4-3.0
452	1.7	551	249	397	646	1.4	250	196	211	407	1.4-2.0
453	1.8	350	302	267	569	1.8	350	266	267	533	1.4-2.0
454	2.7	700	545	651	1196	2.5	600	449	561	1010	2.0-2.6
455	3.5	150	66	110	176	3.2	150	61	108	169	3.7-4.5

Table 17. Continued.

DMU / DMSU / PA	1993 Density	1993 Total permits issued[b]	1993 Registered harvest Buck	1993 Registered harvest Antlerless	1993 Registered harvest Total[c]	1994 Density	1994 Total permits offered[a]	1994 Projected harvest Buck	1994 Projected harvest Antlerless	1994 Projected harvest Total[c]	Pre-fawning population goal
PRAIRIE											
Southwest											
456	2.4	794	367	552	919	2.1	600	320	418	738	1.7-2.3
457	1.7	525	275	445	720	1.4	200	223	185	408	1.7-2.3
458	1.8	500	289	338	627	1.7	400	263	273	536	1.5-2.1
459	1.9	625	437	533	970	1.8	500	348	429	777	1.7-2.3
Total	2.3	7783	4541	6355	10896	2.1	5850	3851	4842	8693	
Southeast											
461	3.9	1025	442	709	1151	3.5	1100	320	752	1072	2.5-3.1
462	4.1	1443	451	594	1045	3.9	1500	348	622	970	2.7-3.3
463	2.4	575	246	306	552	2.4	675	181	354	535	1.7-2.3
464	2.5	500	206	315	521	2.3	500	146	313	459	1.7-2.3
465	2.4	395	226	270	496	2.3	500	168	331	499	1.5-2.1
466	2.0	800	448	505	953	1.9	800	351	505	856	1.6-2.2
467	1.4	475	283	266	549	1.4	500	220	281	501	1.0-1.6
Total	2.5	5213	2302	2965	5267	2.4	5575	1734	3158	4892	
PRAIRIE TOTAL	3.0	27102	15013	21409	36422	2.6	27075	11798	21183	32981	
FARMLAND TOTAL	5.4	119731	51308	80167	131475	4.8	133400	41926	86933	128859	

[a] Pre-fawning deer density estimates are determined from population modeling. Historical density estimates may differ from those previously published due to periodic recalculation as more accurate modeling information is available.

[b] Total permits issued includes antlerless permits and management permits.

[c] Total harvest includes deer tagged with regular firearms, multizone firearms, muzzleloader, archery, and management permit licenses.

[d] Total permits offered includes projected antlerless permits based on research and management recommendations.

[e] Excluding permit areas 228 and 337, which are not modeled.

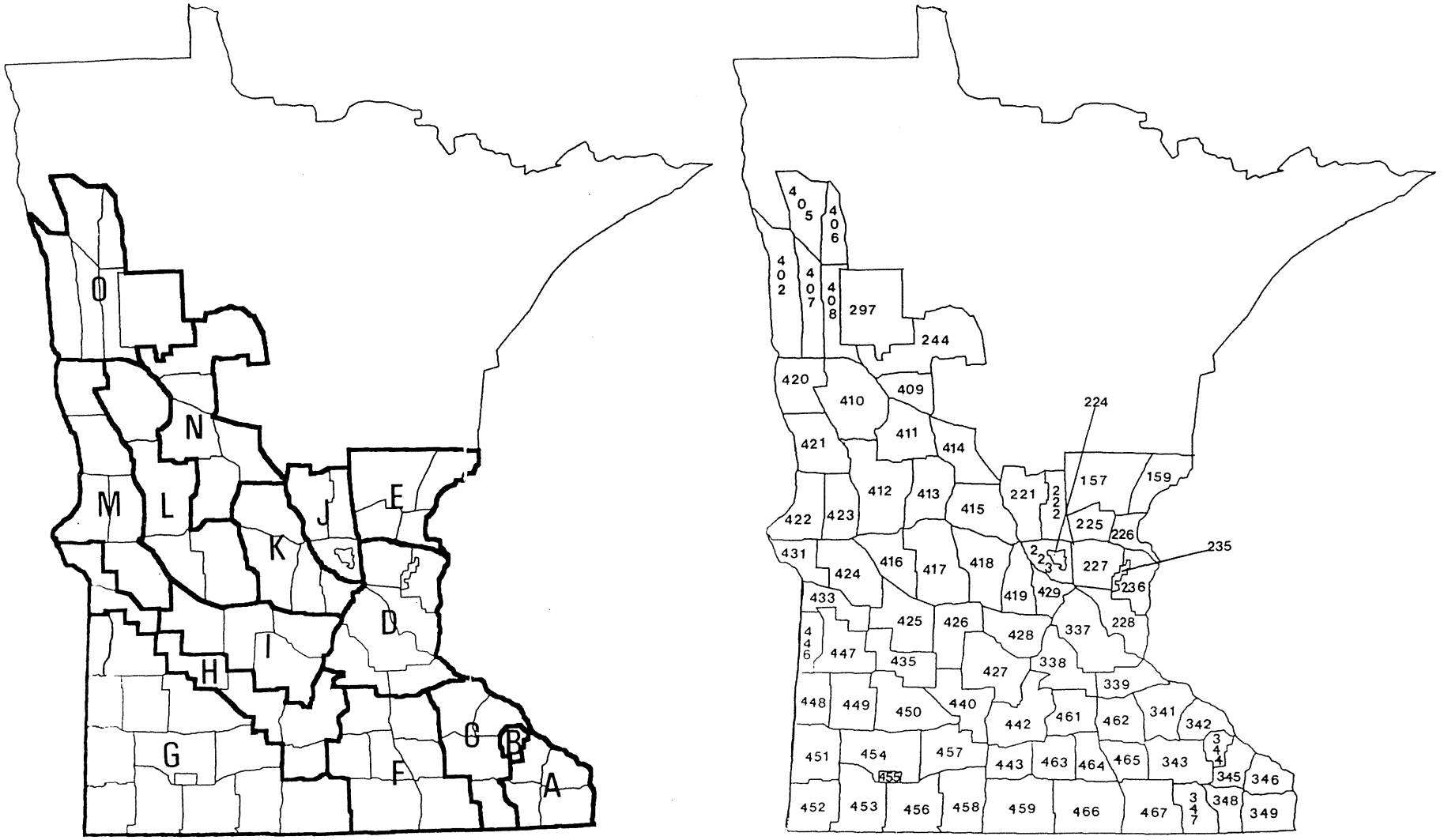


Figure 7. (a) Location of turkey management units (TMU's) and (b) antlerless-deer hunting permit areas used for the wild turkey survey, Minnesota, November-December 1993.

Table 18. Percent of antlerless-deer hunters observing wild turkeys (HOWT) in Minnesota, November-December, 1992-93.

Turkey Management Unit	Year	n (Respondents)	HOWT	99% CI on HOWT
A	1992	629	62.8	
	1993	637	64.8	7.0
B	1992	473	62.4	
	1993	467	53.1*	8.3
C	1992	632	52.4	
	1993	637	57.6	7.6
D	1992	563	17.1	
	1993	633	17.4	5.6
E	1992	581	3.4	
	1993	647	7.1*	3.3
F	1992	583	19.0	
	1993	594	24.8	6.2
G	1992	625	3.7	
	1993	644	5.3	3.0
H	1992	598	16.4	
	1993	655	16.0	5.4
I	1992	596	4.5	
	1993	569	3.9	3.0
J	1992	560	2.1	
	1993	609	1.6	2.1
K	1992	600	6.0	
	1993	624	5.6	3.4
L	1992	653	1.7	
	1993	687	2.5	2.0
M	1992	578	2.9	
	1993	597	3.4	2.6
N	1992	663	2.1	
	1993	710	1.7	1.9
O	1992	576	3.8	
	1993	626	1.9	2.5

* Significant change in index from 1992 to 1993 ($p<0.01$)

PREDATOR SCENT POST SURVEY

NOTE: This survey is organized and coordinated by the Forest Wildlife Populations and Research Group, 1201 E. Hwy 2, Grand Rapids, MN 55744. Results are presented at this location in the book because of the statewide nature of the data.

1993 SCENT STATION ROUTE SPECIFICS

Zone	Rts. Done	No. Segments	Segment Density	Station Nights
Forest	40	167	1/194 mi²	1,638
Transition	30	125	1/203 mi²	1,124
Farm	24	98	1/268 mi²	918
	104	390		3,680

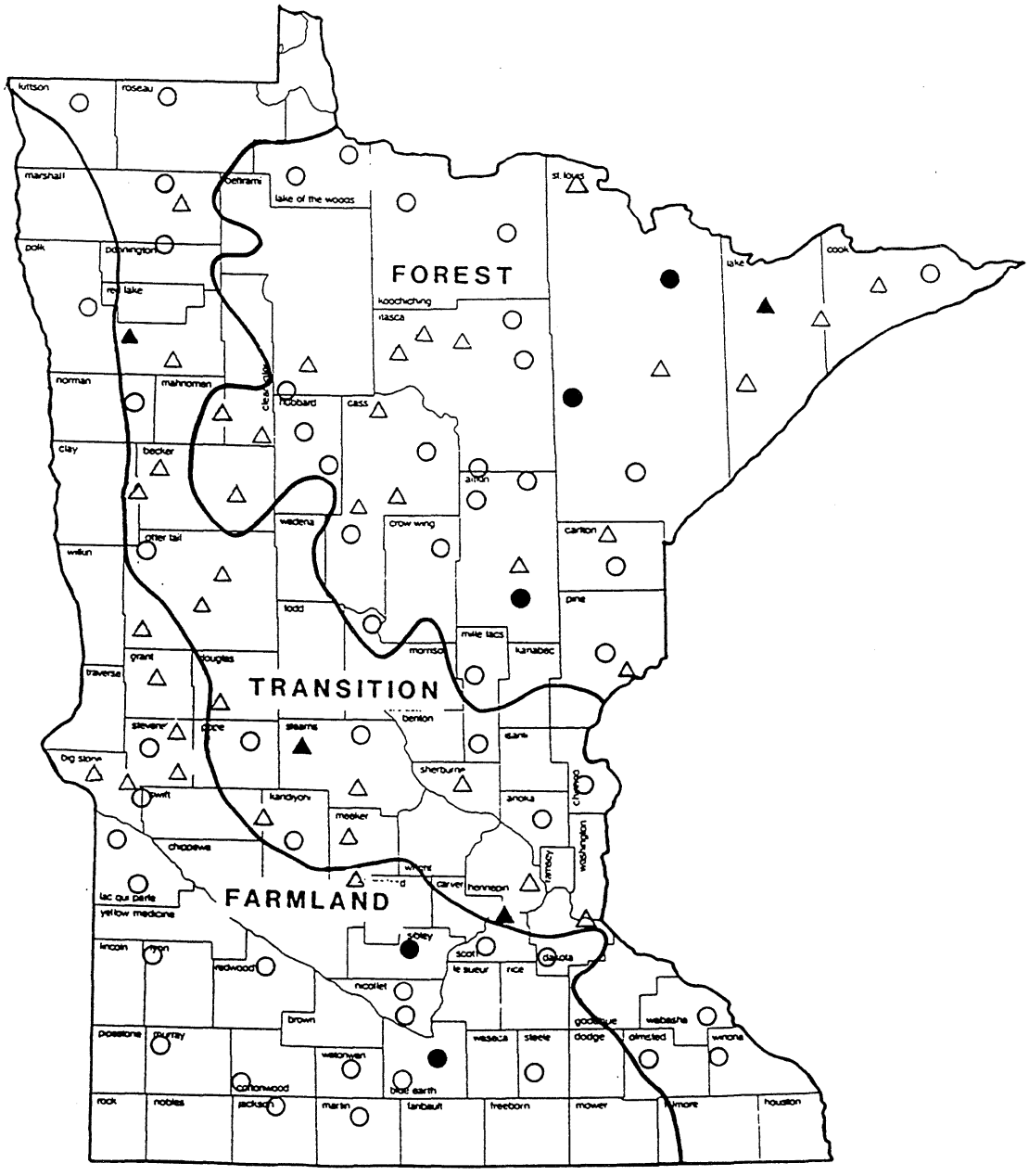


Figure 8. Approximate locations of scent post routes conducted by DNR Section of Wildlife (O) and cooperators (Δ) in the Forest, Transition, and Farmland Survey Zones, 1993. Shaded symbols indicate routes not completed in 1993.

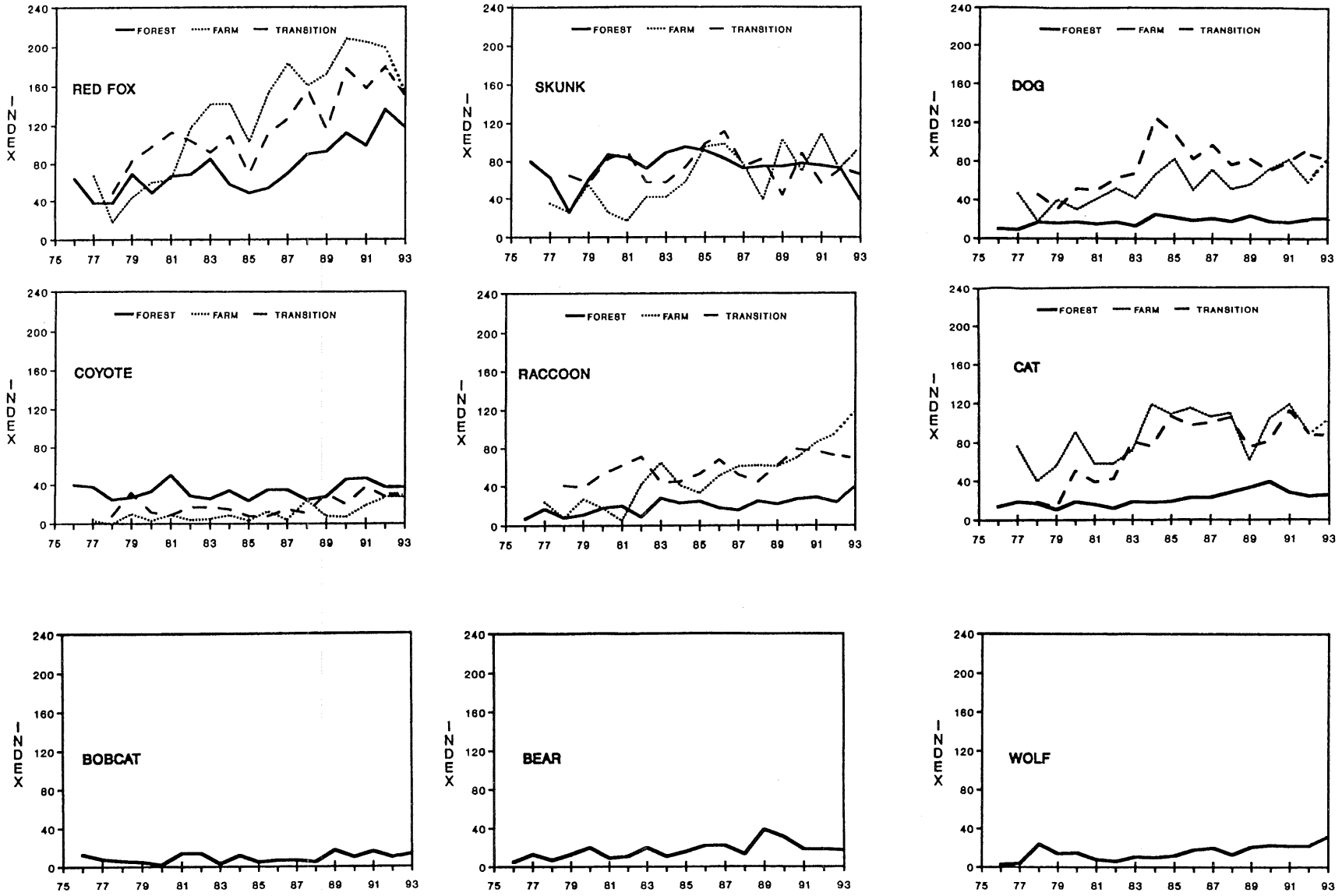


Figure 9. Scent post visitation indices for nine species in the Forest, Transition, and Farmland survey zones, 1976-93.

FOREST WILDLIFE POPULATIONS
1201 E. Hwy 2
Grand Rapids, MN 55744
(218) 327-4432

Table 19. Mean number of ruffed grouse drums per stop by census zone, 1961-94.

	Census Zone					
Year	Northwest	North	Northeast	Central hardwoods	Southeast	Range-wide mean
1961	1.4	2.2	0.9	1.0	1.0	1.4
1962	3.0	2.1	0.5	1.2	1.6	1.6
1963	0.4	0.6	0.5	0.4	1.1	0.6
1964	0.4	0.7	0.9	0.3	0.6	0.6
1965	1.5	1.3	0.7	0.6	1.4	1.0
1966	1.6	1.2	0.6	0.7	1.9	1.0
1967	2.8	1.9	1.3	1.0	2.2	1.6
1968	3.8	2.3	1.6	1.0	2.4	2.0
1969	3.3	2.7	1.4	1.4	2.3	2.2
1970	2.1	3.2	0.9	1.6	2.1	2.2
1971	1.4	3.6	1.0	1.7	3.7	2.4
1972	2.1	3.7	1.0	2.1	3.1	2.7
1973	0.5	1.5	0.6	0.9	3.7	1.1
1974	0.7	1.1	0.8	0.7	3.0	1.0
1975	1.2	1.4	0.8	0.8	2.6	1.3
1976	0.8	1.5	0.4	0.9	1.8	1.1
1977	0.9	1.6	0.7	0.9	2.5	1.2
1978	2.1	2.4	0.8	1.4	2.3	1.7
1979	1.7	2.2	0.7	1.3	2.2	1.6
1980	1.9	2.1	0.7	1.9	2.7	1.7
1981	1.2	1.7	0.8	1.8	2.4	1.4
1982	0.9	1.1	0.3	0.9	1.1	0.8
1983	0.6	1.1	0.6	0.8	1.5	0.9
1984	1.0	1.1	0.6	0.5	1.4	0.8
1985	0.7	1.2	0.6	0.6	1.5	0.9
1986	1.7	1.1	0.4	0.6	2.5	1.0
1987	1.6	1.6	0.7	0.8	1.2	1.2
1988	1.3	2.0	1.0	1.0	1.1	1.4
1989	2.2	2.6	1.5	1.2	1.2	1.9
1990	0.8	2.5	0.9	1.1	1.2	1.6
1991	1.0	1.7	0.8	0.7	0.7	1.2
1992	1.0	1.0	0.5	0.6	0.6	0.8
1993	0.9	0.8	0.5	0.6	0.5	0.7
1994	1.7	1.0	0.5	0.5	0.4	0.9

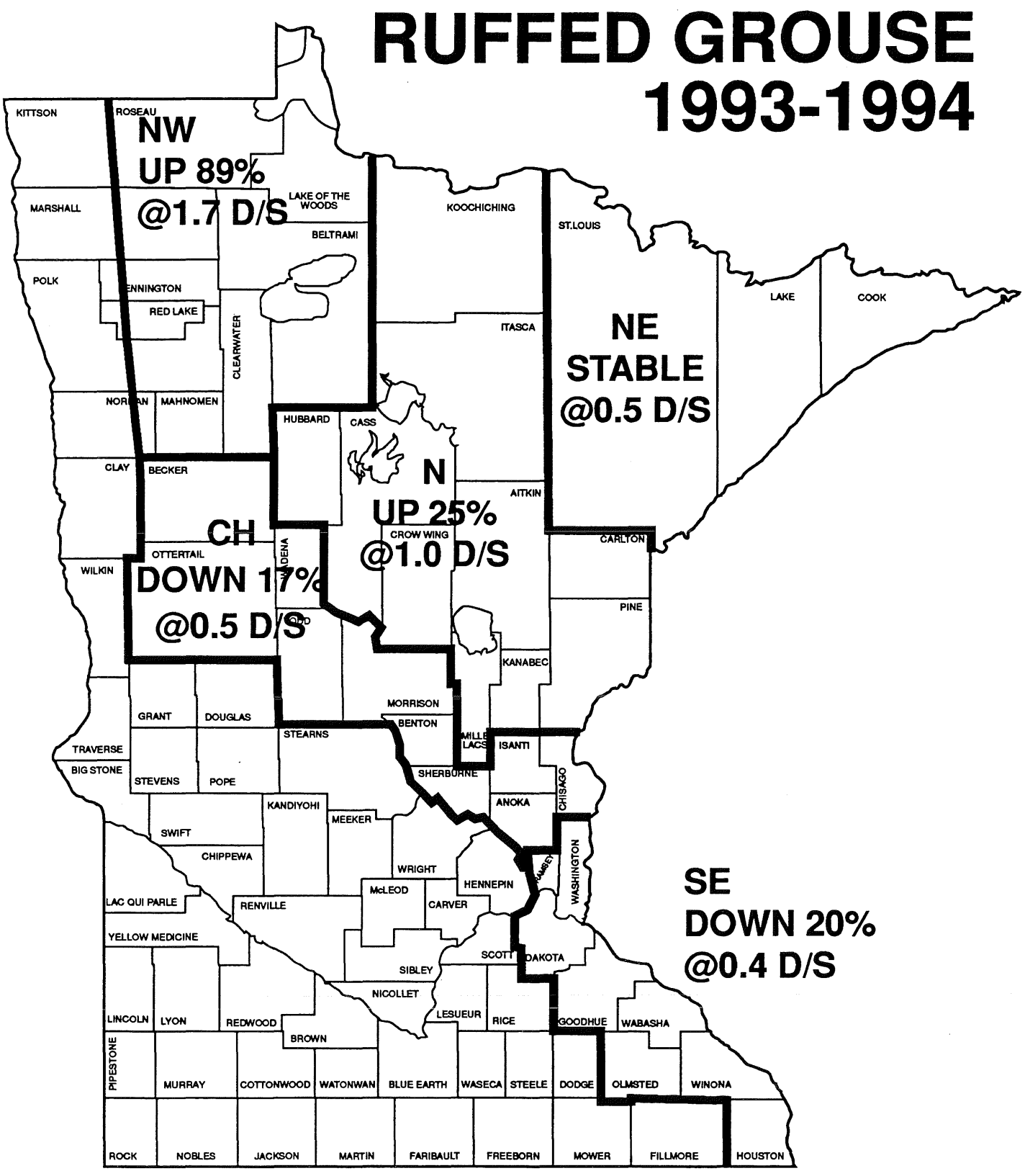


Figure 10. Changes in average numbers of ruffed grouse drums per stop on roadside counts, 1993-1994.

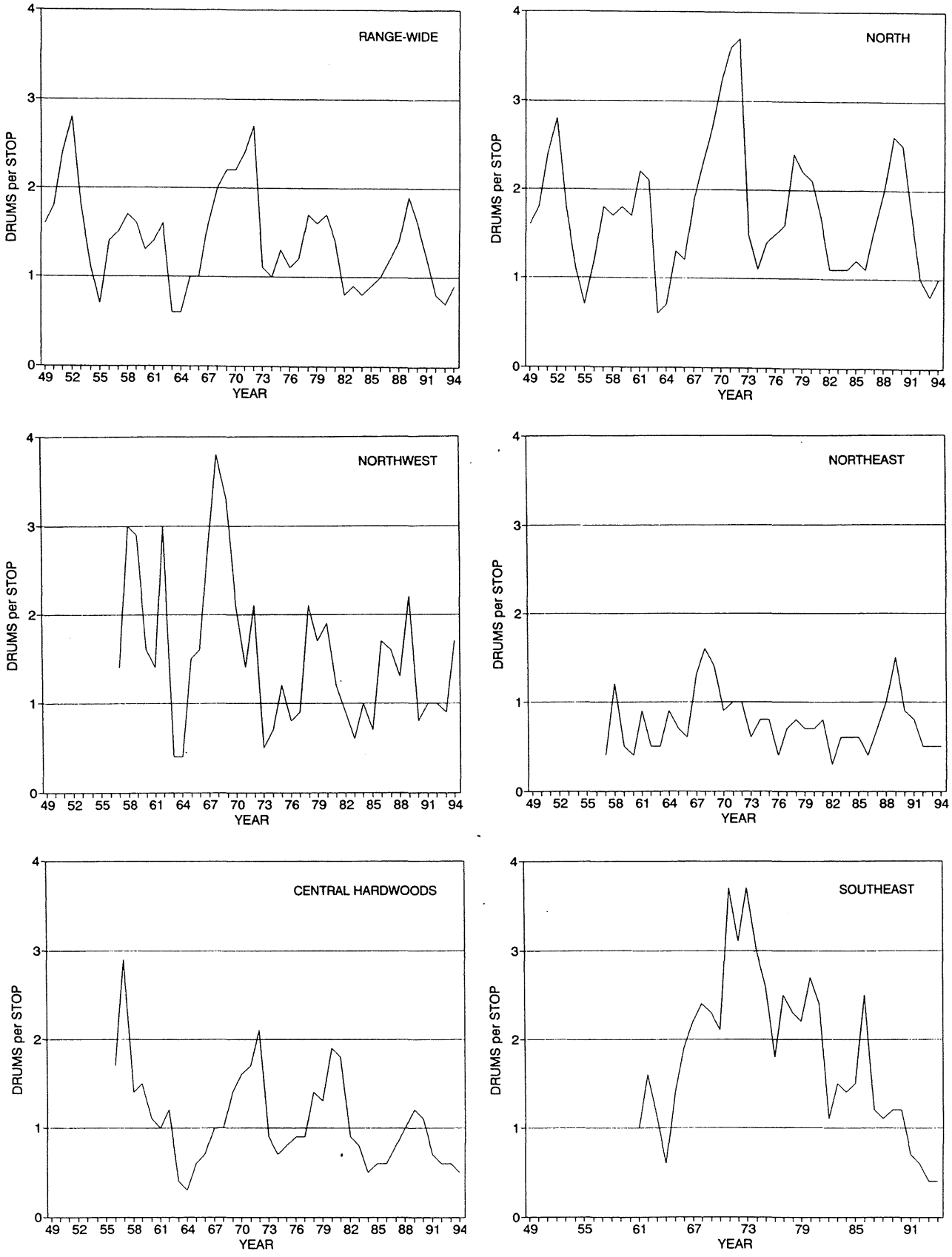


Figure 11. Summary of ruffed grouse drumming trends range-wide and in each of five survey zones, 1949-94.

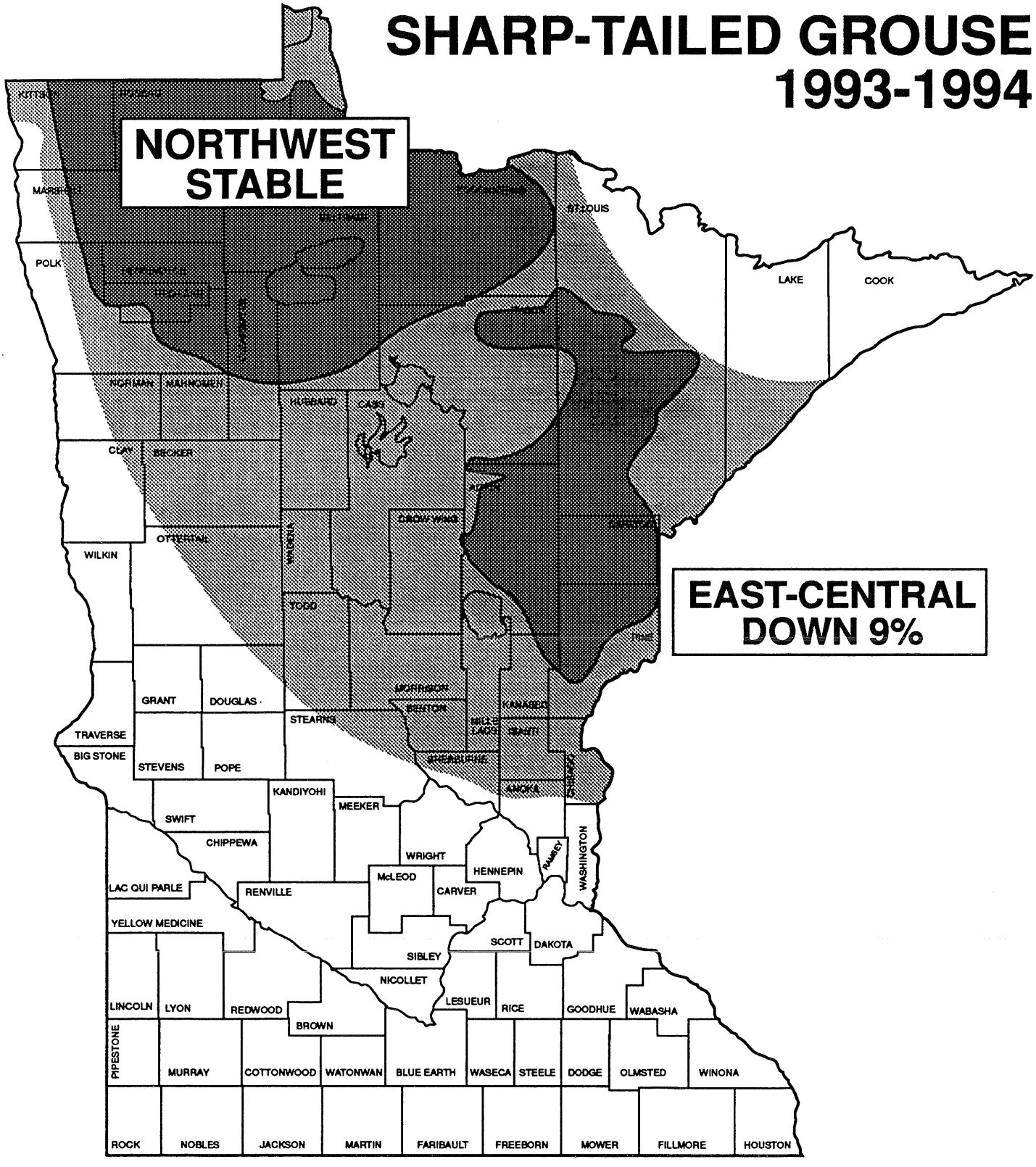


Figure 12. Status of male sharp-tailed grouse on 123 Northwest and 124 East-Central range dancing grounds, 1993-1994.

Table 20. Number of snowshoe hares seen per 100 km of ruffed grouse drumming routes in the North, Northwest, and Northeast survey zones, 1974-94.

Year	Hares seen per 100 km
1974	0.4
1975	0.0
1976	2.0
1977	2.8
1978	9.0
1979	8.8
1980	14.1
1981	9.8
1982	1.8
1983	0.7
1984	0.2
1985	0.3
1986	0.2
1987	0.5
1988	0.9
1989	2.7
1990	2.3
1991	1.2
1992	1.4
1993	0.5
1994	0.2

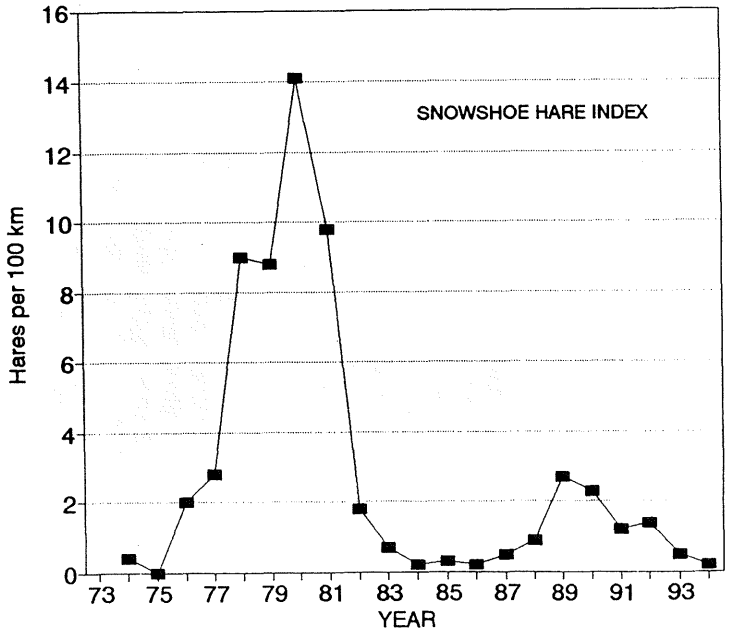


Figure 13. Snowshoe hare index (hares/100 km) based on hares seen on northern ruffed grouse drumming routes, 1974-94.

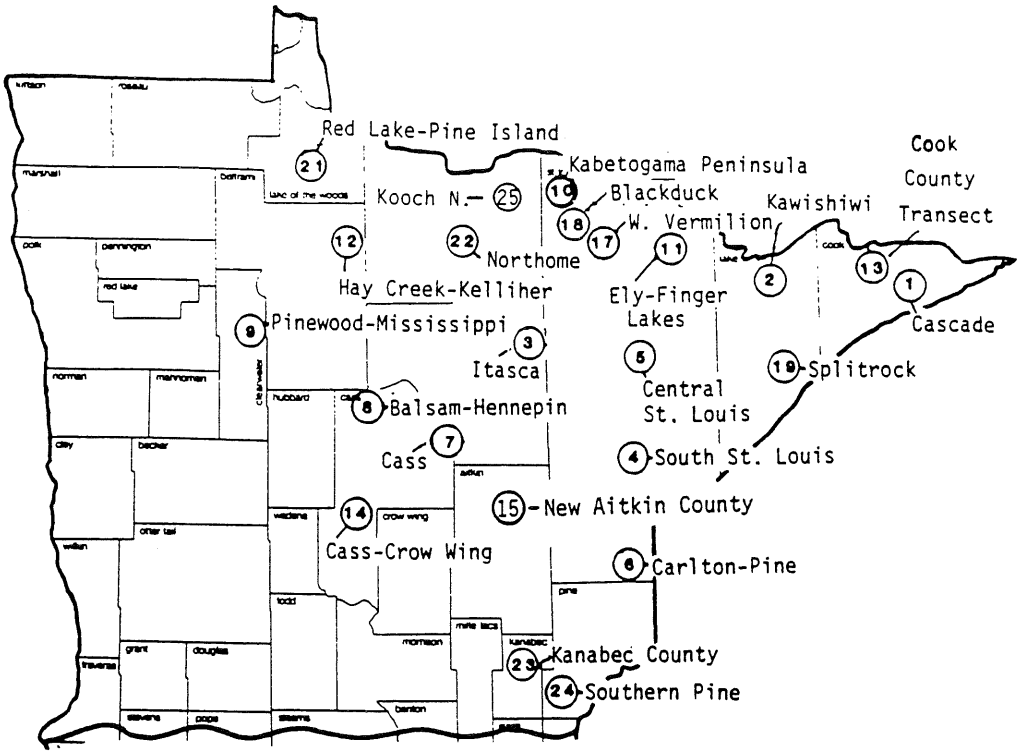
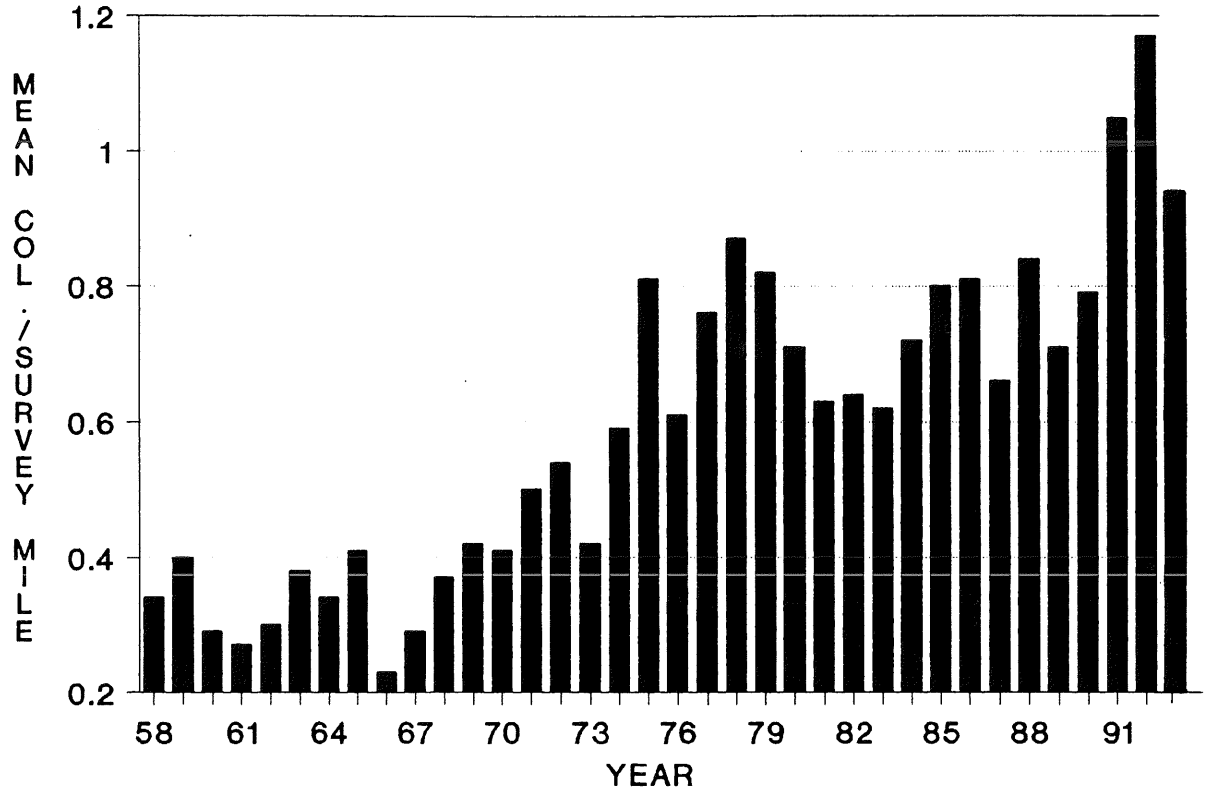


Figure 14. Approximate locations of 23 aerial beaver survey routes flown in 1993.



Route 10 Excluded from Mean

Figure 15. Range-wide mean number of live beaver colonies per mile of survey route, 1958-93.

Table 21. Live beaver colonies per mile of census route in northern Minnesota, 1986-93.

Number	Route name	Year 1987	1988	1989	1990	1991	1992	1993	1987-92 Mean	% Change 1993-mean
1	Cascade	0.37	0.40	0.43	0.44	1.13	1.50	0.68	0.71	-4.2
2	Kawishiwi	1.03	0.72	0.47	0.80	1.03	1.08	-	0.86	-
3	Itasca	0.22	0.48	0.56	0.45	0.92	1.09	-	0.62	-
4	South St. Louis	0.54	0.64	-	0.92	1.35	0.87	0.70	0.86	-18.6
5	Central St. Louis	1.02	-	0.83	0.81	1.12	1.02	0.98	0.96	2.1
6	Carlton & Pine	0.49	1.04	-	1.06	1.50	1.09	-	1.04	-
7	Cass	0.59	0.77	0.84	0.98	1.16	1.62	1.14	0.99	15.2
8	Balsam-Hennepin	0.74	0.57	0.59	0.46	0.61	-	-	0.59	-
9	Pinewood-Mississippi	-	0.38	0.36	0.49	0.41	-	0.79	0.45	75.6
10	Kabetogama Peninsula	2.98	2.93	2.92	3.3	2.62	2.85	3.10	2.89	7.3
11	Ely-Finger Lakes	1.00	1.23	1.09	1.20	1.67	1.35	1.40	1.26	11.1
12	Hay Creek-Kelliher	0.49	0.49	0.56	0.46	0.58	0.78	0.84	0.56	50.0
13	Cook County Transect	0.31	0.31	0.68	0.38	1.18	0.83	-	0.62	-
14	Cass-Crow Wing	0.64	0.77	0.89	0.87	0.96	0.88	0.75	0.84	-10.7
15	Little Willow-Aitkin	0.23	0.66	0.59	0.63	0.68	-	-	0.56	-
16	East Aitkin County	-	1.03	0.80	-	-	-	-	0.92	-
17	West Vermilion	0.80	0.87	-	1.29	-	1.25	-	1.05	-
18	Blackduck	0.84	1.20	-	1.24	-	1.55	-	1.21	-
19	Splitrock	1.15	1.18	0.53	0.73	2.42	1.80	-	1.30	-
20	Isabella	-	-	-	-	-	-	-	-	-
21	Red Lake-Pine Island	0.37	0.30	0.36	0.33	0.51	0.56	-	0.41	-
22	Northome	0.75	0.77	-	1.14	0.78	1.08	-	0.90	-
23	Kanabec County	0.52	1.29	0.94	0.81	0.58	0.77	-	0.82	-
24	Southern Pine	-	1.95	1.03	0.93	0.89	1.15	0.86	1.19	-27.7
25	Koochiching North	1.29	1.39	1.15	1.05	1.43	1.62	2.00	1.32	51.5

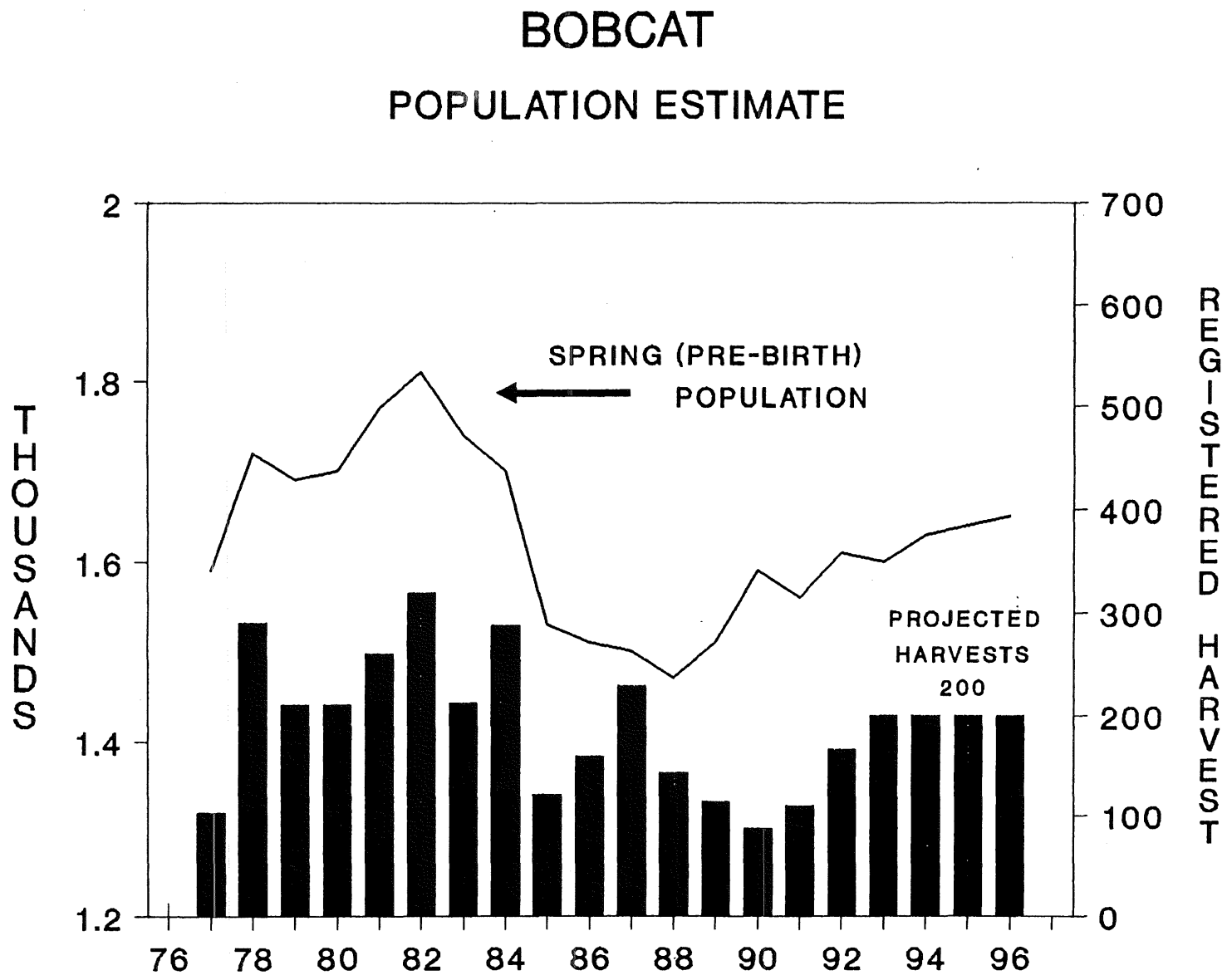


Figure 16. Population modeling summaries for bobcat, 1977-96.

Table 22. Bobcat harvest, age structure, and population index data, 1980 to 1993.

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Registered take	210	260	274	208	280	119	160	214	140	129	84	106	167	201
% autumn pop. taken[1]	10%	12%	14%	10%	13%	6%	8%	11%	8%	6%	5%	6%	9%	12%
Carcasses examined	48	230	261	205	288	99	132	163	114	119	62	93	151	161
% juvenules	31%	37%	35%	37%	37%	33%	26%	33%	49%	39%	20%	35%	28%	32%
% 1.7 yrs. old	33%	23%	15%	26%	13%	19%	17%	16%	18%	17%	34%	33%	22%	20%
% ≥ 2.7 yrs. old	36%	40%	50%	37%	50%	48%	57%	51%	42%	44%	46%	32%	50%	48%
Juv.::≥2.7 yr. females	1.9	2.1	1.3	1.5	1.4	1.2	0.9	1.4	1.7	2.0	0.8	3.6	1.2	1.4
% male juveniles	80%	59%	47%	54%	52%	41%	53%	44%	58%	49%	58%	59%	55%	51%
% male 1.7 yrs.	69%	63%	49%	53%	66%	41%	32%	52%	62%	53%	80%	55%	45%	45%
% male ≥ 2.7 yrs.	56%	55%	47%	30%	44%	43%	51%	48%	46%	56%	44%	70%	53%	52%
Overall % males	66%	58%	48%	45%	51%	42%	51%	48%	54%	53%	59%	61%	53%	50%
Mean pelt price	$79	$73	$66	$61	$76	$70	$120	$101	$68	$48	$43	$37	$28	$43
Scent post index[2]	2	14	14	3	12	5	8	7	5	17	10	16	10	14
Snowshoe hare index[3]	9.8	1.8	0.7	0.2	0.3	0.2	0.5	0.9	2.7	2.3	1.2	1.4	0.5	0.2

[1] estimated from population model
[2] index for autumn prior to harvest
[3] index for spring after harvest season

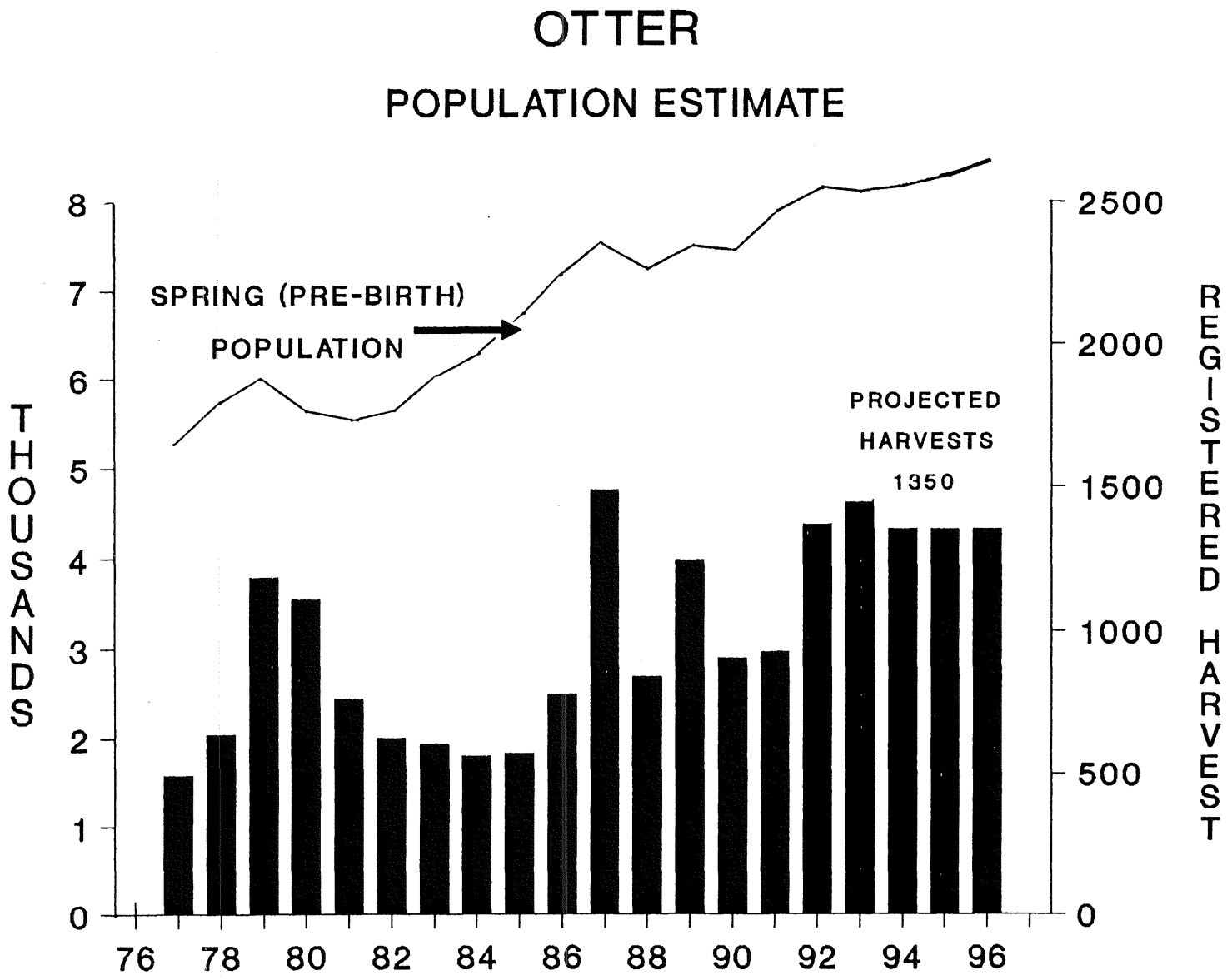


Figure 17. Population modeling summaries for otter, 1977-96.

Table 23. Otter harvest, carcass collection, and pelt price data, 1982-93. Carcasses were not collected after 1986.

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Season dates	11/13-11/27	11/12-11/26	11/17-12/01	11/16-12/15	10/24-11/29	10/24-11/29	10/29-11/27	10/28-12/17	10/27-1/6	10/26-1/5	10/24-1/3	10/23-1/9
Limit	2	2	2	3	3	3	3	3	3	3	4	4
Registered harvest	385	408	513	559	777	1,386	922	1,294	903	855	1,365	1,454
% of autumn pop. harvested[a]	11%	10%	9%	9%	11%	20%	12%	17%	13%	13%	17%	18%
No. of carcasses examined	389	433	549	572	745	---	---	---	---	---	---	---
% juveniles	50.6	42.3	47.9	43.4	45.2	---	---	---	---	---	---	---
% yearlings	25.6	30.9	23.3	22.9	23.3	---	---	---	---	---	---	---
% male juveniles	56.7	55.7	47.1	53.3	45.1	---	---	---	---	---	---	---
% males ≥ 1.7 yrs.	65.1	56.8	50.0	50.0	48.1	---	---	---	---	---	---	---
Mean pelt prices:												
Otter	$26	$25	$22	$21	$24	$23	$22	$22	$24	$25	$29	$43
Beaver (fall)	$11	$12	$12	$15	$20	$17	$14	$12	$9	$9	$7	$11

[a] From population modeling; includes an additional 25% accidental harvest over registered total.

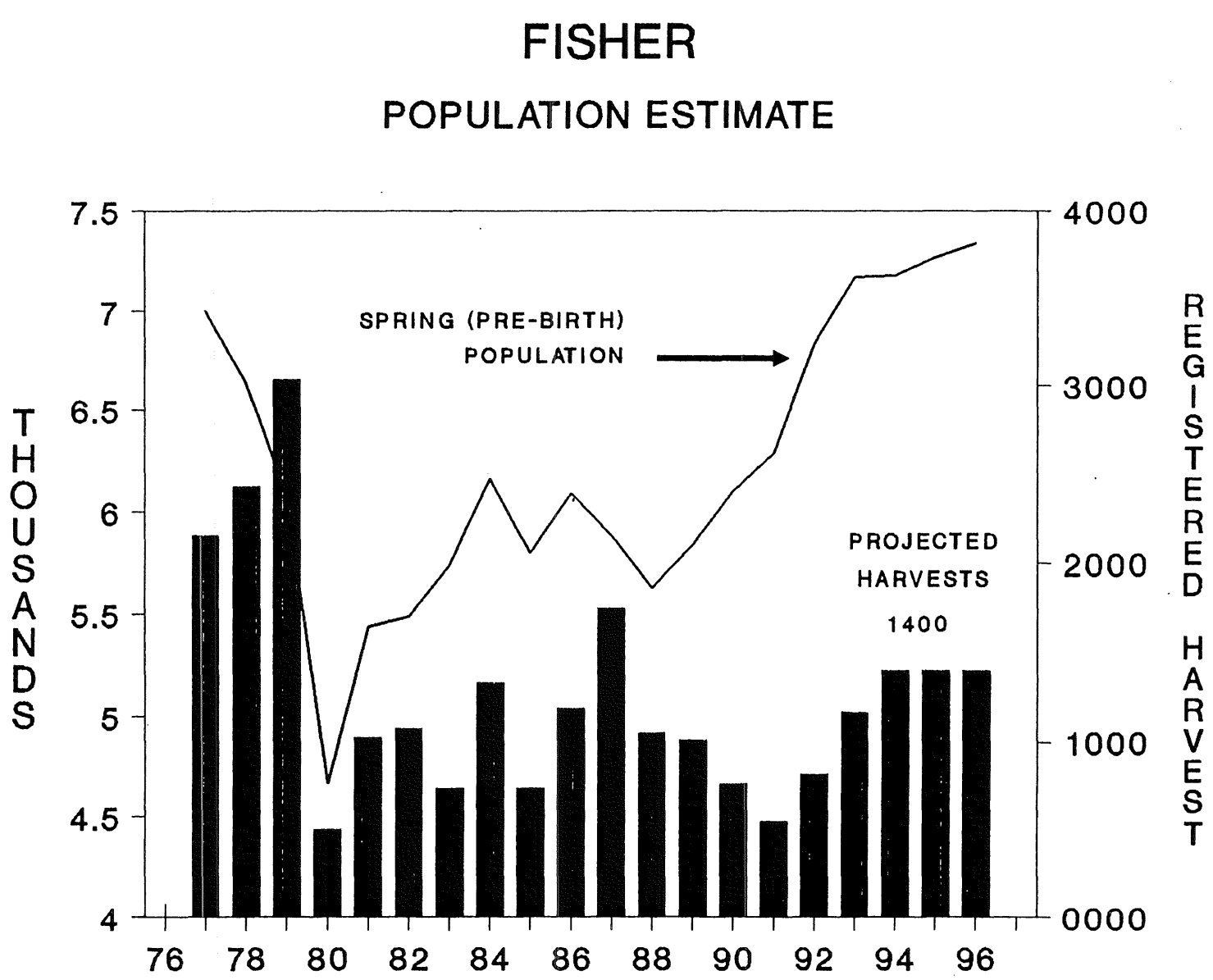


Figure 18. Population modeling summaries for fisher, 1977-96.

Table 24. Fisher harvest, carcass collection, and pelt price data, 1982-93

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Season	12/1-12/10	12/1-12/11	12/1-12/16	11/30-12/15	11/23-12/4	11/28-12/13	11/26-12/11	12/2-12/17	12/1-12/16	11/30-12/15	11/28-12/13	12/4-12/19
Limit	1	1	1	1	1	1	1	1	1	1	1	2
Registered Harvest	912	631	1285	678	1068	1642	1025	1243	746	528	777	1158
% of available fall population harvested[1]	17%	10%	18%	10%	14%	21%	16%	15%	12%	10%	11%	16%
No. carcasses examined[2]	1073	662	1270	712	1186	1534	805	1024	592	410	629	937
% juveniles	66%	69%	63%	63%	59%	53%	70%	64%	65%	66%	54%	59%
% 1.7 yrs.	19%	18%	20%	20%	24%	15%	15%	19%	14%	21%	25%	22%
% ≥ 2.7 yrs.	15%	13%	17%	18%	18%	22%	15%	17%	21%	13%	21%	19%
Juv.:adult female ratio	9.4:1	8.8:1	7.2:1	5.4:1	5.3:1	4.7:1	6.8:1	5.8:1	4.5:1	7.8:1	4.9:1	5.3:1
% male juveniles	46%	45%	52%	46%	48%	46%	48%	47%	44%	50%	42%	47%
% male 1.7 yrs.	41%	40%	45%	40%	50%	40%	45%	47%	55%	52%	55%	37%
% male ≥ 2.7 yrs.	52%	40%	45%	34%	37%	37%	33%	36%	30%	35%	45%	42%
% males overall	46	44	49	43	46	43	45	45	43	48	46	44
Pelt price: males	$70	$71	$70	$74	$84	$84	$54	$26	$35	$21	$16	$14
females	$99	$121	$122	$130	$162	$170	$100	$53	$46	$48	$29	$28
Snowshoe hare index[3]	0.7	0.2	0.3	0.2	0.5	0.9	2.7	2.3	1.2	1.4	0.5	0.5

[1] estimated from population model

[2] may exceed trgistration totals due to accidental catches, Indian Reservation season framework, etc.

[3] index for Spring after harvest season.

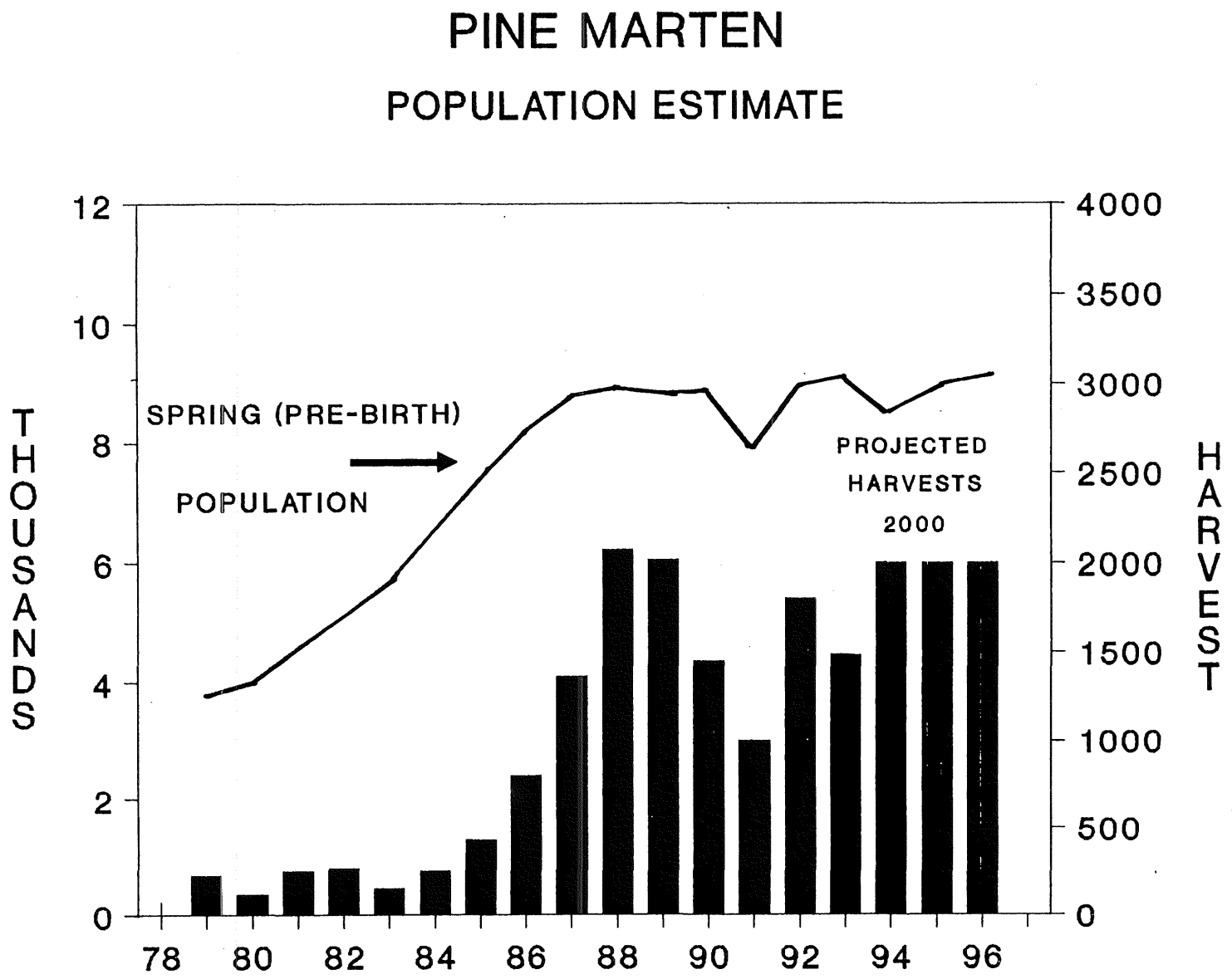


Figure 19. Population modeling summaries for pine marten, 1979-96.

Table 25. Pine marten harvest, carcass collection, and pelt price data, 1985-93.

	1985	1986	1987	1988	1989	1990	1991	1992	1993
Season	11/30-12/15	11/29-12/14	11/28-12/13	11/26-12/11	12/ 2-12/17	12/ 1-12/16	11/30-12/15	11/28-12/13	12/ 4-12/19
Limit	1	1	1	2	2	2	1	2	2
Registered take	430	798	1,363	2,072	2,119	1,349	656	1,601	1,436
% of available fall population harvested[1]	6%	9%	16%	20%	20%	16%	12%	17%	22%
No. carcasses examined[2]	507	884	1,754	1,977	1,014	1,375	716	1,661	1,396
% juveniles	73%	64%	66%	66%	68%	48%	74%	65%	57%
% 1.7 yrs.	18%	21%	18%	11%	12%	18%	9%	18%	20%
% ≥ 2.7 yrs.	9%	15%	16%	23%	20%	34%	17%	17%	23%
juv.:adult female ratio	17.0:1	12.3:1	11.2:1	8.6:1	9.7:1	3.6:1	16.1:1	15.1:1	7.5:1
% male juveniles	69%	65%	65%	58%	57%	59%	69%	63%	61%
% male 1.7 yrs.	68%	71%	67%	50%	63%	54%	71%	70%	71%
% male ≥ 2.7 yrs.	82%	81%	75%	66%	65%	61%	72%	75%	67%
% males overall	70%	69%	67%	59%	59%	59%	70%	66%	64%
Pelt price: male	$30	$36	$43	$50	$48	$44	$40	$28	$36
female	$28	$27	$39	$43	$47	$41	$27	$25	$30

1 estimated from population model
2 may exceed registration totals due to harvests by Indians, accidental catches, etc.

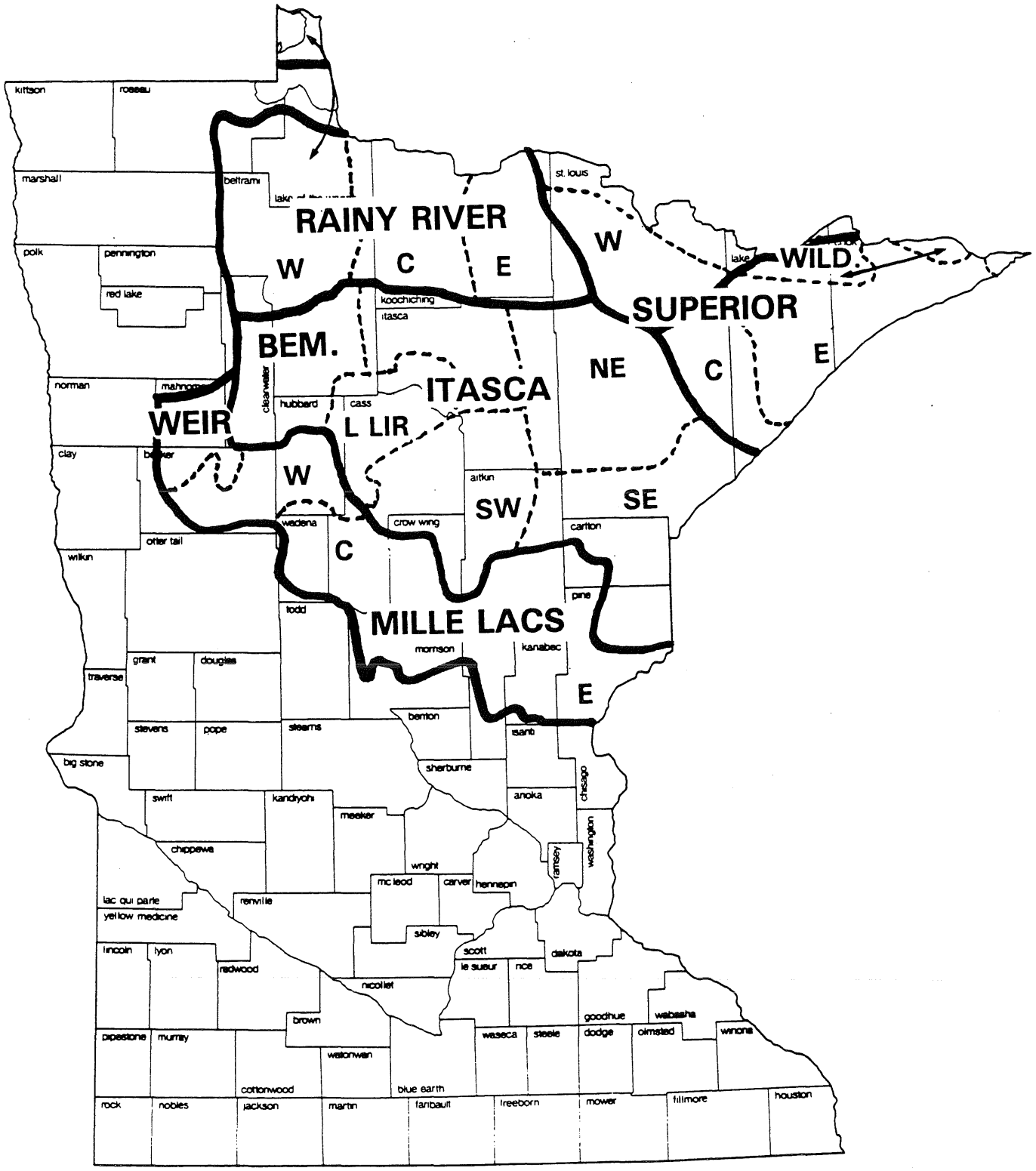


Figure 20. Deer Management Units (DMU) and sub-DMU's in the Forest Zone.

Table 26. Spring white-tailed deer densities estimated from population modeling in Deer Management Subunits of Minnesota's Forest zone, 1984-94.[a]

DMU and subunit	Deer per square mile											
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	Goal*
Itasca	10.6	11.2	10.7	12.2	13.1	12.7	15.3	17.0	16.4	17.1	17.9	
Northwest	17.1	17.0	15.1	16.2	17.1	16.4	19.5	21.3	23.2	22.0	22.0	22-24
Southwest	11.3	12.0	11.1	12.9	14.1	13.6	16.9	19.2	17.7	17.6	18.0	22-24
Northeast	7.0	7.8	7.6	8.8	9.4	8.5	10.3	11.3	10.9	11.8	12.9	18-20
Southeast	8.6	9.9	10.3	12.3	13.6	13.8	16.5	18.5	15.6	18.5	20.1	25-27
Leech Lake IR	8.6	9.0	8.7	9.7	10.0	9.4	10.9	11.6	12.8	12.8	13.8	18-20
Bemidji	14.8	14.4	13.5	14.9	15.6	14.9	17.8	19.8	21.6	20.7	21.2	20-22
Mille Lacs	11.2	11.3	11.3	12.4	13.5	14.1	16.8	18.8	16.4	15.4	15.0	
West	14.7	14.6	13.9	14.7	15.4	15.3	18.2	20.0	20.8	18.0	17.5	15-25
Central	13.0	12.8	12.6	13.0	14.0	14.6	17.2	19.2	18.8	17.6	16.6	16-18**
East	10.2	10.5	11.2	13.3	15.0	16.6	20.1	22.7	16.0	15.6	15.2	10-15
White Earth IR	6.2	6.2	6.2	6.5	6.4	6.0	6.7	7.1	7.9	8.0	8.1	14-16
Rainy River	10.6	10.8	10.4	11.6	12.1	11.2	12.6	12.9	13.8	13.6	14.8	
West	11.0	10.6	9.9	11.1	11.5	11.3	12.6	13.2	14.3	13.9	15.3	18-20
Central	8.1	8.4	8.3	9.3	9.7	8.9	10.1	10.3	11.1	11.1	12.0	10-12**
East	13.0	13.6	13.3	14.8	15.3	13.8	15.4	15.3	16.3	16.1	17.2	20-22
Superior	7.8	8.5	8.8	9.7	10.2	9.5	10.6	10.8	10.4	10.4	10.4	
West	13.0	14.3	14.9	16.4	17.4	16.6	18.5	19.0	19.6	19.8	20.0	20-22
Central	6.7	7.0	7.9	7.6	7.5	6.5	7.3	7.1	6.9	6.3	6.0	13-15
East	3.4	3.7	3.9	4.6	5.1	4.6	5.2	5.4	4.0	4.2	4.3	6-8

[a] Historical density figures may differ from those previously published because of annual recalculation as more accurate modeling data are available.

* Tentative revisions (1992) of population goals.

** Goal varies among quota areas within subunit.

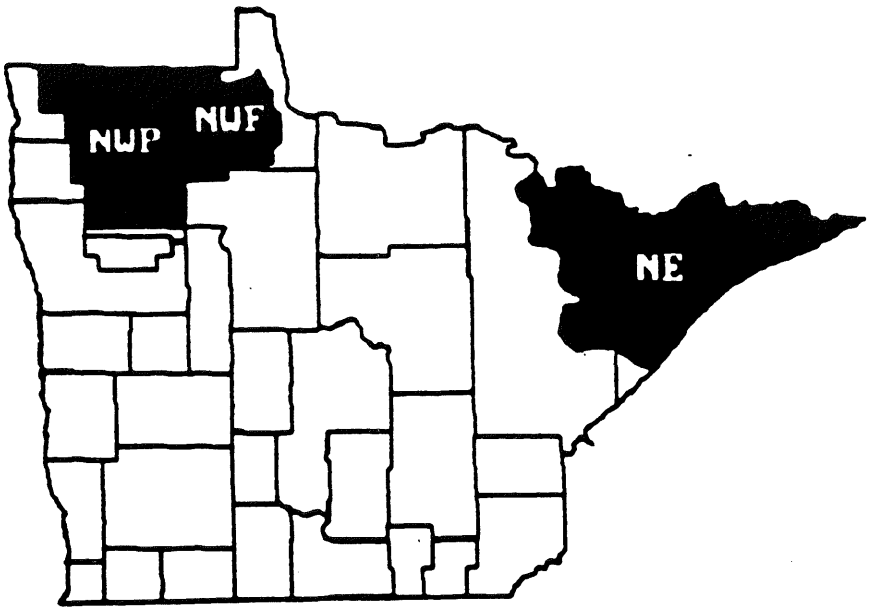


Figure 21. Aerial moose survey area boundaries.

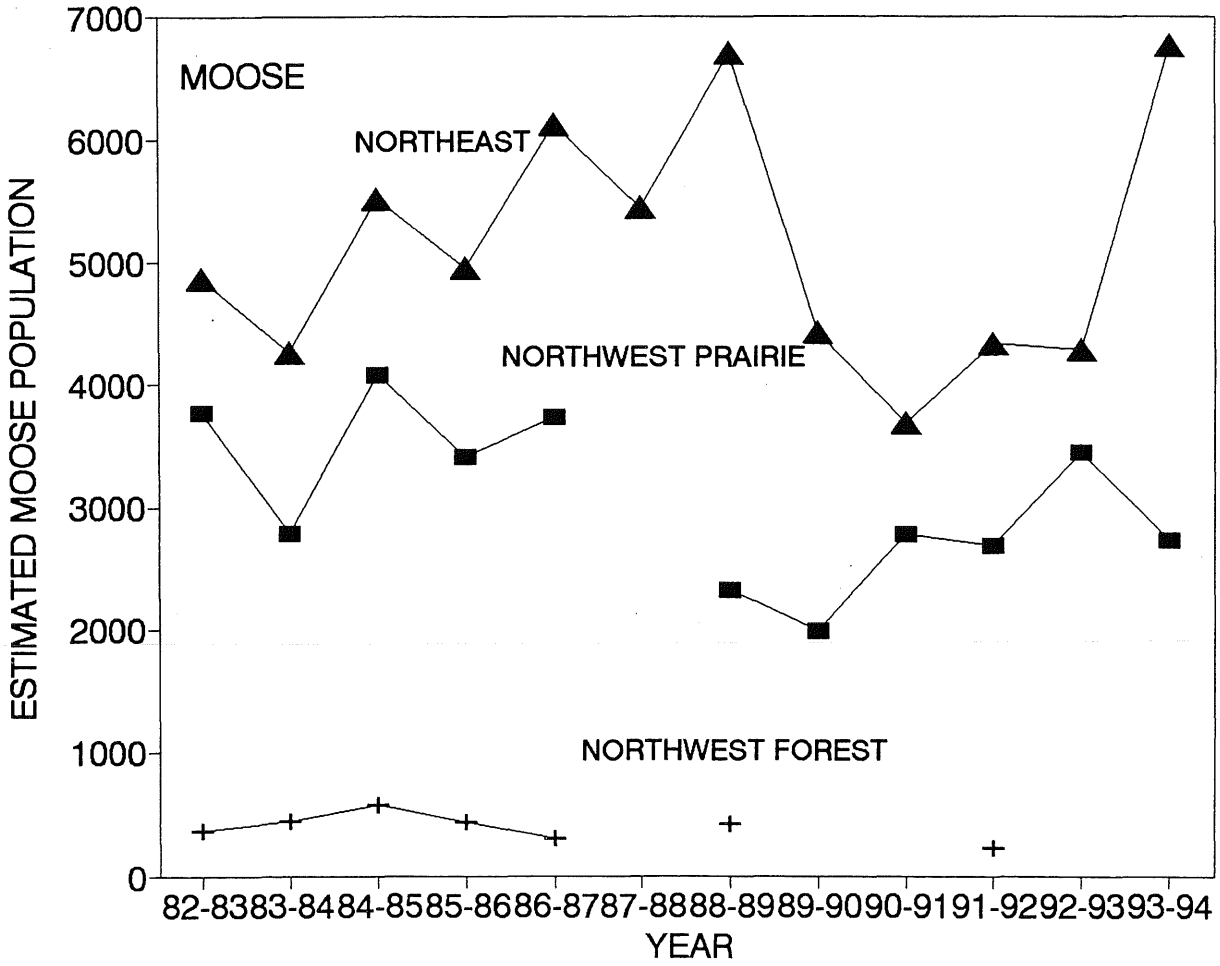


Figure 22. Moose population trends by survey area in northern Minnesota. Trend lines are broken where survey information was not collected.

Table 27. Moose population estimates from aerial moose survey in Minnesota, 1982-94.

Year	Population Estimate by Survey Area (+90% CI) Northwest Prairie	Northwest Forest	Northeast
1982-83	3772 (930)	370 (124)	4877 (999)
1983-84	2784 (567)	446 (139)	4274 (925)
1984-85	4086 (518)	578 (148)	4451 (±774)
1985-86	3415 (412)	433 (100)	4918 (±1029)
1986-87	3740 (747)	307 (83)	5994 (±1438)
1987-88	no survey	no survey	5492 (±1090)
1988-89	2328 (474)	419 (153)	6938 (±2502)
1989-90	1985 (435)	no survey	4492 (±1227)
1990-91	2771 (817)	no survey	3572 (±1670)
1991-92	2678 (± 629)	223 (± 65)	4362 (±1323)
1992-93	3452 (± 640)	no survey	4292 (±1371)
1993-94	2735 (± 491)	no survey	6768 (±1807)
change 1992-93 to 1993-94	-21%		+ 58%

MIGRATORY BIRD POPULATIONS
Wetland Wildlife Populations and Research
102 23rd Street
Bemidji, MN 56601
(218) 755-2973

Table 28. Estimated spring duck populations of selected species in Minnesota, 1975-94.

Species	Year	Unadjusted population index	Visibility factor	Adjusted population estimate (thousands)
Mallard	1975	55,093	3.19	176
	1976	69,844	1.69	118
	1977	60,617	2.21	134
	1978	56,152	2.61	147
	1979	61,743	2.57	159
	1980	83,775	2.05	172
	1981	79,562	1.95	155
	1982	51,655	2.33	121
	1983	73,424	2.12	156
	1984	94,514	1.99	188
	1985	96,045	2.26	217
	1986	108,328	2.16	235
	1987	165,881	1.16	192
	1988	155,453	1.75	272
	1989	124,362	2.19	273
	1990	140,879	1.65	232
	1991	128,315	1.75	225
	1992	144,125	2.50	360
	1993	123,771	2.47	306
	1994	138,481	3.08	426
Blue-winged teal	1975	45,948	3.95	181
	1976	89,370	4.87	436
	1977	37,391	3.86	144
	1978	28,491	8.53	243
	1979	46,708	5.21	243
	1980	50,966	6.49	331
	1981	64,546	2.59	167
	1982	42,772	4.75	203
	1983	42.728	2.81	120
	1984	89,896	2.82	254
	1985	90,453	2.91	264
	1986	68,235	2.69	183
	1987	102,480	1.99	204
	1988	101,135	2.38	240
	1989	90,300	3.16	286
	1990	107,183	3.09	331
	1991	91,495	2.90	265
	1992	93,107	3.83	357
	1993	64,670	4.02	260
	1994	70,324	5.48	385

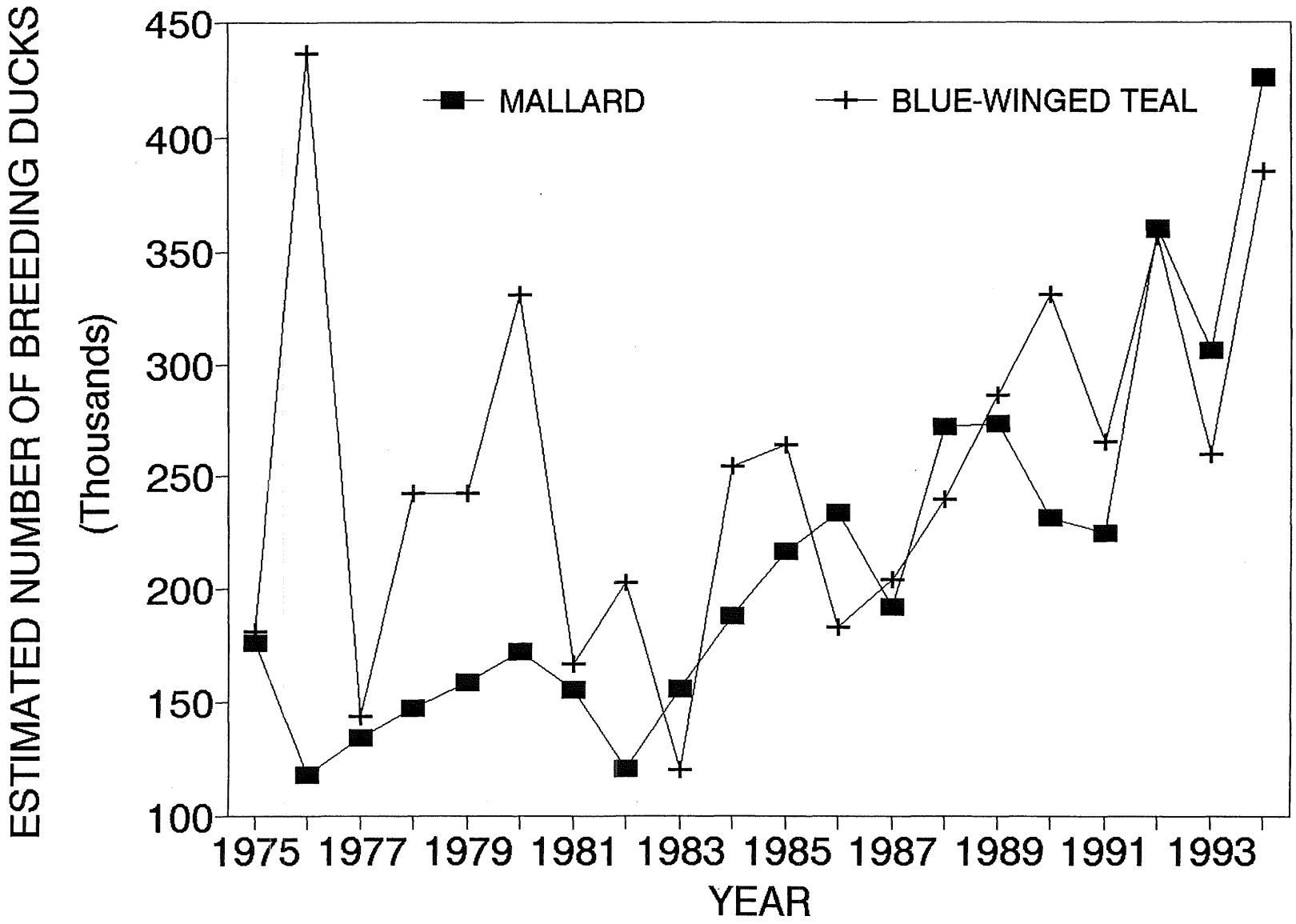


Figure 23. Estimated number of mallards and blue-winged teal breeding in Minnesota, 1975-94.

Table 29. Winter population estimates (post hunting season) of the Canada goose eastern prairie flock, 1963-93 (taken from: U.S. Fish and Wildlife Service/Canadian Wildlife Service. 1994. Waterfowl population status, 1994. July 1994. 39pp).

Year	Population
1963	110,000
1964	103,000
1965	104,000
1966	121,000
1967	145,000
1968	134,000
1969	107,000
1970	121,000
1971	152,000
1972	177,000
1973	187,000
1974	188,000
1975	199,000
1976	254,000
1977	270,000
1978	207,000
1979	172,000
1980	151,000
1981	175,000[a]
1982	210,000
1983	163,000[b]
1984	168,000
1985	169,000
1986	183,000
1987	228,000
1988	184,000
1989	325,000
1990	218,000
1991	189,000
1992	146,000
1993	116,000

[a] In 1983, U.S.F.W.S. revised a previously published estimate (145,000) due to supplemental information.

[b] Supplemental information suggests that the 1983 population was 170,000 - 190,000 birds.

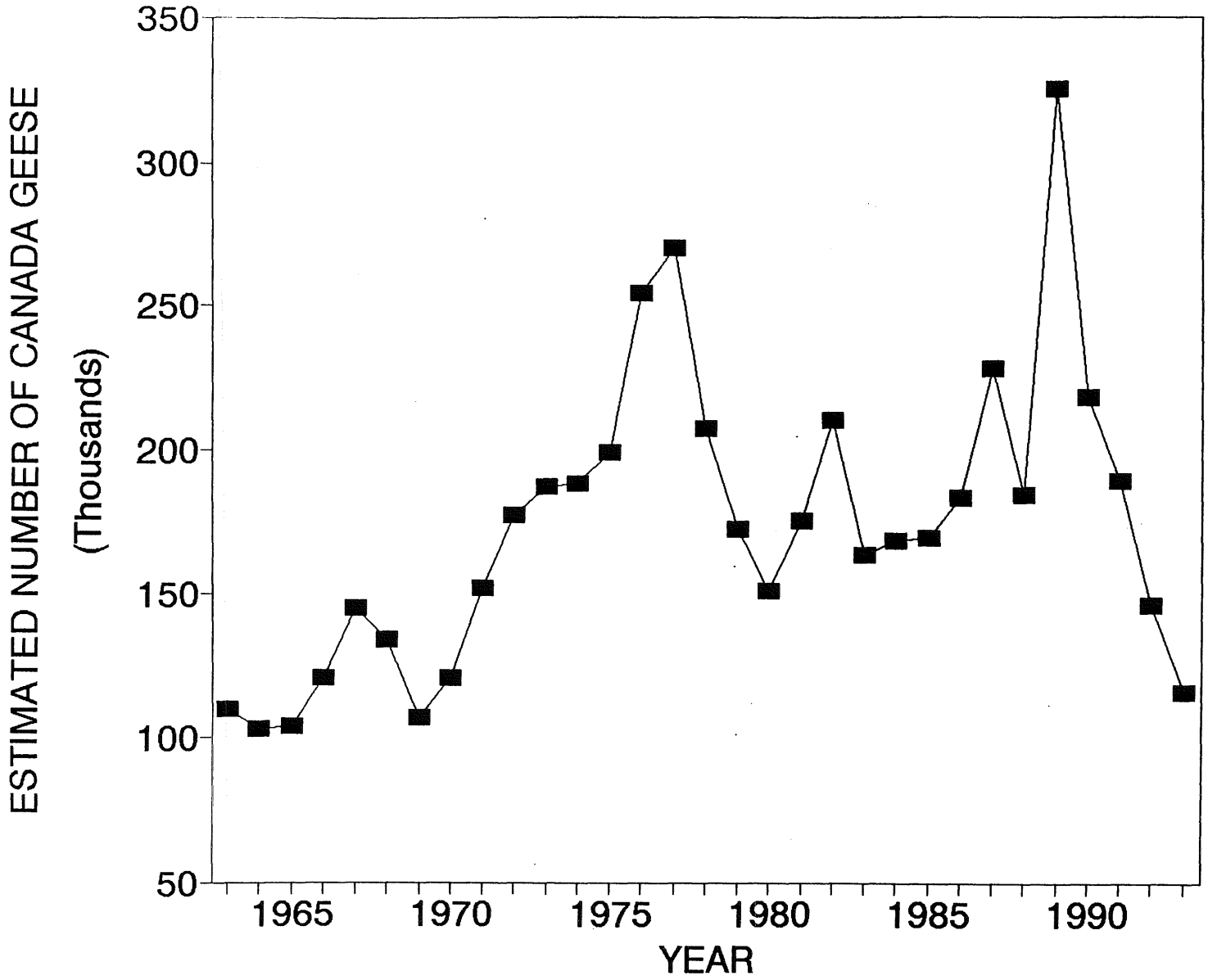


Figure 24. Winter population estimates of the Eastern Population of Canada geese, 1963-94 (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service reports 1994. Waterfowl population status, 1994. July 1994. 39pp).

Table 30. Estimated number of May ponds (adjusted for visibility) in Prairie Canada (portions of Alberta, Saskatchewan and Manitoba) 1961-94 and north-central U.S. (North Dakota, South Dakota and Montana) 1974-94. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service, 1994. Waterfowl population status, 1994. July 1994. 39pp).

	Ponds (thousands)	
Year	Prairie Canada	North Central U.S.[a]
1961	2,006	--
1962	2,531	--
1963	2,499	--
1964	3,445	--
1965	4,415	--
1966	4,672	--
1967	4,732	--
1968	1,938	--
1969	3,530	--
1970	4,957	--
1971	4,096	--
1972	4,065	--
1973	2,937	--
1974	6,693	1,509
1975	6,267	1,911
1976	5,057	1,392
1977	2,278	771
1978	3,622	1,590
1979	4,859	1,522
1980	2,141	761
1981	1,443	683
1982	3,185	1,458
1983	3,906	1,259
1984	2,458	1,766
1985	4,283	1,327
1986	4,025	1,735
1987	2,598	1,348
1988	2,110	794
1989	1,696	1,290
1990	2,817	691
1991	2,494	706
1992	2,784	825
1993	2,268	1,793
1994	3,769	2,216
Average	3,347	1,273
1994	3,769	2,216
% Change in 1994 from:		
1993	+66	+24
Average	+13	+74

[a] No comparable survey data available for the north-central U.S.during 1961-73.

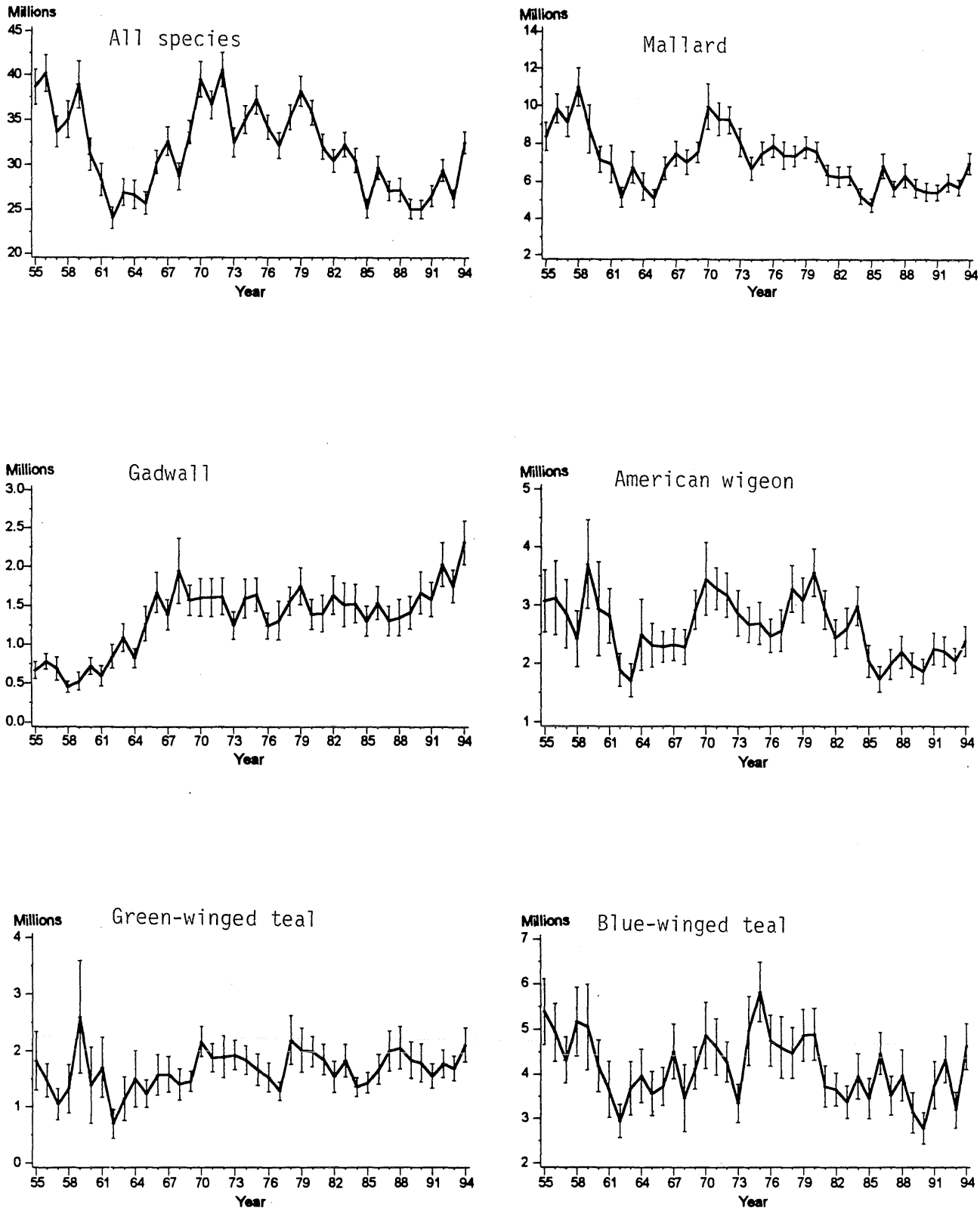
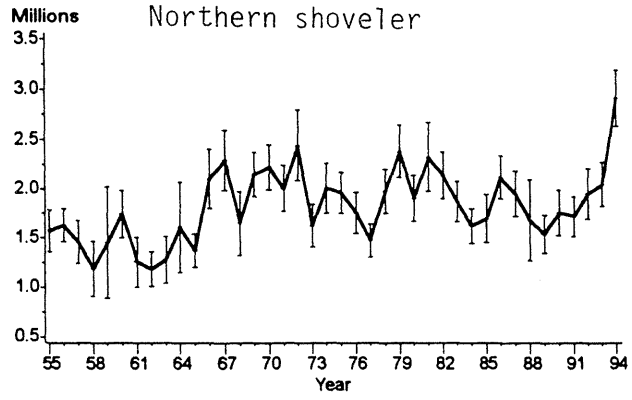
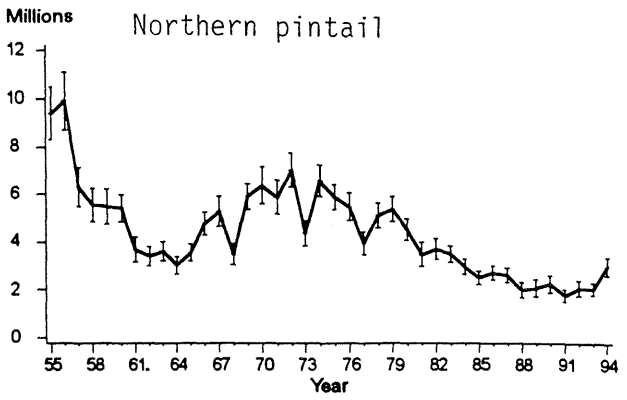
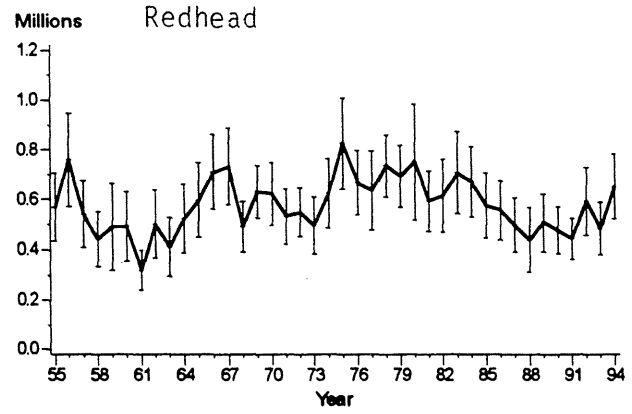
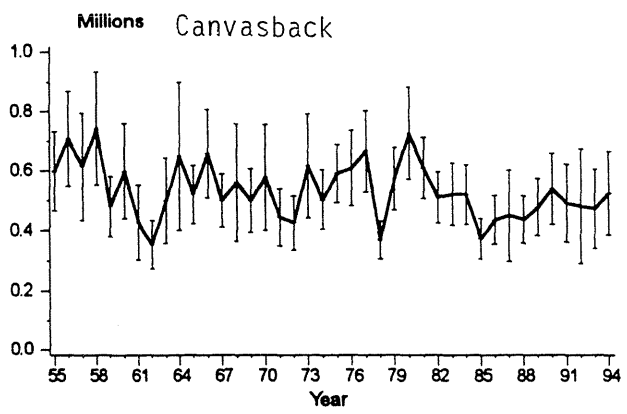


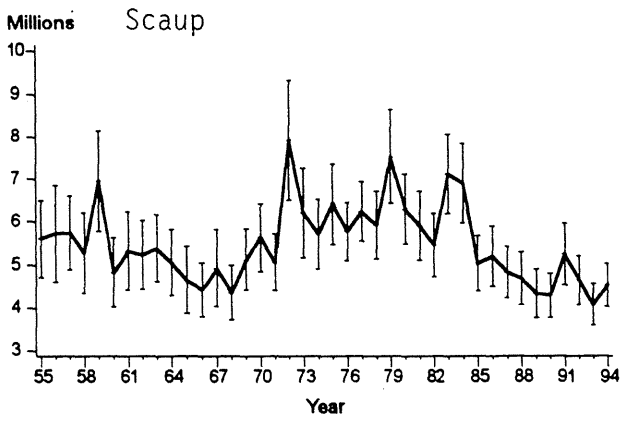
Figure 25. Estimates of North American breeding populations of selected ducks and number of water areas in May in Prairie Canada and Northcentral U.S. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service 1994. Waterfowl population status, 1994 July 1994. 39 pp).











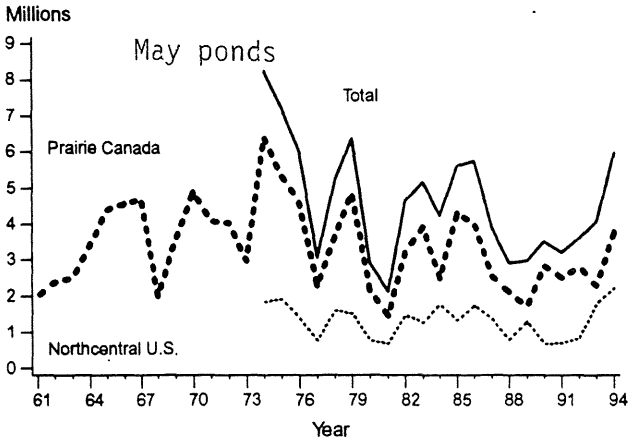


Figure 25. (continued)

Table 31. North American breeding population estimates for 10 species of ducks, 1955-94. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service, 1994. Waterfowl population status, 1994. July 1994. 39pp). In thousands.[a]

Year	Mallard		Gadwall		American wigeon		Green-winged teal		Blue-winged teal		Northern shoveler		Northern pintail		Redhead		Canvasback		Scaup	
	N	SE*	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE
1955	8355.9	383.5	662.7	56.0	3066.7	269.0	1822.8	265.0	5381.2	368.5	1571.3	108.6	9387.1	554.1	572.1	69.0	599.2	68.3	5608.9	453.3
1956	9841.5	394.6	782.6	51.4	3117.6	321.7	1479.5	153.2	4762.9	308.3	1630.4	86.1	9897.3	605.6	755.1	94.5	695.8	80.5	5733.8	571.9
1957	9151.3	398.9	691.0	75.3	2851.5	296.8	1053.3	143.5	4312.4	263.2	1458.7	110.4	6310.7	421.1	542.2	68.2	614.5	91.8	5745.3	436.9
1958	10993.6	521.8	453.8	36.4	2421.3	244.3	1326.1	223.1	5164.7	386.8	1187.3	143.0	5552.4	363.2	443.1	55.4	742.4	97.0	5285.8	473.0
1959	8746.1	649.3	527.2	59.8	3703.0	386.1	2601.1	505.1	5046.2	483.0	1455.8	288.1	5482.9	383.0	492.8	89.1	480.6	51.4	6961.3	602.3
1960	7164.1	347.5	720.9	54.8	2936.5	411.3	1389.8	349.4	4184.7	296.2	1743.1	124.4	5414.2	288.2	494.7	70.3	599.5	81.2	4825.9	411.8
1961	6912.0	502.3	594.3	66.7	2817.3	240.7	1708.7	272.7	3655.0	322.3	1256.4	127.9	3676.0	265.8	319.1	40.8	427.6	63.7	5335.3	459.6
1962	5139.4	271.7	846.3	77.0	1882.0	142.8	700.3	131.4	2940.2	190.0	1182.5	88.5	3395.4	199.2	503.3	69.1	353.7	41.3	5240.3	404.2
1963	6723.2	418.4	1092.0	91.0	1705.9	142.7	1155.3	199.7	3680.5	307.1	1278.3	120.1	3621.9	205.5	413.0	59.8	499.4	73.1	5396.4	393.2
1964	5740.2	368.6	825.1	61.6	2494.7	311.7	1505.0	256.6	3960.8	306.6	1608.1	233.8	3013.3	184.2	526.5	70.3	649.1	127.1	5057.9	387.4
1965	5101.2	246.1	1269.7	112.7	2312.3	192.6	1237.2	126.6	3569.6	253.7	1372.2	84.8	3549.4	186.8	599.0	76.2	520.2	50.0	4651.5	396.2
1966	6679.7	302.3	1672.3	130.1	2281.9	134.4	1579.6	185.0	3718.3	218.7	2102.8	154.8	4763.7	242.9	712.8	76.5	658.3	76.7	4431.8	320.6
1967	7470.4	334.5	1384.6	97.8	2320.0	139.5	1588.1	164.5	4509.2	310.9	2291.0	155.8	5270.4	327.5	734.2	78.9	500.2	45.0	4931.7	453.8
1968	7018.5	328.0	1947.0	213.7	2281.5	154.4	1405.3	144.3	3459.0	383.2	1645.6	165.7	3469.7	224.7	492.5	51.3	561.3	100.5	4360.3	323.9
1969	7536.0	274.6	1573.0	100.2	2918.6	170.2	1467.5	94.4	4132.7	239.4	2145.2	114.8	5900.2	280.2	632.5	53.5	500.8	53.4	5130.6	360.8
1970	9960.0	616.1	1606.1	123.5	3447.0	317.6	2171.0	133.4	4858.1	372.4	2220.1	116.3	6369.3	395.6	624.2	64.4	577.7	90.3	5633.9	397.4
1971	9305.9	438.2	1602.5	122.9	3281.3	182.3	1881.3	126.6	4606.5	316.9	2005.2	121.4	5873.7	369.3	534.4	56.7	443.8	48.6	5063.1	332.0
1972	9254.9	363.0	1620.5	120.1	3172.4	192.6	1894.9	189.0	4276.5	229.8	2441.4	182.0	7018.1	367.2	550.7	49.4	426.2	46.0	7932.0	721.7
1973	8060.2	372.9	1246.5	90.4	2863.7	200.0	1935.9	132.3	3333.8	220.4	1624.3	111.5	4351.1	266.9	498.2	57.8	617.0	89.3	6221.5	532.6
1974	6681.0	309.5	1591.8	128.1	2665.1	155.9	1839.9	129.8	4968.2	389.8	2006.3	128.6	6583.0	342.8	626.6	70.6	504.2	50.6	5720.4	408.8
1975	7494.0	306.8	1641.0	108.9	2692.0	185.9	1666.5	142.9	5828.8	335.6	1962.1	107.3	5878.1	267.3	828.7	93.3	591.3	49.6	6426.9	481.3
1976	7894.4	306.8	1244.7	85.5	2476.1	145.2	1535.8	131.9	4746.6	288.0	1755.8	106.9	5475.1	299.0	668.4	66.1	609.5	65.0	5778.7	341.0
1977	7395.8	366.4	1311.5	126.8	2559.8	180.9	1290.6	84.9	4589.0	347.9	1475.1	85.9	3935.2	246.7	637.1	79.7	667.0	70.3	6246.8	355.9
1978	7353.4	273.2	1560.5	92.2	3285.5	205.3	2193.9	215.4	4471.0	288.7	1977.6	115.6	5105.5	267.5	737.8	63.4	369.1	32.1	5935.8	399.3
1979	7815.5	295.1	1750.5	121.1	3087.3	193.5	2018.9	198.5	4860.5	291.8	2385.5	134.7	5382.2	274.2	694.7	63.6	572.8	53.5	7540.3	567.5
1980	7570.0	267.9	1390.6	98.7	3557.6	207.6	1993.7	137.5	4884.1	290.8	1901.9	119.3	4513.8	228.5	753.1	118.7	726.7	79.1	6314.2	415.6
1981	6367.1	274.1	1401.5	119.9	2923.5	167.5	1851.4	138.6	3725.9	236.5	2324.7	177.4	3472.3	260.5	595.7	61.8	610.3	52.3	5917.6	410.0
1982	6253.5	262.0	1637.3	126.4	2440.4	160.8	1542.9	143.1	3656.8	193.0	2140.6	121.6	3708.5	226.5	616.8	74.0	510.3	43.6	5468.1	371.8
1983	6312.9	249.8	1517.0	144.2	2605.9	176.9	1835.7	146.2	3366.4	188.1	1870.2	105.2	3506.1	178.0	708.7	83.0	522.7	52.6	7135.6	477.8
1984	5246.6	209.8	1531.6	126.0	2987.0	169.2	1361.0	84.9	3956.2	260.7	1619.5	91.8	2968.7	166.6	673.0	71.7	520.1	51.2	6909.1	477.3
1985	4754.2	184.8	1304.4	98.1	2039.7	137.8	1435.3	95.9	3459.1	231.6	1696.7	125.6	2511.4	142.7	578.6	66.8	373.0	34.0	5038.1	324.0
1986	6835.6	333.6	1539.6	107.5	1731.7	110.4	1681.7	137.1	4463.4	237.8	2117.7	112.4	2736.5	152.1	559.9	60.5	436.8	41.6	5204.3	354.1
1987	5612.8	209.6	1310.8	97.4	1982.3	131.3	2003.1	180.7	3517.6	221.7	1951.1	118.8	2629.2	159.4	502.3	54.9	450.5	77.9	4837.4	305.1
1988	6331.3	311.8	1349.2	120.6	2194.4	140.1	2057.9	189.2	3975.4	292.4	1680.2	210.5	2011.2	163.9	441.1	66.2	436.2	40.6	4683.8	309.1
1989	5649.7	245.8	1415.9	106.9	1973.9	106.1	1842.7	166.5	3128.3	230.7	1539.5	97.0	2112.5	181.3	510.9	58.6	477.9	48.5	4344.3	291.5
1990	5452.1	238.5	1672.0	135.8	1860.2	108.3	1789.7	172.8	2776.4	178.7	1759.4	118.6	2256.7	183.3	480.9	48.2	539.3	60.3	4293.7	265.0
1991	5444.4	206.6	1583.6	111.8	2254.1	139.5	1557.9	111.3	3763.7	270.7	1716.2	104.6	1803.4	131.3	445.6	42.1	491.2	66.4	5255.4	364.7
1992	5976.1	241.0	2032.8	143.4	2208.4	131.9	1773.1	123.7	4333.1	263.2	1954.4	132.1	2098.1	161.0	595.6	69.7	481.5	97.3	4639.2	291.9
1993	5708.3	208.9	1755.2	107.9	2053.0	109.3	1694.5	112.7	3192.9	205.6	2046.5	114.3	2053.4	124.2	485.4	53.1	472.1	67.6	4080.1	249.4
1994	6980.1	282.8	2318.3	145.2	2382.3	130.3	2108.4	152.2	4616.2	259.2	2912.0	141.4	2972.3	188.0	653.5	6637	525.6	71.1	4529.0	253.6
1955-93 Avg.	7110.3		1324.6		2601.4		1663.3		4173.8		1791.5		4437.4		579.2		534.4		5521.0	
Percent change in 1994 from:																				
1993	+22		+32		+16		+24		+45		+42		+45		+35		+11		+11	
1955-93 Avg.	- 2		+75		- 8		+27		+12		+62		-33		+13		- 2		-18	

[a] All duck indexes adjusted for visibility bias.

* 95% CI = N ± 1.96 * SE
90% CI = N ± 1.645* SE

Example: for 1992, the Mallard breeding population is estimated to be in a range between 5503.7 - 6448.5, or 5976.1 ± 1.96 x 241.0.

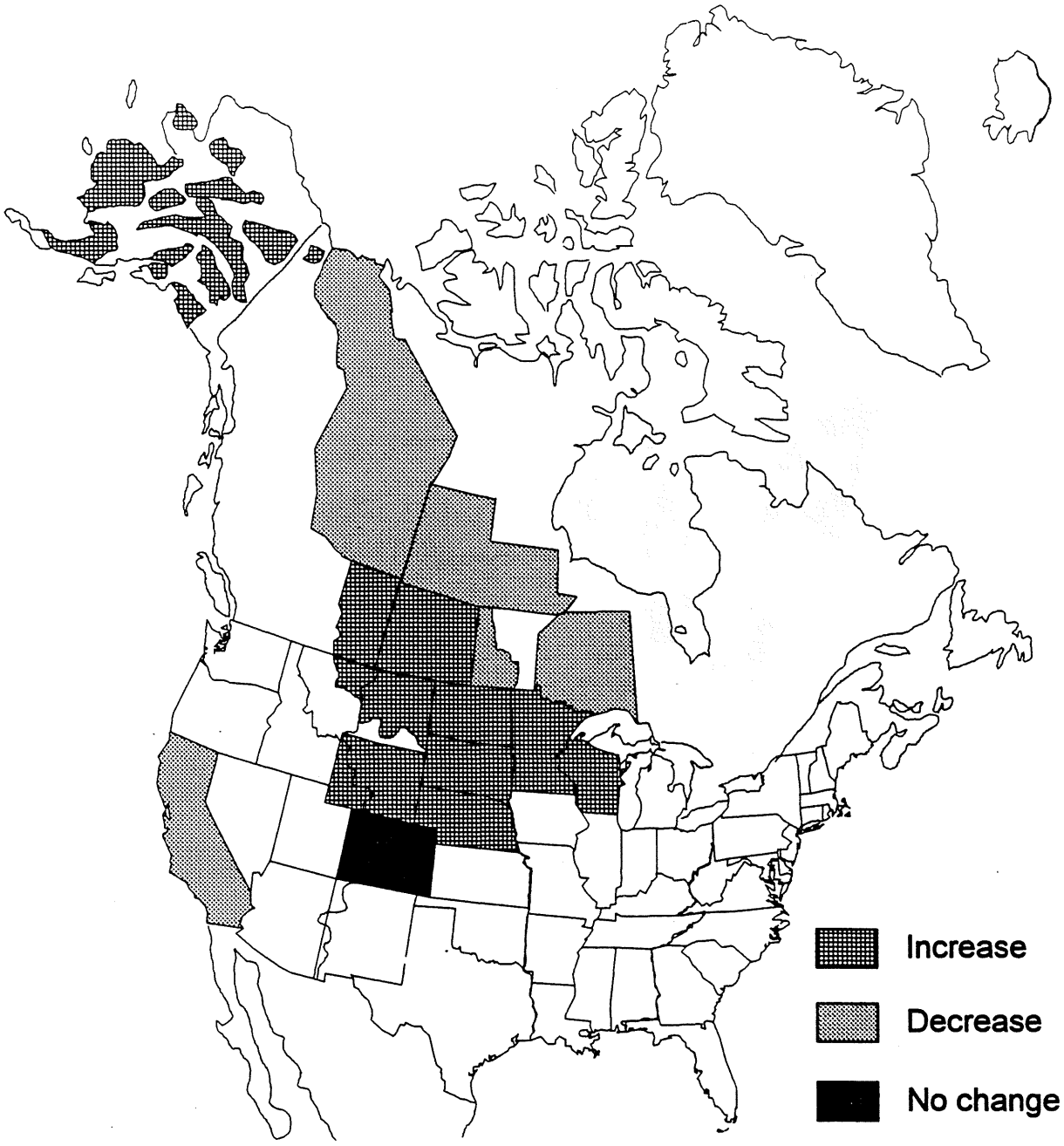


Figure 26. Fall 1994 duck flight forecast for Canada and the U.S., change from 1993, (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service 1994. Waterfowl population status, 1994. July 1994. 39pp).

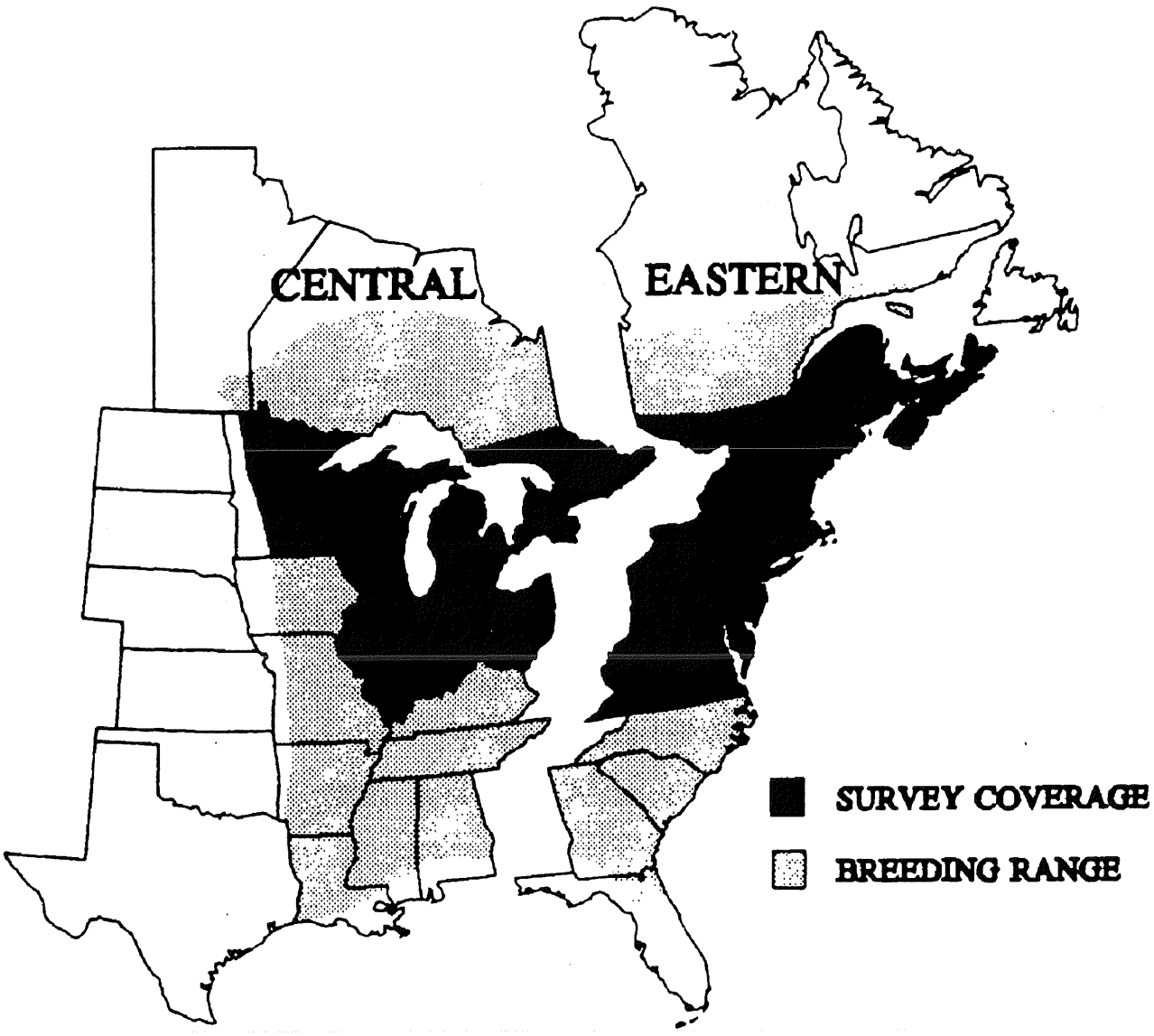


Figure 27. Woodcoock breeding range, singing ground survey coverage, and woodcock management regions (from: Kendall, William L., and John G. Bruggink 1994. American woodcock harvest and breeding population status, 1994. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

Table 32. Trends (% change per year[a]) in number of American woodcock heard in singing-ground survey as determined by route regression technique by management region, state, and province. (from: Kendall, William L., and John G. Bruggink 1994. American woodcock harvest and breeding population status, 1994. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

Management Unit/State	2 year N[b]	(1993-94) % Change	Routes Run[c]	10 year N	(1985-94) % Change	27 year N	(1968-94) % Change
CENTRAL	225	-12.2***[d]	417	505	- 2.4***	665	- 1.1***
IL	2	- 55.6***	14	18	-16.1	39	1.1
IN	4	- 2.1	15	21	- 1.2	51	- 1.3
MI	80	-12.5**	112	132	- 1.5	141	- 0.8
MN	41	- 7.2	70	81	- 1.7*	110	- 0.2
OH	16	10.4	34	36	- 2.1	69	- 4.3
ON	40	-13.3	83	125	- 2.9**	138	- 0.8
WI	41	-19.1***	71	87	- 4.7***	112	- 1.9***

[a] Mean of weighted route trends within each State, Province, or Region. To estimate the total percent change over several years, use: $100(\%/100+1)^{y}-100$ where % is the annual change and y is the number of years.

[b] Number of routes comparable in at least two years with one or more counts greater than zero.

[c] Total number of routes which were run and received prior to 6/1/94.

[d] Indicates slope is significantly different from zero: * $P \leq 0.10$; ** $P \leq 0.05$; *** $P \leq 0.01$; significance levels are approximate for states where $N < 10$.

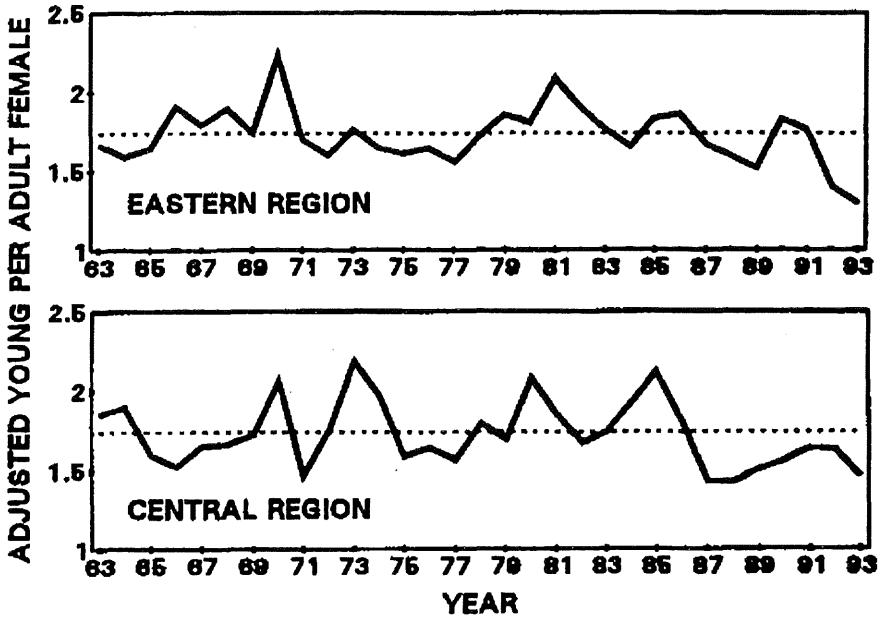


Figure 28. Adjusted index of American woodcock recruitment, 1963-93. Dashed line is the index based on years, 1963-92. (from: Kendall, William L., and John G. Bruggink 1994. American woodcock harvest and breeding population status, 1994. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

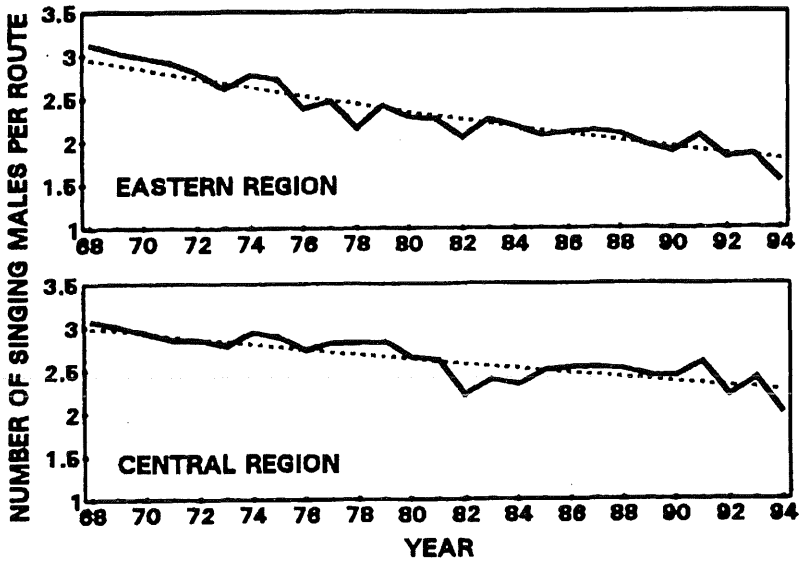


Figure 29. American woodcock singing ground survey long term trends and annual indices, 1968-94. (from: Kendall, William L., and John G. Bruggink 1994. American woodcock harvest and breeding population status, 1994. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

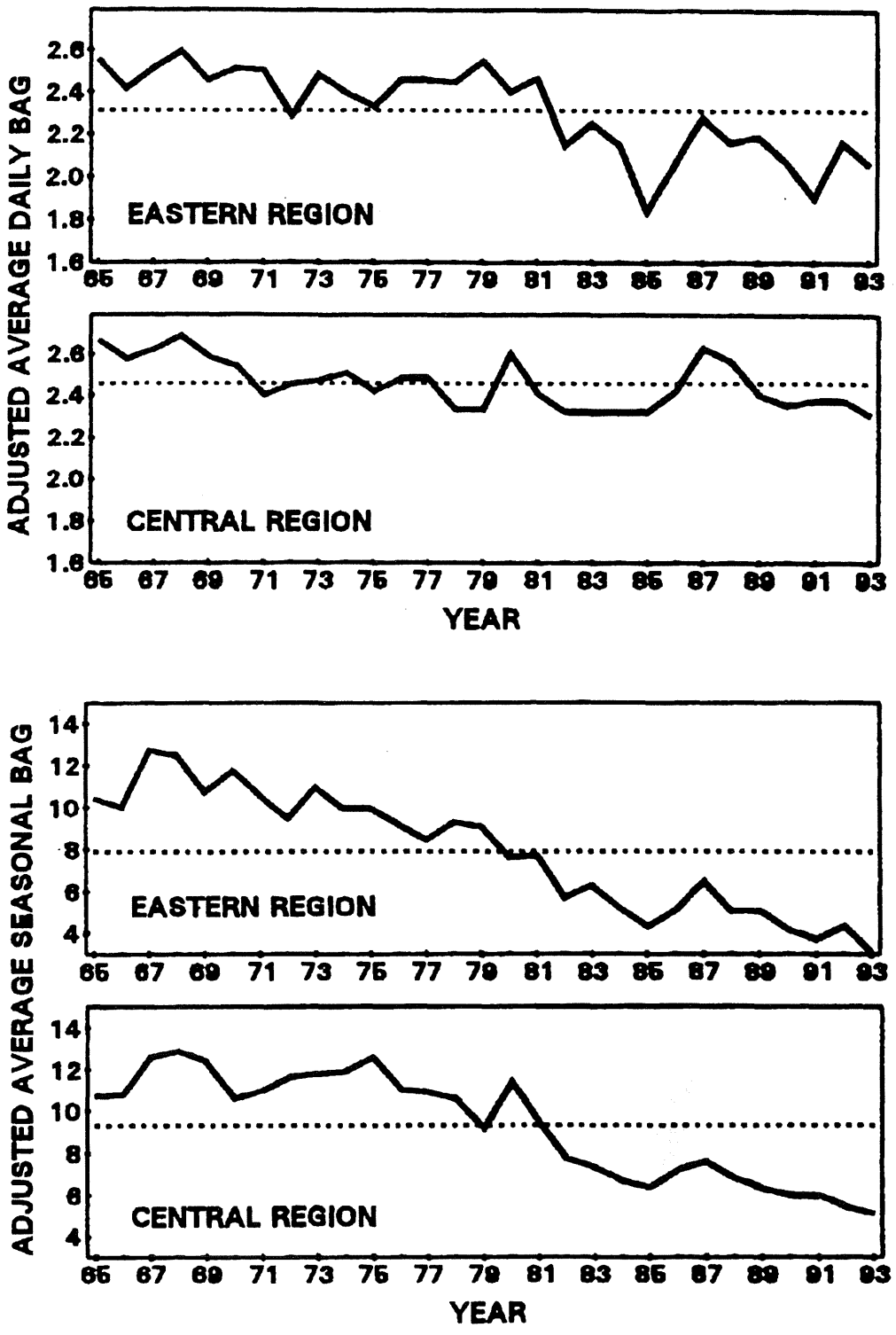


Figure 30. Adjusted indices of daily and seasonal hunting success of American woodcock, 1965-93, Base year is 1969. Dashed line is 1965-93 average. (from: Kendall, William L., and John G. Bruggink 1994. American woodcock harvest and breeding population status, 1994. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

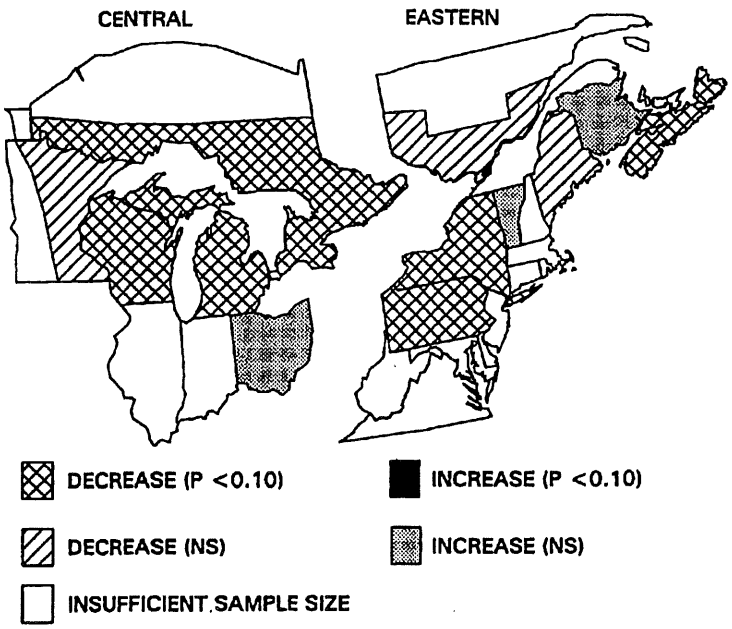


Figure 31. Short-term trends in number of American woodcock heard on the Singing-ground Survey; 1993-94.(from: Kendall, William L., and John G. Bruggink 1994. American woodcock harvest and breeding population status, 1994. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

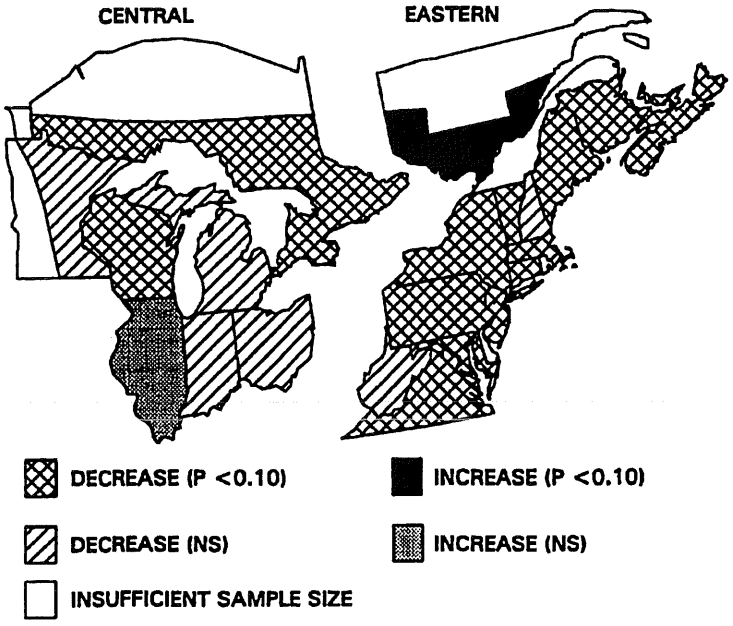


Figure 32. Long-term trends in number of American woodcock heard on the Singing-ground Survey; 1968-94 (from: Kendall, William L., and John G. Bruggink 1994. American woodcock harvest and breeding population status, 1994. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

NONGAME WILDLIFE
500 Lafayette Road, Box 7
St. Paul, MN 55155
(612) 297-4966

Table 33. Minnesota Bald Eagle Nesting Activity in Four Survey Areas, 1993.

Survey Area	Occupied Breeding Areas	Successful Breeding Areas	Percent Successful	Number of Young	Young/Occupied Breeding Area	Average Brood Size
Chippewa NF	186	108	58	171	0.92	1.58
Superior NF	90	65	72	99	1.10	1.52
Voyageurs NP	23	21	91	34	1.48	1.61
"Other Areas"	269	---[1]	---	---	---	---
Minnesota Total	568	---	---	---	---	---

[1] Due to budget constraints within the Nongame Wildlife Program, survey flights were incomplete in 1993, and an accurate number of young was not determined for most areas in Minnesota outside the national forests, Voyageurs National Park and the national wildlife refuges. Whereas a complete set of occupancy flights was made in early spring, productivity flights outside of federally managed areas were only conducted in a limited number of areas. As a result, total number of successful nests, total number of young, average young per occupied breeding area, and average brood size are unknown for 1992. However, limited productivity information for nests outside the federally managed areas was obtained by ground checks or during the occupancy flight if the birds were early nesters. If adequate funds are available, productivity flights will be conducted in 1994 and every other year thereafter, with occupancy flights continuing on a yearly basis.

Table 34. Minnesota Bald Eagle Nesting Data, 1973-1993.

	Breeding Areas			Young		
Year	Occupied[a]	Number Successful	Percent Successful	Total	Per Occupied Breeding Area	Average Brood size
1973	115	71	62	113	0.98	1.59
1974	127	77	61	96	0.76	1.25
1975	120	87	73	145	1.21	1.67
1976	122	93	76	163	1.34	1.75
1977	156	114	73	179	1.15	1.57
1978	168	115	68	188	1.12	1.63
1979	159	111	70	196	1.23	1.77
1980	181	133	73	239	1.32	1.80
1981	190	132	69	242	1.27	1.83
1982	207	145	70	245	1.18	1.69
1983	229	170	74	321	1.40	1.89
1984	245	165	67	274	1.12	1.66
1985	250	161[b]	71[b]	275[b]	1.21[b]	1.71[b]
1986	266	187[c]	72[c]	312[c]	1.21[c]	1.67[c]
1987	350	227	65	360	1.03	1.59
1988	372	250	67	412	1.11	1.65
1989	390	261	67	430	1.10	1.65
1990	437	300	69	467	1.07	1.56
1991	449	322	65	496	1.00	1.54
1992[d]	523					
1993[d]	568					

[a] Number of occupied breeding areas regardless of outcome.

[b] These figures do not include data from 23 occupied nesting areas of unknown outcome in the Boundary Waters Canoe Area.

[c] These figures do not include data from 9 occupied nesting areas of unknown outcome in the Boundary Waters Canoe Area.

[d] Data incomplete for 1992 and 1993. See Table 33 for explanation.

HUNTING HARVEST STATISTICS
Section of Wildlife
500 Lafayette Road, Box 7
St. Paul, MN 55155
(612) 296-3344

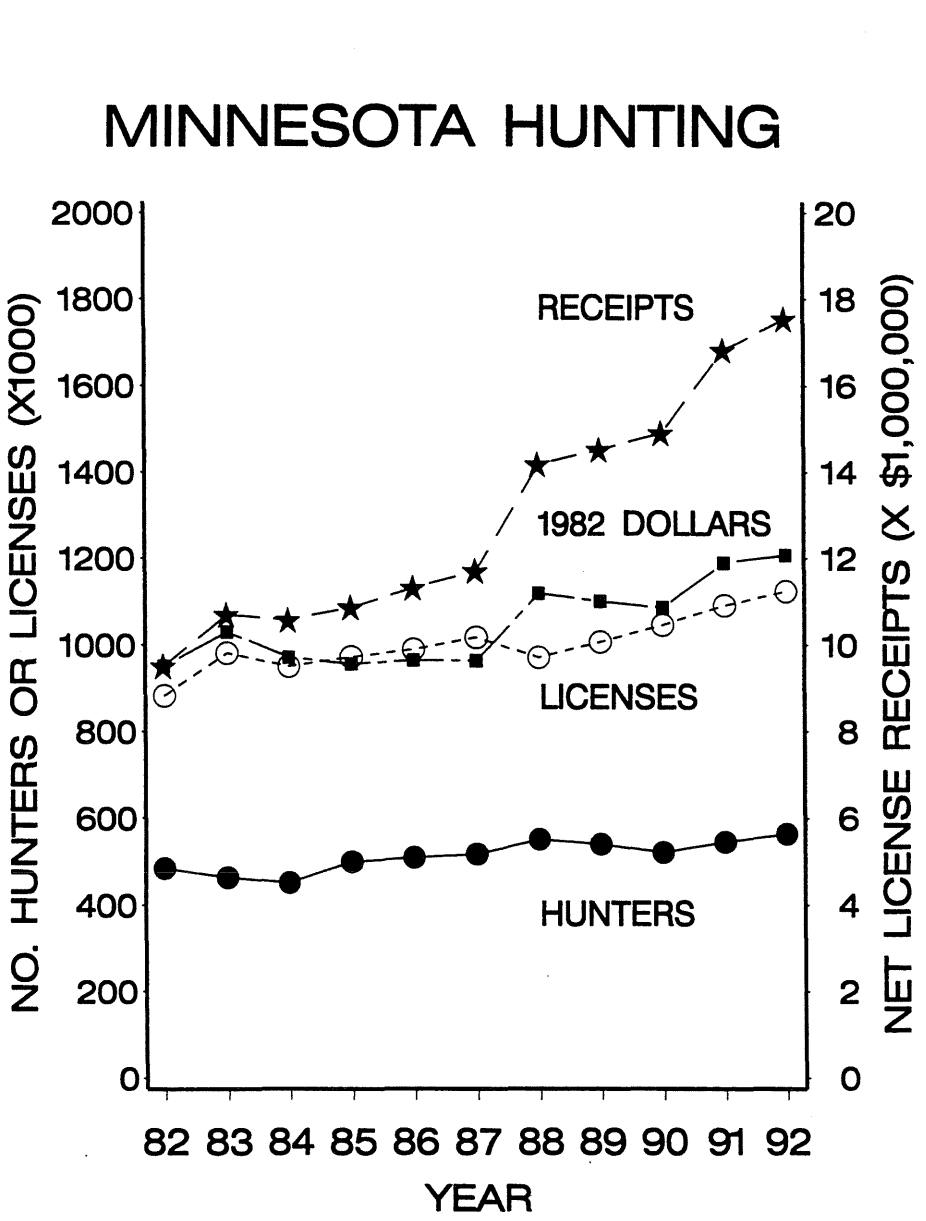


Figure 33. Minnesota hunting trends, 1982-92.

YEAR = license year (March -February)

● HUNTERS are paid license holders. A hunter is one individual regardless of the number of licenses purchased. Source: USFWS Division of Federal Aid.

○ LICENSES are the totals of hunting licenses, stamps and permits sold through the License Bureau, including duplicates but excluding trapping licenses and special goose hunt permits. Source: License Bureau.

★ RECEIPTS to the Game and Fish Fund are for all LICENSES except that bear, moose and turkey lottery licenses are also excluded because there is no good financial record for them over the entire period starting in 1982. Portion of receipts considered hunting licenses is 52.6% for individual sportsmen and 41.1% for combination sportsmen. Source: License Bureau.

■ 1982 DOLLARS are RECEIPTS expressed in constant 1982 dollars, which were calculated with Gross Domestic Product fixed-weighted price indexes of state and local government purchases. Sources: *Business Statistics 1963-91*, and *Survey of Current Business, December 1993*, U.S. Dept. of Commerce.

Note: The number of archers included in 1992 HUNTERS was calculated by a method also used in the 1980's. Calculations for 1991, 1990 and possibly 1989, were by a different method which gave lower values. The difference is important for federal aid certification, but does not affect the impression one gets from the graph. Plotted values are the same as federal aid certifications submitted to, and on file with, the USFWS Division of Federal Aid.

Table 35. Small game hunter response to mail surveys, 1979-80 through 1993-94.

Year	Number mailed	Number not delivered	Delivered questionnaires completed and returned	
			Number	Percent
1979-80	5,696	443	4,504	85.7
1980-81	6,434	385	4,963	82.0
1981-82	6,656	399	5,419	86.6
1982-83	5,963	266	4,792	84.1
1983-84	4,551	269	3,325	77.7
1984-85	4,096	127	3,280	82.6
1985-86	3,370	157	2,574	80.1
1986-87	4,668	208	3,623	81.2
1987-88	5,513	248	4,191	79.6
1988-89	15,388	857	11,431	78.7
1989-90[a]	10,893	735	7,790	76.7
1990-91[a]	5,000	394	3,467	75.3
1991-92[a]	5,050	387	3,541	75.9
1992-93[a]	5,000	288	3,625	76.9
1993-94[a]	5,011	282	3,320	70.2

[a] Includes resident and non-resident licensees, and excludes duplicate licenses.

Table 36. Use of small game hunter licenses, 1983-84 through 1993-94.

	Returns from mail survey	Projections from license sales
1983-84 Hunted	2,805 (84.4%)	232,973
Did not hunt	520 (15.6%)	43,061
	3,325 (100.0%)	276,034
1984-85 Hunted	2,663 (81.2%)	211,740
Did not hunt	617 (18.8%)	49,024
	3,280 (100.0%)	260,764
1985-86 Hunted	2,132 (82.8%)	213,883
Did not hunt	442 (17.2%)	44,342
	2,574 (100.0%)	258,225
1986-87 Hunted	3,006 (83.0%)	217,504
Did not hunt	617 (17.0%)	44,549
	3,623 (100.0%)	262,053
1987-88 Hunted	3,554 (84.8%)	242,875
Did not hunt	635 (15.2%)	43,395
	4,189 (100.0%)	286,270
1988-89 Hunted	9,391 (82.2%)	234,833
Did not hunt	2,040 (17.8%)	50,852
	11,431 (100.0%)	285,685
*1989-90 Hunted	6,924 (88.9%)	272,307
Did not hunt	866 (11.1%)	34,000
	7,790 (100.0%)	306,307
1990-91 Hunted	2,798 (88.5%)	275,327
Did not hunt	363 (11.5%)	35,777
	3,161 (100.0%)	311,104
1991-92 Hunted	3,004 (85.3%)	270,972
Did not hunt	519 (14.7%)	46,697
	3,523 (100.0%)	317,669
1992-93 Hunted	3,008 (83.9%)	249,973
Did not hunt	576 (16.1%)	47,968
	3,584 (100.0%)	297,941
1993-94 Hunted	2,787 (84.0%)	232,365
Did not hunt	533 (16.0%)	44,260
	3,320 (100.0%)	276,625

* Previous years included only resident small game hunter information. For 1989 and on includes resident and non-resident information.

Excludes duplicates.

Table 37. Estimated number of hunters (thousands) for various species, 1982-83 through 1993-94.

	Estimated number of hunters (thousands)											
	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94
Ducks	134	117	134	122	132	114	77	84	88	100	107	109
Canada goose	52	41	51	55	58	56	47	50	56	56	61	62
Other geese	11	10	9	9	7	9	5	7	6	6	6	9
American coot	11	12	9	11	11	8	3	4	5	5	5	6
Common snipe	4	6	5	5	5	6	4	5	5	4	3	2
Rails/gallinules	1	2	1	1	1	1	1	1	<1	<1	<1	1
Crow*								9	13	12	11	10
American woodcock	20	16	17	19	21	27	26	30	30	27	21	17
Ring-necked pheasant	125	86	65	72	62	86	84	90	105	122	105	88
Ruffed grouse	115	78	87	94	107	132	139	163	163	146	124	102
Spruce grouse	13	9	12	12	12	16	15	20	19	16	13	11
Sharp-tailed grouse	14	9	9	10	9	10	12	14	14	14	10	8
Gray partridge	21	15	20	17	23	25	23	24	31	27	17	15
Gray squirrel	53	38	39	38	41	40	37	36	41	36	32	32
Fox squirrel	39	28	26	29	29	26	26	23	29	23	22	23
Eastern cottontail	36	29	22	22	24	26	27	24	32	31	24	21
White-tailed jackrabbit	11	7	6	6	4	5	5	6	7	6	5	4
Snowshoe hare	15	9	7	7	8	10	9	10	15	12	8	5
Raccoon	13	11	12	10	11	13	9	7	10	10	9	9
Red fox	12	11	11	12	11	13	13	9	16	22	19	16
Gray fox	3	2	3	2	2	3	3	2	3	4	3	3
Coyote	3	3	3	5	4	5	6	4	9	13	14	14
Badger	1	1	1	1	1	1	1	<1	1	<1	1	1

* Crow season added in 1989.

Table 38. Estimated take per hunter for various species, 1982-83 through 1993-94.

	Estimated take per hunter											
	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94
Ducks	8.1	10.6	10.8	9.1	9.0	8.2	6.9	6.5	7.0	8.0	8.1	7.6
Canada goose	1.6	1.6	1.6	1.9	1.8	1.9	2.4	2.1	2.3	2.6	2.5	2.5
Other geese	0.7	0.7	0.8	1.2	0.5	1.1	0.9	1.2	1.2	1.0	0.9	1.1
American coot	4.3	4.7	4.9	4.4	5.3	3.6	2.6	2.5	3.6	2.7	4.7	2.7
Common snipe	3.2	2.8	4.0	3.2	3.9	3.4	3.3	2.5	3.0	3.7	2.9	1.9
Rails/gallinules	3.1	1.2	1.4	2.3	1.1	3.6	1.8	4.2	1.0	7.6	1.7	1.5
Crow*								5.9	5.5	7.6	6.2	5.0
American woodcock	2.7	3.9	4.3	4.3	4.3	4.5	4.0	3.9	3.9	3.5	4.7	4.0
Ring-necked pheasant	2.1	3.5	2.3	3.0	2.6	3.2	3.9	3.6	4.6	4.6	3.9	3.8
Ruffed grouse	2.6	2.4	3.7	3.8	4.2	6.3	6.6	7.5	7.1	6.6	4.4	2.8
Spruce grouse	1.1	1.1	1.7	2.1	1.7	2.3	2.6	2.7	2.4	2.0	1.7	1.2
Sharp-tailed grouse	1.2	1.1	0.8	1.9	1.5	2.4	2.5	2.5	2.4	2.4	2.0	1.4
Gray partridge	3.6	2.1	4.3	3.3	3.1	3.8	4.6	3.7	3.7	3.8	2.9	2.4
Gray squirrel	5.1	5.3	5.3	5.2	5.7	5.6	5.8	5.5	5.8	4.9	4.6	5.5
Fox squirrel	4.2	4.5	4.1	5.0	5.1	4.7	5.2	5.0	5.1	4.6	4.2	4.5
Eastern cottontail	3.8	3.4	2.8	3.8	4.2	4.0	4.3	3.8	4.3	4.1	3.1	3.6
White-tailed jackrabbit	2.6	1.9	1.9	3.0	3.4	2.2	1.8	2.2	1.3	1.7	2.1	2.4
Snowshoe hare	4.2	2.3	2.3	2.3	3.2	2.6	3.7	4.8	4.6	5.9	3.2	3.2
Raccoon	6.3	8.0	9.4	9.4	10.9	13.1	11.4	7.6	9.6	7.5	8.6	8.9
Red fox	1.5	2.0	2.3	4.2	1.5	2.5	3.3	2.1	3.4	3.6	3.3	3.6
Gray fox	0.9	0.9	1.4	2.0	0.8	1.3	0.9	1.2	1.4	1.0	1.3	0.8
Coyote	0.8	0.8	1.8	3.1	1.6	1.1	1.2	1.7	1.6	2.1	1.5	1.3
Badger	1.9	0.3	3.9	1.8	1.0	1.6	1.5	1.3	1.4	2.2	0.9	0.7

* Crow season added in 1989.

Table 39. Hunter success rates and mean harvest for successful hunters, 1989-90 through 1993-94.

	Hunter success rate (%)					Mean harvest per successful hunter				
	1989-90	1990-91	1991-92	1992-93	1993-94	1989-90	1990-91	1991-92	1992-93	1993-94
Ducks	85.8	88.8	89.7	89.0	87.3	7.6	7.9	8.7	9.1	8.7
Canada geese	75.0	71.6	72.2	72.7	74.3	2.8	3.2	3.6	3.4	3.4
Other geese	53.7	37.9	47.8	33.3	50.0	2.2	3.1	2.2	2.5	2.1
American coot	69.3	73.1	70.9	77.6	71.6	3.6	4.9	3.8	6.0	3.8
Common snipe	85.0	90.7	93.8	83.3	65.2	2.9	3.3	3.9	3.5	2.9
Rails/gallinules	58.8	40.0	100.0	66.7	62.5	7.2	2.5	7.6	2.5	2.4
Crow	87.1	87.3	83.3	88.8	87.1	6.8	6.3	9.1	7.0	5.7
American woodcock	90.6	87.9	85.0	80.5	73.9	4.3	4.4	4.1	5.8	5.4
Ring-necked pheasant	76.6	78.6	79.2	73.1	70.6	4.7	5.9	5.8	5.4	5.3
Ruffed grouse	87.4	85.1	80.3	72.8	64.7	8.5	8.3	8.2	6.0	4.3
Spruce grouse	78.7	66.2	68.3	59.1	48.4	3.4	3.6	3.0	2.8	2.4
Sharp-tailed grouse	69.4	62.6	64.5	60.2	46.7	3.6	3.8	3.7	3.3	3.0
Gray partridge	80.0	78.2	78.0	71.5	59.7	4.6	4.7	4.9	4.0	4.0
Gray squirrel	89.8	91.6	86.1	83.8	86.9	6.1	6.3	5.7	5.5	6.4
Fox squirrel	90.2	89.6	84.7	85.3	88.5	5.6	5.7	5.5	4.9	5.1
Eastern cottontail	84.6	87.1	83.7	78.0	79.9	4.5	5.0	4.9	3.9	4.5
White-tailed jackrabbit	72.7	65.8	70.3	71.0	62.8	3.0	2.0	2.4	3.0	3.9
Snowshoe hare	86.3	88.6	85.7	65.6	73.8	5.6	5.2	6.9	4.8	4.4
Raccoon	93.6	92.6	89.2	91.7	95.3	8.2	10.4	8.4	9.3	9.3
Red fox	71.9	68.0	73.6	58.9	67.5	3.0	5.0	4.9	5.6	5.4
Gray fox	68.2	44.4	40.0	41.5	26.7	2.3	3.3	2.4	3.1	3.1
Coyote	69.5	62.1	56.6	50.0	57.1	2.4	2.6	3.7	3.1	2.3
Badger	83.3	77.8	100.0	71.4	71.4	1.6	1.9	2.2	1.2	1.0

Table 40. Statewide small game hunting license sales and estimated hunter harvest, 1983-84 through 1993-94.

	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94
Small game license sales[a]	276,034	260,764	258,225	262,053	286,270	285,685	306,307	311,104	317,669	297,941	276,625
Federal duck stamp sales	138,161	138,820	134,594	139,391	125,831	92.772	97,939	103,971	110,197	108,332	110,333
State duck stamp sales	125,212	131,394	125,559	146,747	120,235	89,228	97,659	102,151	104,051	104,064	104,839
Pheasant stamp sales	114,189	81,587	85,252	81,027	102,944	100,478	108,124	122,260	133,384	117,934	94,443
Estimated harvest[b] (thousands)											
Ducks[c]	1,235	1,443	1,029	1,172	928	531	544	619	784	864	824
Canada goose[c]	62	82	86	101	106	114	103	128	144	150	156
Other geese[c]	8	8	9	3	11	5	9	7	6	5	9
American coot[c]	55	48	41	59	29	9	10	17	13	23	15
Common snipe	17	20	16	21	19	13	12	14	16	9	4
Rails/gallinules	2	1	2	1	5	1	3	<1	3	<1	1
Crow							54	70	94	69	51
American woodcock	58	70	70	87	113	104	118	116	94	100	68
Ring-necked pheasant	299	148	179	159	277	332	325	483	565	411	332
Ruffed grouse	183	320	315	442	817	917	1,218	1,153	963	543	288
Spruce grouse	10	21	21	20	36	39	55	46	34	21	12
Sharp-tailed grouse	10	7	14	13	24	29	36	33	33	20	11
Gray partridge	74	31	77	54	69	95	86	115	102	49	35
Gray squirrel	199	208	186	235	222	217	194	234	174	147	178
Fox squirrel	126	107	140	145	122	134	113	115	109	92	105
Eastern cottontail	98	61	75	102	102	118	92	139	128	73	75
White-tailed jack rabbit	13	11	17	14	12	10	12	9	10	11	9
Snowshoe hare	21	16	12	25	26	32	48	69	70	24	16
Raccoon	87	114	85	122	170	102	52	93	74	77	79
Red fox	21	26	44	15	33	43	19	54	78	63	63
Gray fox	2	4	4	2	4	2	3	5	4	4	2
Coyote	3	5	11	7	6	7	6	14	27	21	18
Badger	2	<1	2	2	<1	2	<1	1	1	<1	<1

Harvest estimates in this table, and the number of hunters and mean take per hunter in Table 37, are calculated from different questions on the survey form. The sample used in calculations differs from one estimator to the next. This is because some respondents give specific answers to one question but not to a related one. A formula is used to calculate the total estimated take for each species which appears in this table. In most years the formula produces results rather close to those obtained by multiplying the average take per hunter times the number of hunters. However, in other years (e.g., 1985) results of the two methods are quite divergent, perhaps as a result of an unusual sample. This is being investigated further, and as a result, numbers may change somewhat in future reports. The most current report of survey findings will have the best data available at that time. Beginning in 1989-90 this table was changed from Resident harvest estimates to Statewide harvest estimates, which includes non-resident harvest estimates.

[a] Duplicate licenses not included.
[b] Estimates based upon response of hunters to questionnaires.
[c] U.S. Fish and Wildlife Service harvest estimates for 1993 are:

Ducks	484,391	Other geese	5,796
Canada geese	108,081	American coot	4,897

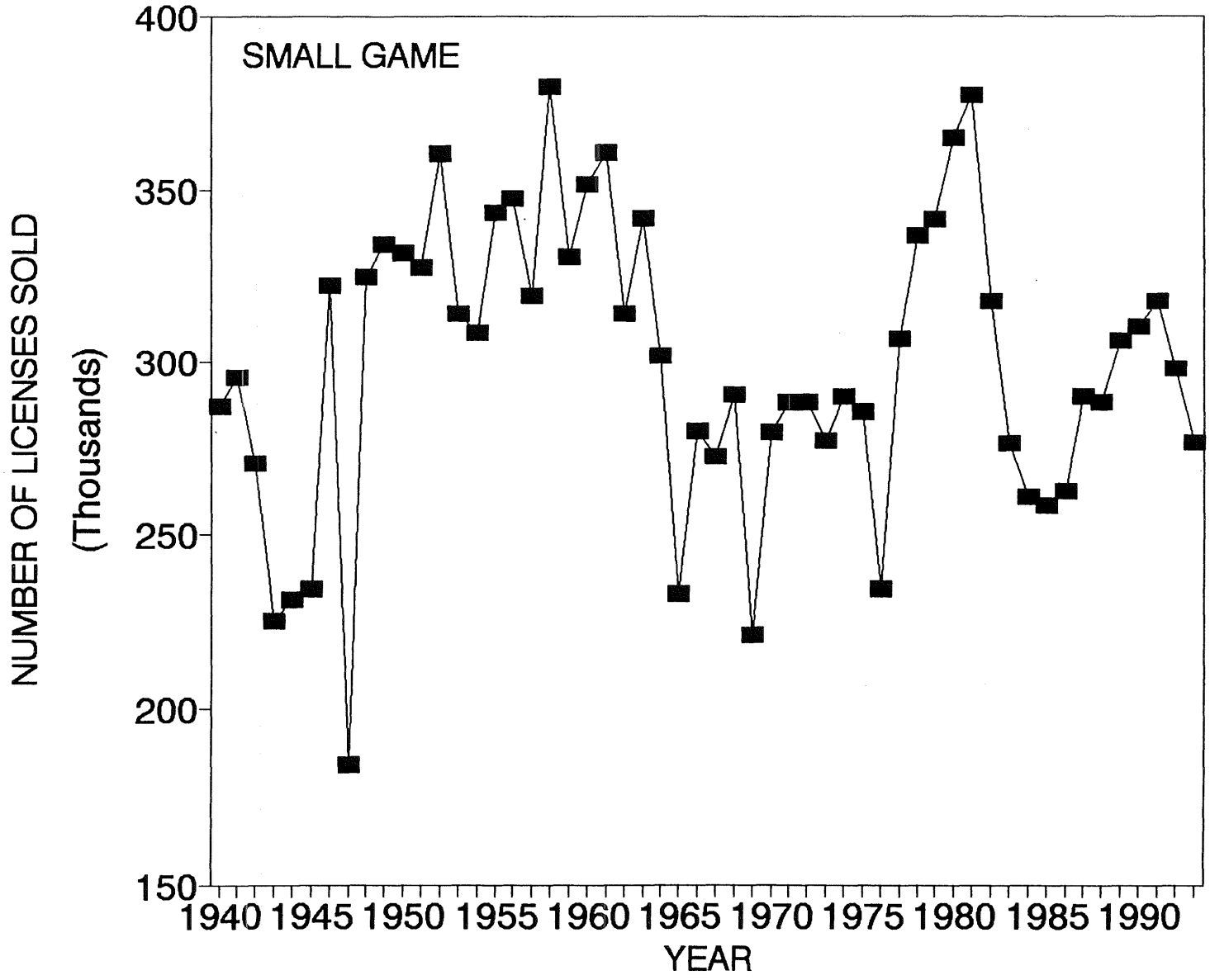


Figure 34. Numbers of Minnesota small game licenses sold, 1940-93.

Table 41. Mail survey results of nonresident small game hunters, 1983-84 through 1993-94.

	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94
Nonresident licenses issued[a]	2,911	3,060	3,271	3,078	3,596	3,462	4,624	4,932	4,852	4,718	3,809
Questionnaires:											
Number mailed	384	237	338	406	429	436	553	82	114	170	229
Number not delivered	25	13	25	42	19	33	52	7	8	8	21
Number (percent) returned	280 (78.0)	192 (86.0)	246 (78.6)	290 (79.7)	328 (80.0)	327 (81.1)	396 (79.0)	54 (72.0)	89 (83.2)	132 (81.5)	149 (71.6)
Estimated nonresidents and (percent) of all nonresidents hunting:											
Ducks	1,500 (52)	2,090 (68)	1,900 (58)	1,810 (59)	990 (28)	1,130 (33)	1,521 (33)	1,342 (27)	1,308 (27)	1,751 (37)	1,789 (47)
Canada goose	580 (20)	820 (27)	800 (24)	850 (28)	515 (14)	700 (20)	866 (19)	1,074 (22)	491 (10)	1,001 (21)	792 (21)
Ruffed grouse	620 (21)	1,000 (33)	1,090 (33)	1,000 (32)	1,000 (28)	1,960 (57)	2,610 (56)	1,789 (36)	2,017 (42)	1,465 (31)	895 (24)
Ring-necked pheasant	500 (17)	390 (13)	720 (22)	510 (17)	400 (11)	690 (20)	1,042 (23)	895 (18)	1,743 (36)	894 (19)	741 (20)
Raccoon[b]	170 (6)	130 (4)	70 (2)	85 (3)	80 (2)	42 (1)	59 (1)	0 (0)[c]	55 (1)	0 (0)[c]	26 (1)
Estimated nonresident take:											
Ducks	17,500	24,000	14,400	14,600	6,300	8,000	9,901	5,816	11,340	17,442	13,574
Canada goose	1,300	1,300	1,400	1,400	900	1,500	1,744	4,205	1,363	3,610	2,122
Ruffed grouse	1,700	4,200	3,500	3,800	6,100	12,300	20,739	14,852	18,100	10,758	4,985
Ring-necked pheasant	2,200	1,500	1,900	1,100	1,100	2,600	4,424	3,221	6,324	4,110	3,042
Raccoon	1,400	1,100	1,400	600	1,200	700	667	0	327	0	26

[a] Excludes duplicate licenses and nonresident shooting preserve licenses.

[b] Nonresident raccoon hunters were required to purchase a nonresident raccoon hunting license for the first time in 1979 in addition to the nonresident small game license. The initial season bag limit of 8 was increased to 12 in 1983 and to 20 in 1985.

[c] In 1990 and 1992 small game hunter survey no non-residents reported hunting/harvesting raccoons.

	Raccoon take per hunter		
	Resident	Nonresident	Number of nonresident raccoon licenses
1978	6	14	0
1979	6	6	404
1980	4	5	93
1981	7	7	121
1982	6	7	95
1983	8	8	102
1984	9	8	111
1985	9	20	108
1986	11	7	86
1987	13	15	145
1988	11	17	73
1989	8	11	41
1990	11	0	20
1991	8	6	21
1992	9	0	20
1993	9	1	24

Table 42. Species composition of the Minnesota waterfowl harvest, 1992 and 1993 (from: Martin, E.M. and P.I. Padding. 1994. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1993 hunting season. U.S. Fish and Wildlife Service Adm. Rep., Office of Migratory Bird Management, Laurel, Maryland. July 1994. 33pp.).

Species	1992 Harvest	1992 Pct of harvest	1993 Harvest	1993 Pct of harvest	Percent change
Mallard	184,300	35.30	149,600	30.88	-19
Domestic mallard	200	0.04	100	0.03	-50
American black duck	700	0.14	1,200	0.24	+71
Black x mallard	300	0.05	100	0.02	-67
Gadwall	16,000	3.07	6,600	1.36	-59
American wigeon	23,400	4.48	13,300	2.74	-43
Green-winged teal	30,900	5.92	18,700	3.85	-40
Blue-winged/cinnamon teal	20,000	3.84	15,000	3.09	-26
Northern shoveler	3,900	0.75	2,000	0.42	-49
Northern pintail	8,100	1.55	5,600	1.15	-31
Wood duck	90,200	17.28	90,800	18.75	+ 1
Redhead	7,500	1.43	11,500	2.38	+53
Canvasback	100	0.01	100	0.02	0[b]
Greater scaup	2,300	0.44	2,500	0.52	+ 9
Lesser scaup	41,400	7.93	27,200	5.62	-34
Ring-necked duck	67,600	12.95	107,600	22.21	+59
Goldeneyes	5,800	1.12	10,500	2.17	+81
Bufflehead	14,400	2.75	13,800	2.84	- 4
Ruddy duck	800	0.15	1,600	0.33	+100
Scoters	200	0.03	700	0.14	+200
Hooded merganser	3,400	0.66	5,500	1.13	+62
Other mergansers	500	0.10	300	0.06	-40
Total	521,951	100.00[a]	484,391	100.00[a]	-0.1

[a] Sum of all species does not equal total because of rounding error.

[b] No percentage change

Table 43. Top 10 states in number of adult waterfowl hunters, 1993, and number of hunter-days and retrieved duck kill, in each (from: Martin, E.M., and P. I. Padding. 1994. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1993 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, Maryland. July 1994. 33pp.).

State	Number of active adult waterfowl hunters	Number of hunter-days	Retrieved duck kill	Ducks retrieved per hunter-day
Minnesota	98,253	761,071	484,391	0.64
Wisconsin	70,977	484,228	269,862	0.56
Louisiana	57,599	575,348	688,130	1.20
Texas	60,035	509,085	393,662	0.77
California	51,877	517,522	713,901	1.38
Michigan	50,570	409,776	233,687	0.57
Illinois	40,866	434,154	179,745	0.41
Pennsylvania	33,393	222,621	74,685	0.34
New York	27,237	206,427	158,825	0.77
Arkansas	32,789	369,702	451,380	1.22
Mississippi Flyway	476,217	4,244,398	3,015,829	0.71
United States	1,024,675	8,836,396	6,577,928	0.74

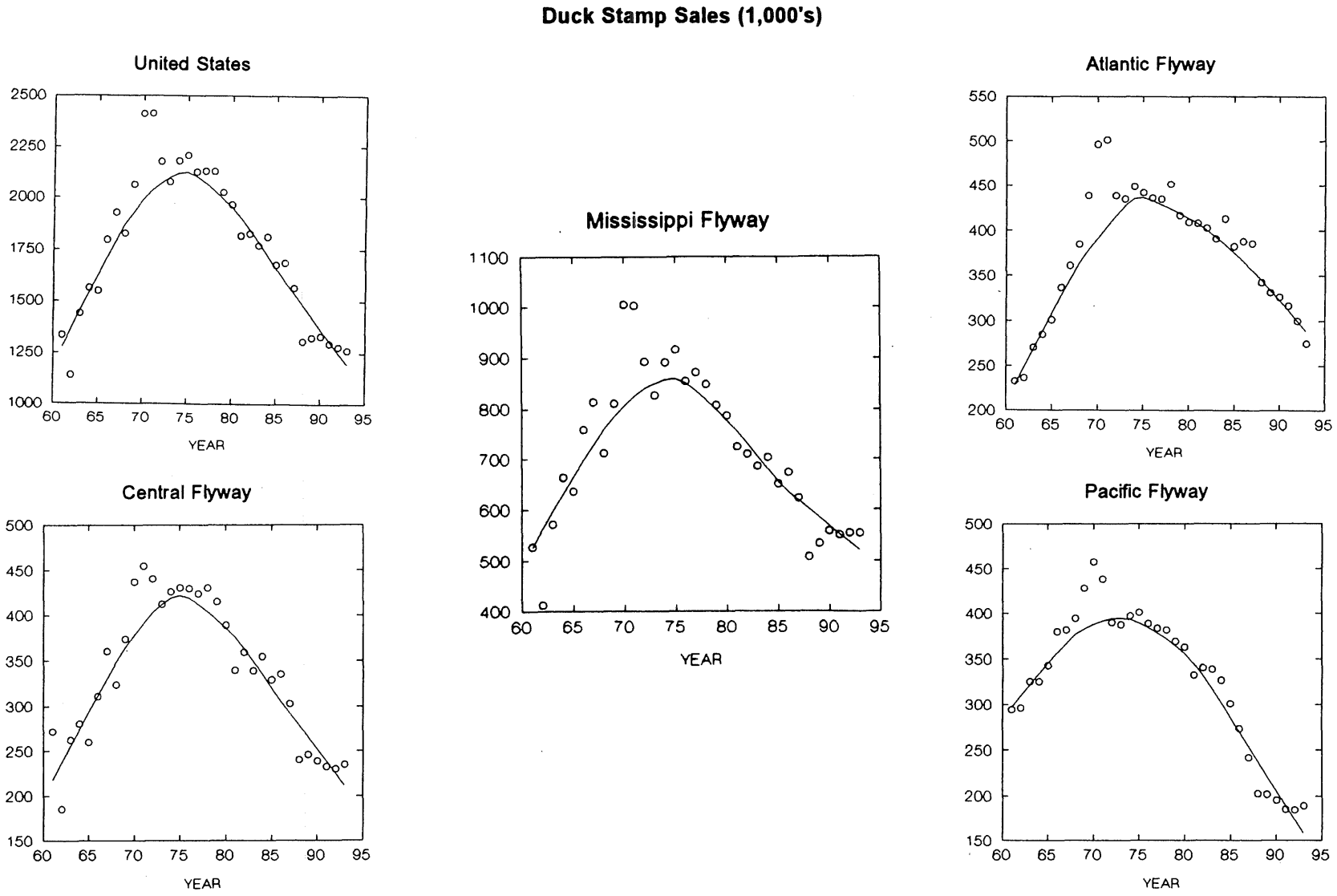


Figure 35. Federal duck stamp sales; Active adult hunters; Adult hunter days, (in 1,000's). The 1961 through 1992 data are final, but the 1993 numbers are estimates. The curves (locally weighted regression [lowess] lines; Cleveland and Devlin 1988, J. Am. Stat. Assoc.) fit a pattern to the majority of the estimates and identify estimates that deviate from that pattern (from Martin, E. M., and P.I. Padding. 1993. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1993 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, MD. July 1994. 33pp.).

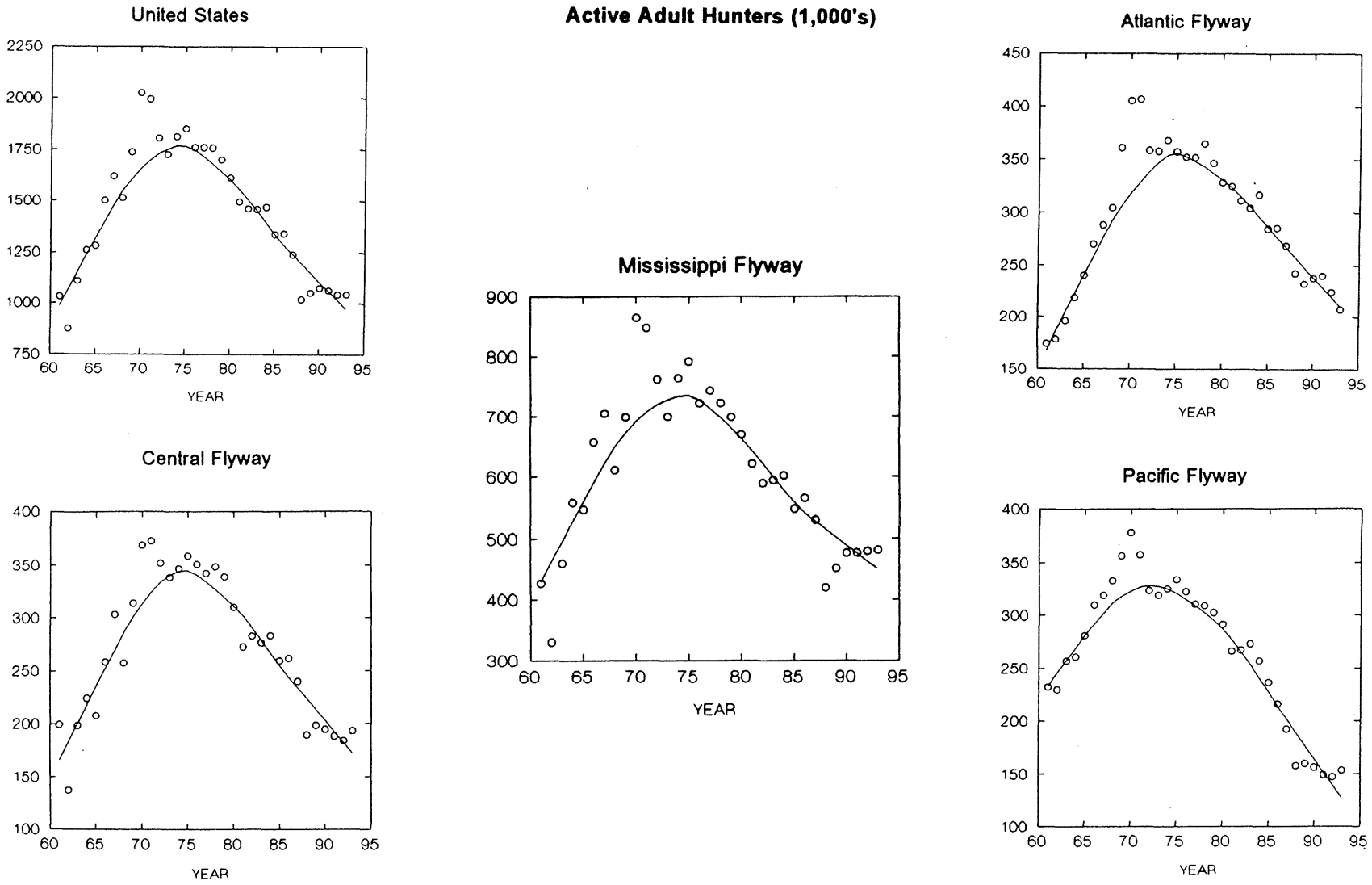


Figure 35. (cont.)

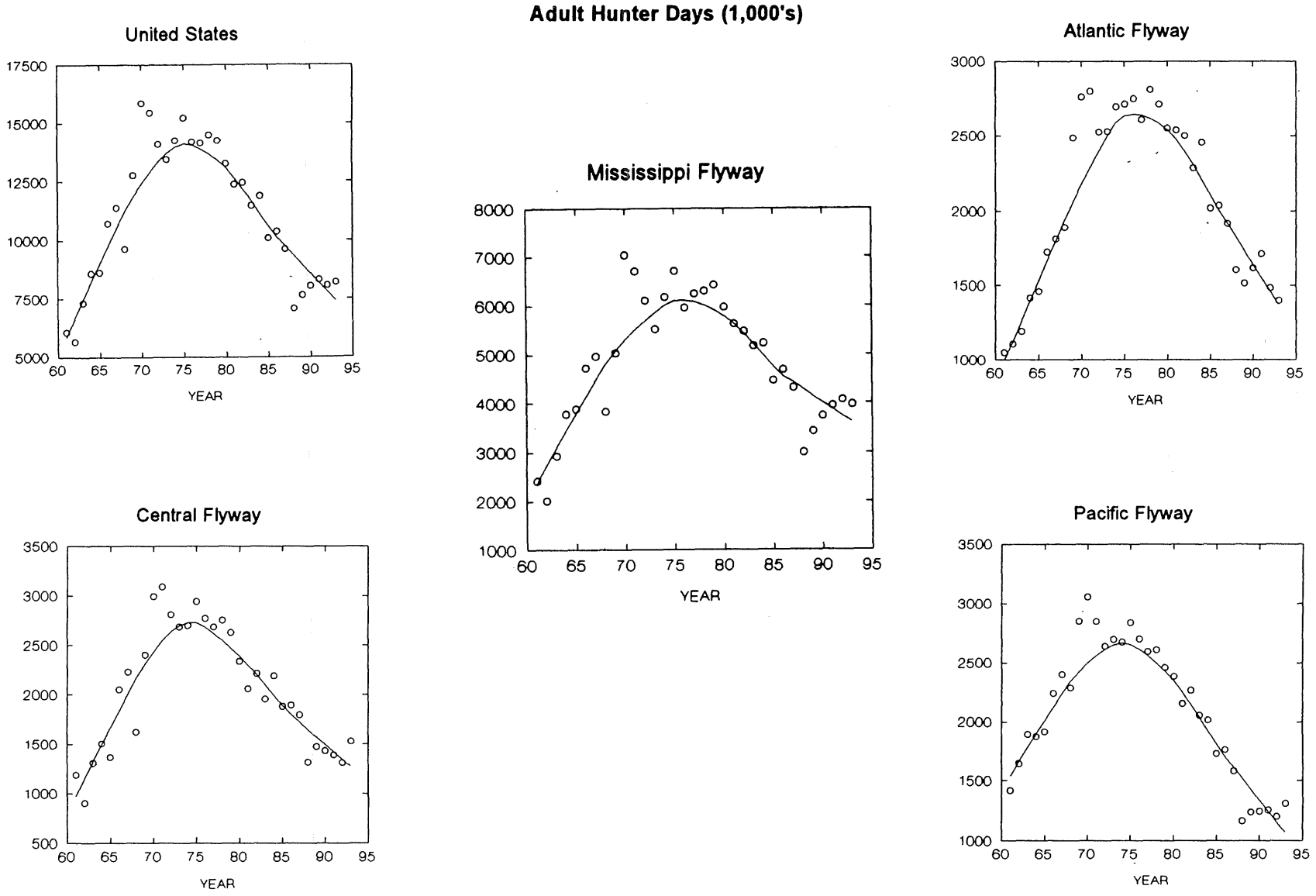


Figure 35. (cont.)

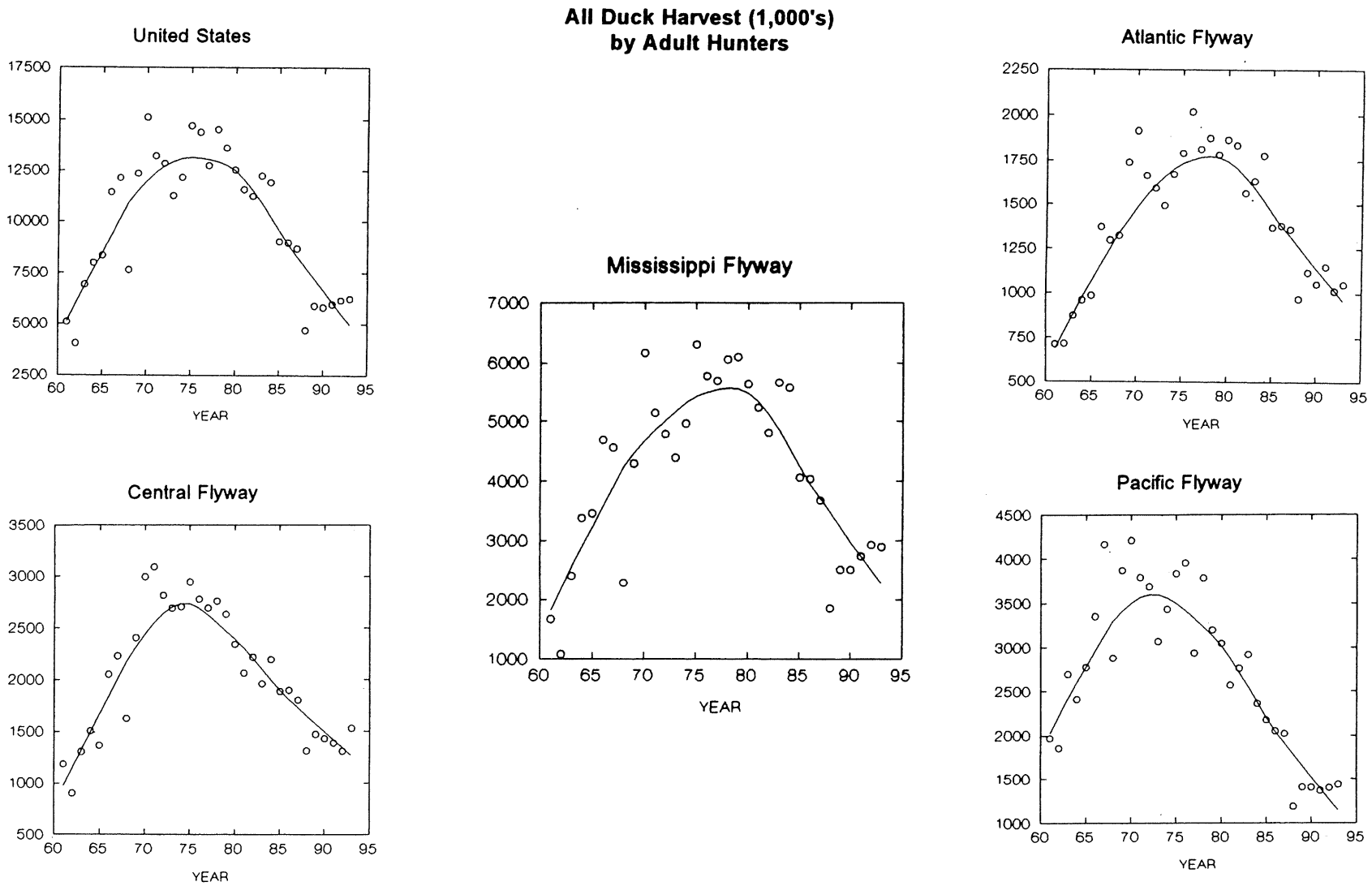


Figure 36. All duck harvest; All goose harvest by adult hunters; Seasonal duck bag; Seasonal Goose bag per adult hunter. The 1961 through 1992 data are final, but the 1993 numbers are estimates. The curves (locally weighted regression [lowess] lines; Cleveland and Devlin 1988, J. Am. Stat. Assoc.) fit a pattern to the majority of the estimates and identify estimates that deviate from that pattern (from Martin, E. M., and P.I. Padding. 1993. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1993 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, MD. July 1994. 33pp.).

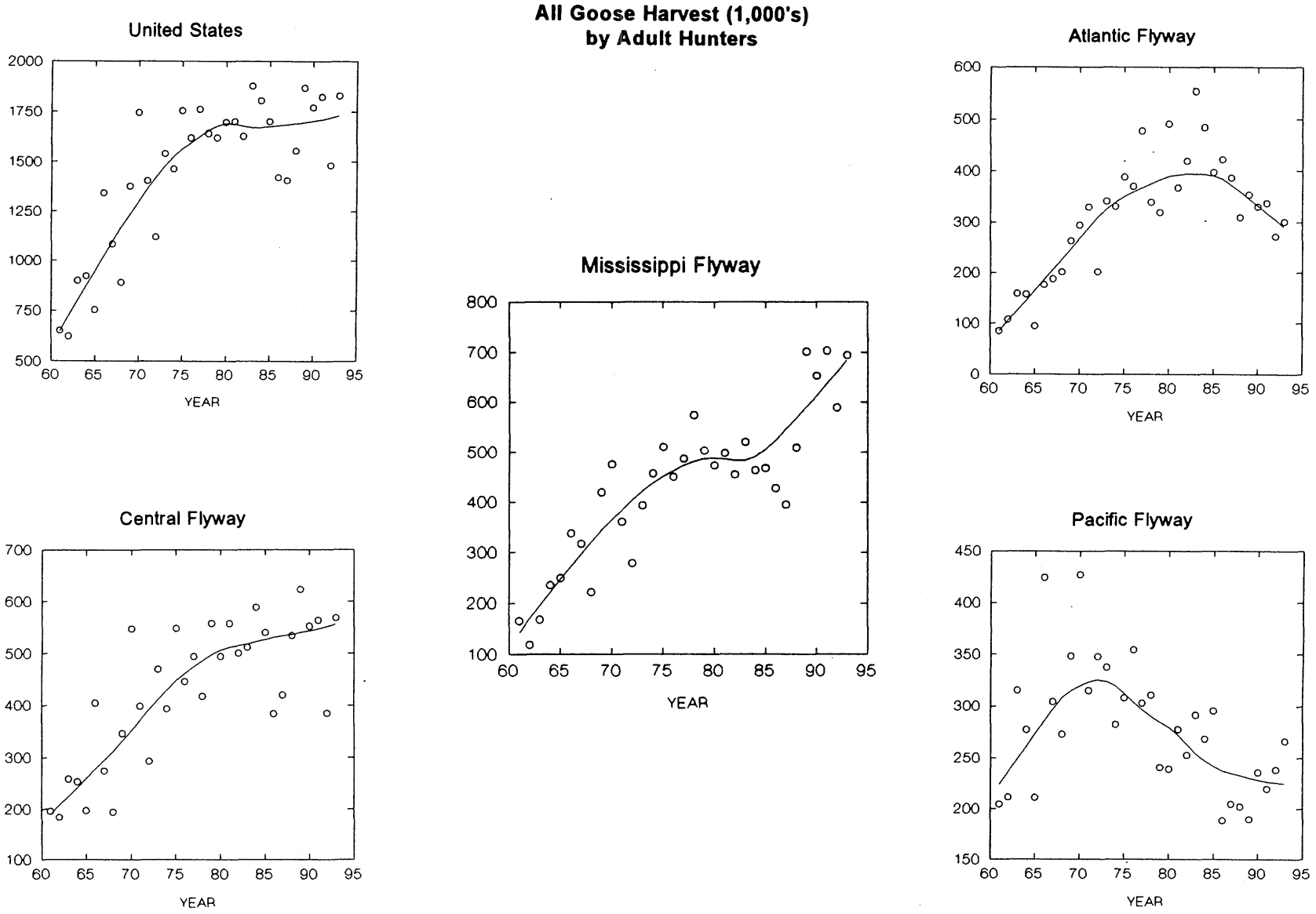


Figure 36. (cont.)

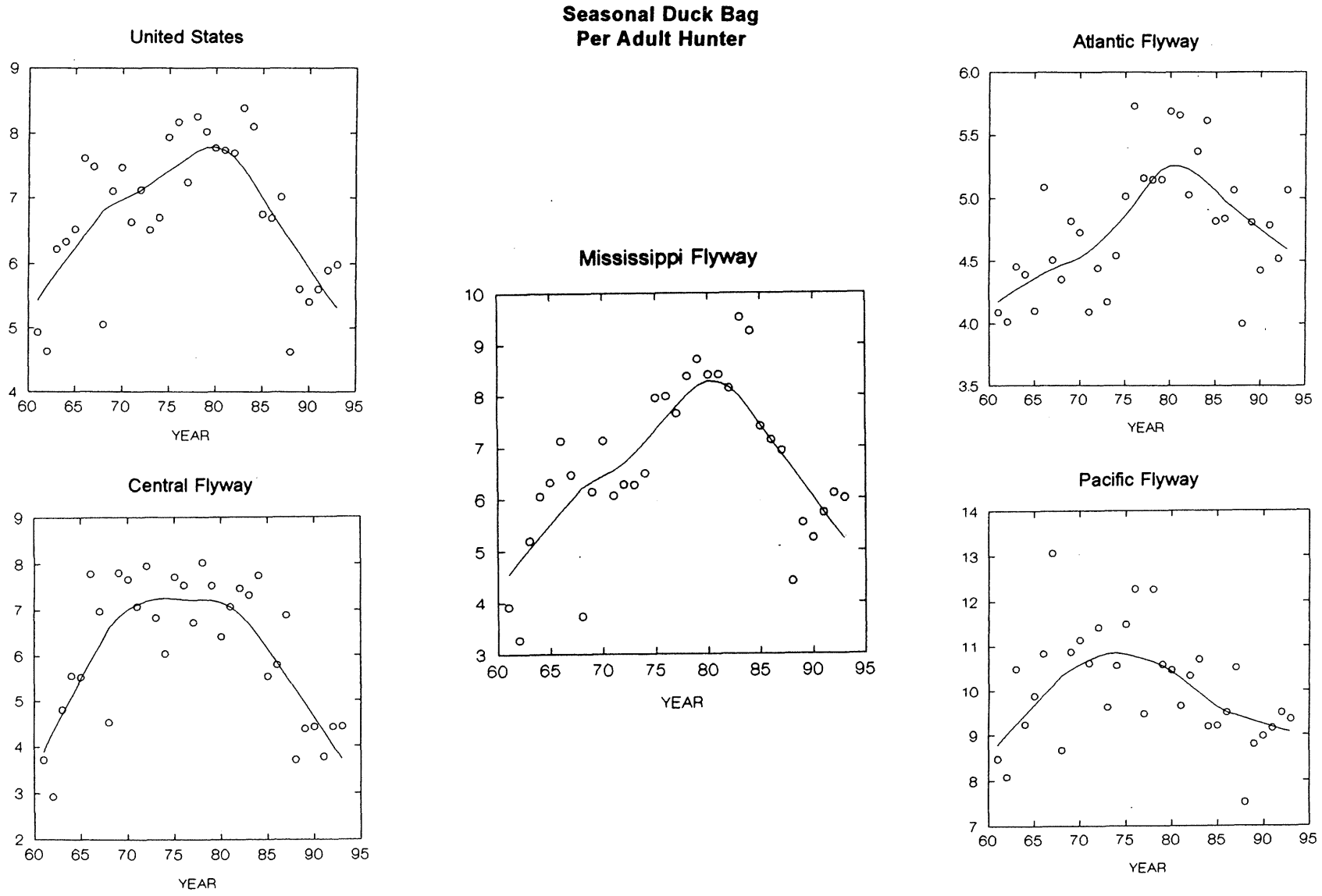


Figure 36. (cont.)

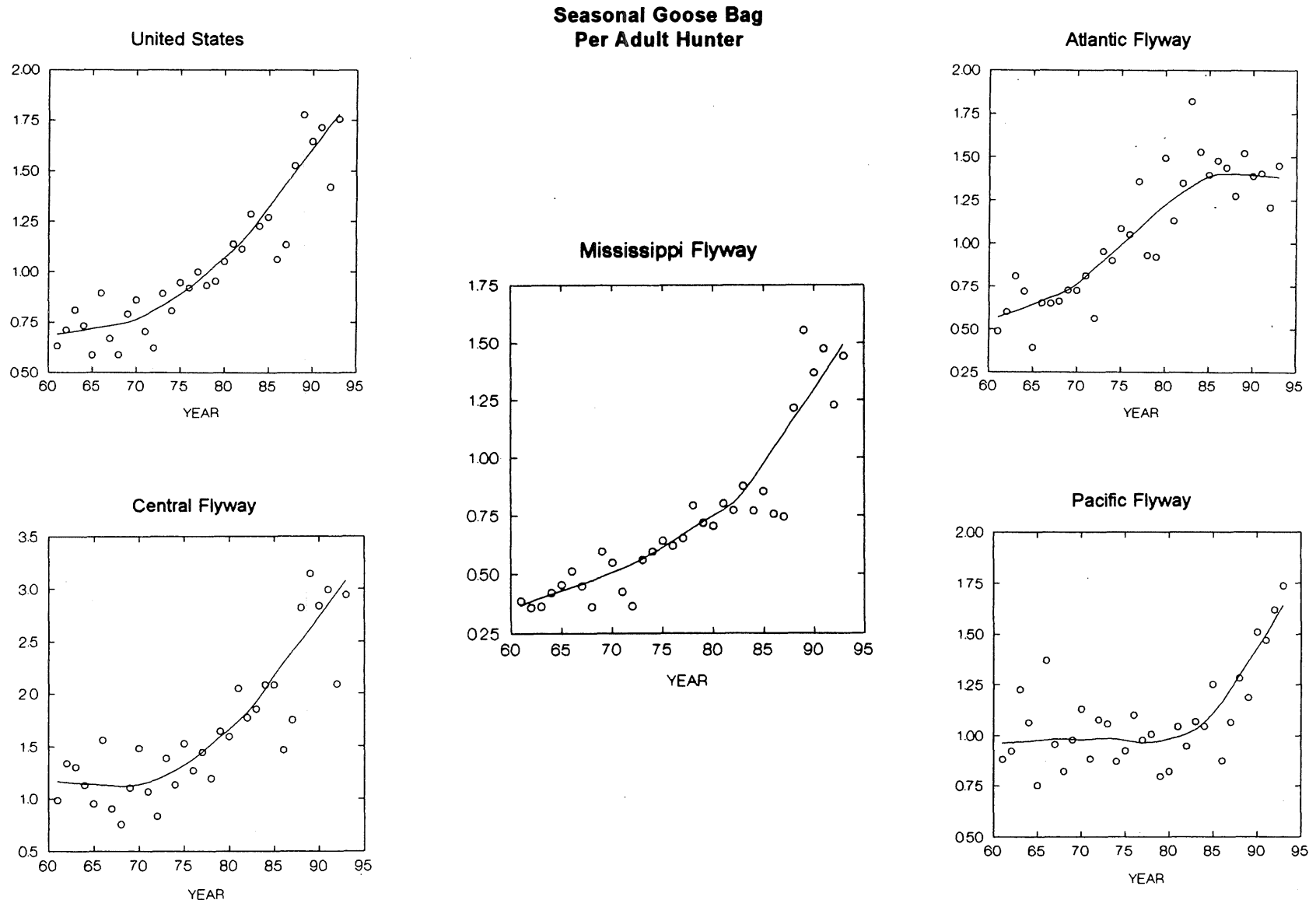


Figure 36. (cont.)

Table 44. Spring turkey hunting summary, 1978-94

Year	Area of open hunt zone (mi^2)	Number of permit applicants	Number of permits available	Odds of drawing a permit[a]	Number of permits given	Number of persons hunting[b]	Registered turkey harvest	% success[c]
1978	389	10,740	420	25.6:1	411	398	94	23.6
1979	673	11,116	840	13.2:1	827	794	116	14.6
1980	858	9,613	1,200	8.0:1	1,191	1,072	98	9.1
1981	1,242	8,398	1,500	5.6:1	1,437	1,292	113	8.7
1982	1,490	7,223	2,000	3.6:1	1,992	1,625	106	6.5
1983	1,807	8,153	2,100	3.9:1	2,079	1,663	116	7.0
1984	2,061	7,123	3,000	2.4:1	2,837	2,270	178	7.8
1985	2,118	5,662	2,750	2.1:1	2,449	1,959	323	16.5
1986	1,897	5,715	2,500	2.3:1	2,251	1,801	333	18.5
1987	1,747	6,361	2,700	2.4:1	2,520	2,016	520	25.8
1988	1,781	8,402	3,000	2.8:1	2,994	2,395	674	28.1
1989	2,341	13,007	4,000	3.3:1	3,821	3,057	930	30.4
1990	3,819	14,326	6,600	2.2:1	6,126	5,513	1,709	31.0
1991	4,300	15,918	9,170	**	8,607	7,747	1,724	22.0
1992[d]	4,381	15,896	9,310	**	9,051	8,146	1,691	21.0
1993	4,921	17,224	9,625	**	9,265	8,339	2,082	25.0
1994	5,881	19,424	9,940	**	9,479	8,531	1,975	23.0

[a] Calculated with total permits available to be given, and not adjusting for undersubscribed zones and time periods.
[b] For 1978-82, based on a post-hunt mail survey. Number actually hunting in 1983-89 was estimated at 80% (from last year survey results were tabulated). Beginning in 1991, number actually hunting was estimated at 90% (from preliminary results of 1991 survey).
[c] Registered turkey harvest divided by number actually hunting, expressed as %.
[d] Legislation allows NON-RESIDENT hunters.
** Computerized preference drawing began spring 1990.

Table 45. Spring Wild Turkey harvest by zone and season, 1994

		ZONE														
		1	2	3	4	5	10	11	12	13	15	20	21	22	30	Total
S	1	46	113	96	31	95	8	7	2	6	1	4	4	4	4	421
E	2	38	91	90	22	83	6	6	3	2	2	1	3	7	3	357
A	3	32	53	81	13	66	2	2	4	1	3	2	3	4	2	268
S	4	15	48	68	17	64	3	4	6	1	0	3	0	1	0	230
O	5	28	48	69	19	50	4	3	5	1	0	3	1	4	1	236
N	6	21	55	71	23	71	2	4	4	1	2	5	2	1	3	265
	7	23	37	50	14	55	1	4	4	3	1	1	2	1	2	198
Total		203	445	525	139	484	26	30	28	15	9	19	15	22	15	1,975

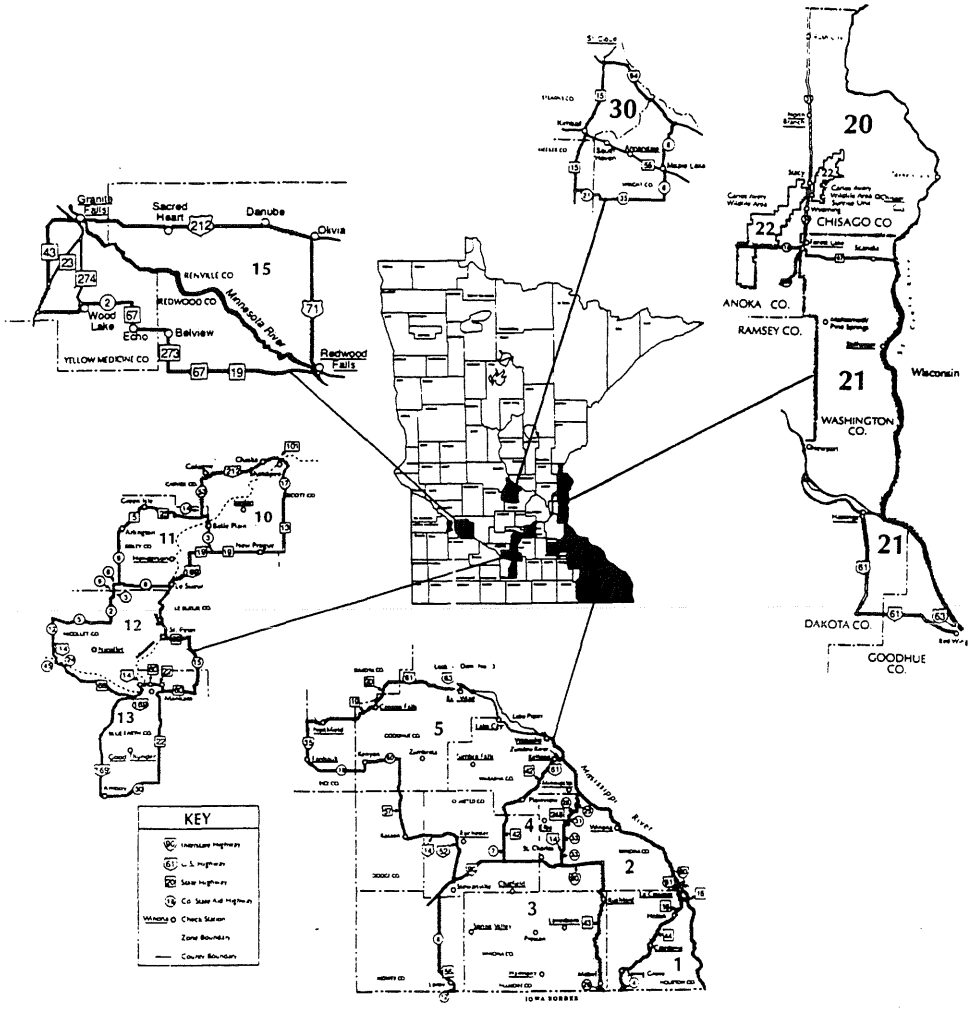


Figure 37. Spring wild turkey hunt zones, 1994.

Table 46. Synopsis of fall wild turkey hunt, Minnesota 1990-1993.

	1990	1991	1992	1993
# of zones	3	4	4	5
# of permits available	1,000	2,200	2,200	2,400
# of permits issued	951	2,020	2,028	2,094
# turkeys registered				
Female - juvenile	85	211	208	184
- adult	91	140	174	196
Male - juvenile	67	121	120	110
- adult	83	80	86	112
Total	326	552	588	602
Hunter success (%)[a]	38%	30%	32%	32%

[a] Based on 90% of permit holders actually hunting (from mail survey).

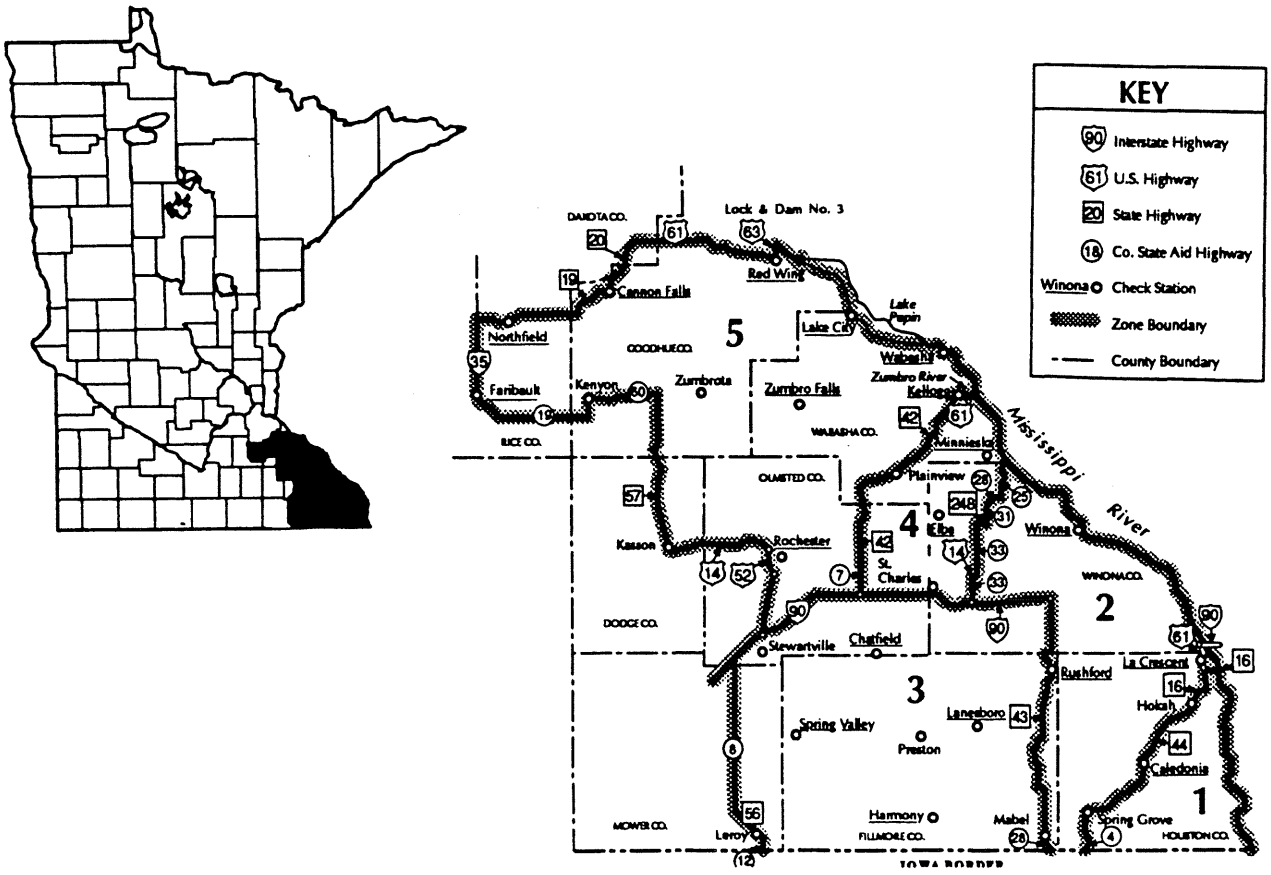


Figure 38. Fall wild turkey hunt zones, 1993.

Table 47. Deer hunting license sales, 1957-94[a].

Year	Firearms License Sales			Archery License Sales			
	Resident	Non-resident	Total	Resident	Non-resident	Total	Grand Total
1957	180,028	488	180,516	10,033	119	10,152	190,668
1958	203,430	552	203,982	10,968	118	11,086	215,068
1959	200,102	530	200,632	11,768	101	11,869	212,501
1960	233,593	621	234,214	11,834	122	11,956	246,170
1961	250,031	632	250,663	13,229	141	13,370	264,033
1962	244,166	676	244,842	11,776	150	11,926	256,768
1963	257,333	771	258,104	11,724	165	11,889	269,993
1964	278,032	1,021	279,053	13,472	193	13,665	292,718
1965	289,918	1,128	291,046	15,628	265	15,893	306,939
1966	284,195	1,287	285,482	17,203	277	17,480	302,962
1967	305,717	1,311	307,028	18,405	289	18,694	325,722
1968	302,216	1,442	303,658	20,188	292	20,480	324,138
1969	253,891	1,168	255,059	15,658	256	15,914	270,973
1970	188,166	334	188,500	12,277	220	12,497	200,997
1971	no firearms season			17,360	111	17,471	17,471
1972	257,998	959	258,957	21,985	326	22,311	281,268
1973	294,349	1,342	295,691	29,169	545	29,714	325,405
1974	296,248	1,747	297,995	30,701	644	31,345	329,340
1975	327,596	1,921	329,517	31,836	804	32,640	362,157
1976	263,868	1,029	264,897	21,773	263	22,036	286,933
1977	287,271	1,430	288,701	29,404	402	29,806	318,507
1978	307,910	1,776	309,686	32,546	476	33,022	342,708
1979	312,754	1,910	314,664	35,657	447	36,104	350,768
1980	344,516	2,378	346,894	41,328	634	41,962	388,856
1981	369,425	2,973	372,398	50,063	906	50,969	423,367
1982	369,018	3,038	372,056	54,084	848	54,932	426,988
1983	391,099	3,611	394,710	55,822	478	56,300	451,010
1984	396,074	4,307	400,381	61,576	583	62,159	462,540
1985[b]	416,474	4,983	421,457	66,687	589	67,276	488,733
1986[b]	413,542	4,476	418,018	68,689	547	69,236	487,254
1987[b]	414,426	4,931	419,357	70,195	604	70,799	490,156
1988[b]	406,727	5,623	412,350	68,196	716	68,912	481,262
1989[b]	406,234	6,137	412,371	68,217	714	68,931	481,302
1990[b]	418,284	6,455	424,739	68,457	742	69,199	493,938
1991[b]	432,686	6,861	439,547	74,576	800	75,376	514,923
1992[b]	488,887	8,145	497,032	86,274	935	87,209	584,241
1993[b]	464,022	8,580	472,602	86,036	1,170	87,206	559,808

[a] Duplicate licenses not included. Leech Lake licenses are included during years they were issued.

[b] Numbers include the following bonus deer licenses:

Year	1987	1988	1989	1990	1991	1992	1993
Resident firearms (regular quota areas)	2,044	721	436	4,375	7,280	40,303	20,021
Resident firearms (state parks)	254	107	325	620	927	168	55
Non-resident firearms (regular quota area)	1	1	-	1	7	112	59
Resident archery	-	-	-	-	3,418[c]	14,328	15,983
Resident archery (metro)	1,380	1,013	1,223	1,412	-	-	-
Resident archery (orchard zone)[d]	-	-	-	-	-	-	-
Non-Resident archery (regular quota area)	-	-	-	-	-	21	28
Totals	3,733	1,842	1,984	6,408	11,632	54,932	36,146

[c] For 1991 the metro resident archery bonus permit was abolished. Archery bonus permits are now classified as Resident archery and not broken down by State Parks or Orchard zone.

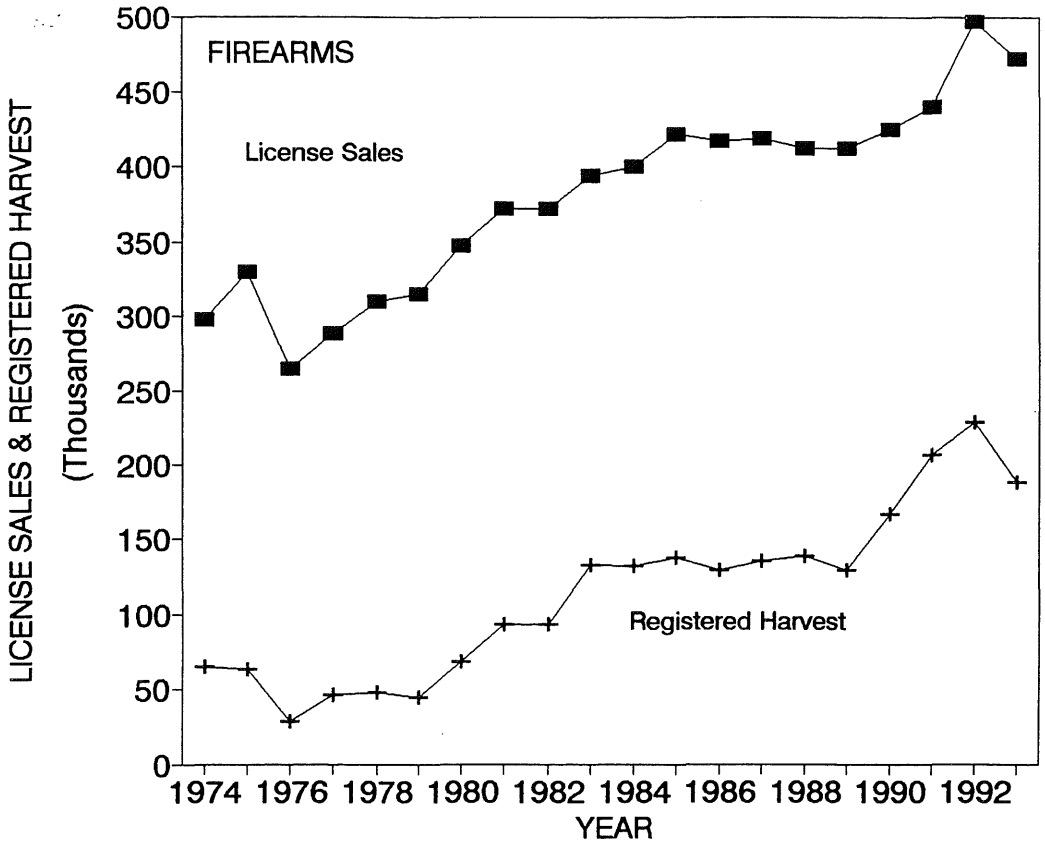
[d] Orchard zone archery bonus permits were only issued in 1987.

Table 48. Registered deer harvest and hunter success rates, 1974-93.

	Registered Harvest				Percent Success	
	Regular firearms	Archery	Special Muzzleloader season[a]	Total	Regular firearms and special muzzleloader seasons	Archery
1974	64,997	2,176	-	67,173	21.8	6.9
1975	63,604	2,265	-	65,869	19.3	6.9
1976	28,613	1,167	-	29,780	10.8	5.3
1977	45,918	2,609	32	48,559	15.9	8.8
1978	47,372	2,608	346	50,326	15.4	7.9
1979	44,340	2,577	318	47,235	14.2	7.1
1980	68,539	3,641	294	72,474	19.8	8.7
1981	93,027	5,535	385	98,947	25.1	10.9
1982	93,045	5,566	441	99,052	25.1	10.1
1983	132,457	5,977	652	139,086	33.6	10.6
1984	132,042	6,390	532	138,941	33.0	10.3
1985	138,065	7,575	563	146,203	33.4	11.3
1986	129,770	7,610	593	137,923	31.2	11.1
1987	135,003	7,535	535	143,073	32.4	10.9
1988	138,946	8,262	686	148,394	33.6	12.0
1989	129,551	9,307	622	139,480	31.4	13.5
1990	166,589	11,106	730	178,425	39.4	16.1
1991	206,275	12,964	961	220,200	46.9	17.5
1992	229,236	13,004	828	243,068	46.1	14.9
1993	188,109	13,722	1,097	202,928	40.0	16.1

[a] No special muzzleloader seasons were held before 1977.

a)



b)

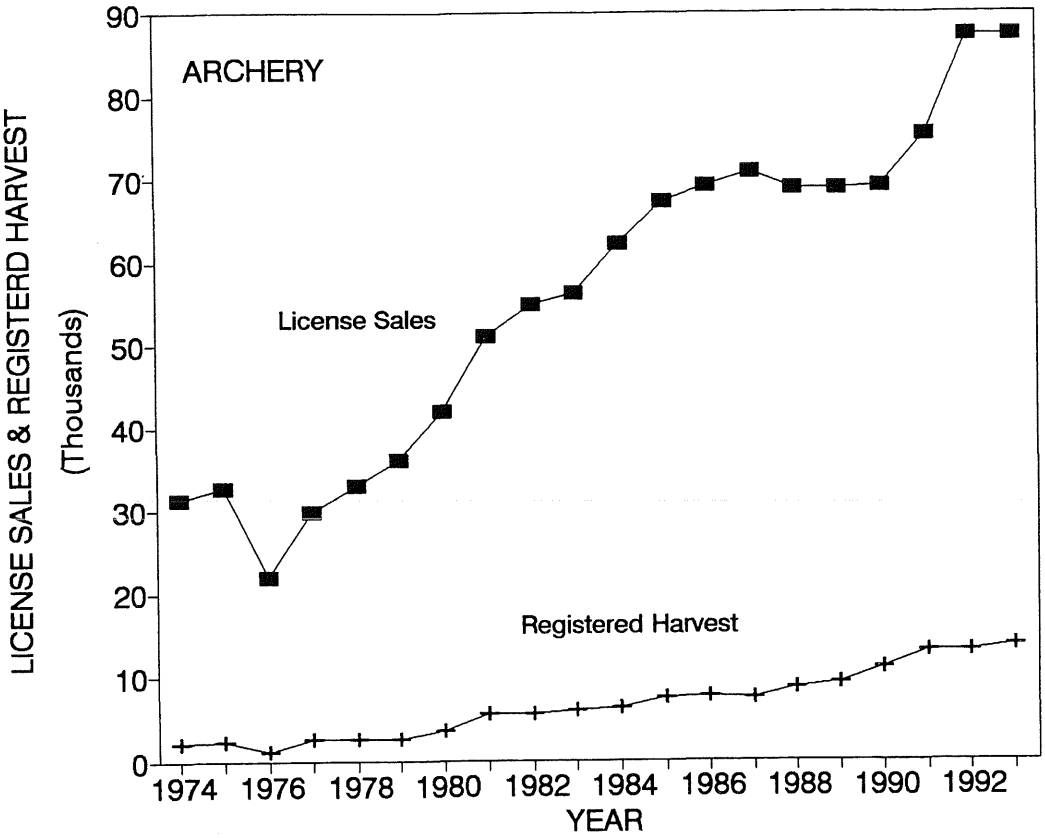


Figure 39. Numbers of Minnesota deer hunting licenses sold and registered harvest by (a) firearm and (b) archery hunters, 1974-93.

Table 49. White-tailed deer harvest and hunter success rates by DMU and Sub-DMU, 1993[a].

Unit	Permits Issued	Antlerless Registered	Permit Success	Bucks Registered	Total Reg. Kill
Red River West	1,090	638	58.5%	699	1,337
Red River East	6,942	4,310	62.1%	3,063	7,373
RED RIVER Total	8,032	4,948	61.6%	3,762	8,710
AGASSIZ Total	12,462	6,174	49.5%	5,414	10,688
Rainy River West	1,300	902	69.4%	1,793	2,695
Rainy River Central	2,874	1,350	46.9%	1,597	2,947
Rainy River East	4,000	1,485	37.1%	1,656	3,141
RAINY RIVER Total	8,174	3,737	45.7%	5,046	8,783
Superior West	4,000	1,275	31.9%	1,403	2,678
Superior Wilderness	0	4	.0%	146	150
Superior Central	2,000	725	36.3%	680	1,405
Grand Portage I.R.	0	0	.0%	4	4
Superior East	650	245	37.7%	423	668
SUPERIOR Total	6,650	2,249	33.8%	2,656	4,905
Itasca NW	9,000	4,117	45.7%	2,784	6,901
Itasca SW	8,000	4,777	59.7%	3,788	8,565
Itasca NE	4,500	2,167	48.2%	2,926	5,093
Itasca SE	6,000	2,907	48.5%	2,844	5,751
Leech Lake Ind. Res.	1,000	490	49.0%	881	1,371
Bemidji	8,500	4,346	51.1%	3,728	8,074
ITASCA Total	37,000	18,804	50.8%	16,951	35,755
Mille Lacs West	6,737	3,542	52.6%	2,781	6,323
Mille Lacs Central	13,136	6,619	50.4%	3,411	10,030
Mille Lacs East	12,100	5,611	46.4%	3,619	9,230
White Earth Ind. Res.	500	336	67.2%	817	1,153
MILLE LACS Total	32,473	16,108	49.6%	10,628	26,736
Big Woods North	36,573	20,802	56.9%	11,316	32,118
Big Woods Central	12,221	6,009	49.2%	3,004	9,013
Big Woods Metro N	5,674	2,131	37.5%	1,725	3,856
Big Woods Metro S	2,736	983	35.9%	996	1,979
Big Woods SE	16,447	9,210	56.0%	6,663	15,873
BIG WOODS Total	73,651	39,135	53.1%	23,704	62,839
Prairie North	8,352	4,910	58.9%	3,380	8,290
Prairie River	5,754	3,778	65.6%	2,602	6,380
Prairie Southwest	7,783	5,154	66.2%	3,715	8,869
Prairie Southeast	5,213	2,626	50.4%	1,981	4,607
PRAIRIE Total	27,102	16,468	60.8%	11,678	28,146
Special Hunts	2,572	1,158	45.0%	213	1,371
Unknown	7,119	18	0.3%	20	38
Total	215,235	108,799	50.5%	80,072	187,971

[a] Includes deer tagged with regular, multi-zone buck, and management permit licenses.

Table 50. Archery deer harvest by Sub-DMU and kill block, 1991-93.

Sub-DMU	Kill Block	1991	1992	1993
Red River West	401	88	95	79
	402	59	105	131
Red River East	403	46	37	55
	404	44	49	78
	405	27	38	27
	406	28	24	37
	407	67	140	145
	408	21	20	62
Aggasiz	201	21	15	17
	202	18	16	7
	203	9	9	3
	204	53	42	29
	205	72	77	113
	206	60	56	32
	207	15	18	11
	208	21	24	22
	209	28	44	57
	210	10	12	37
Rainy River West	211	76	43	67
	212	13	6	11
	213	0	1	0
	214	4	1	9
Rainy River Central	104	6	5	6
	105	5	2	2
	106	22	20	19
	110	20	10	19
Rainy River East	107	24	13	9
	108	19	10	17
	109	1	2	2
	195	0	0	0
Superior West	119	5	6	5
	120	12	4	8
	121	11	3	3
Superior Wilderness	115	0	1	1
	116	1	2	1
	117	2	3	3
	118	0	1	0
Superior Central	122	14	8	9
	123	2	2	1
	124	5	5	4
	125	25	27	13
Grand Portage I.R.	194	0	0	0
Superior East	126	28	14	16
	127	2	1	2
	128	23	10	6
	129	7	1	2
	130	1	1	2
Itasca North West	167	15	9	12
	168	57	20	31
	169	68	36	44

Table 50 (con't.)

Sub-DMU	Kill Block	1991	1992	1993
Itasca North East	175	23	19	28
	176	12	22	15
	177	16	8	13
	178	15	13	10
	179	30	17	20
Itasca South East	180	73	65	46
	181	34	12	24
	182	32	13	21
	183	48	22	28
	184	19	7	5
	199	4	5	5
Leech Lake I.R.	197	17	8	7
	198	6	5	5
Bemidji	284	106	129	61
	285	13	19	18
	286	111	146	136
	287	5	0	7
Mille Lacs West	244	78	123	102
	245	85	76	56
	251	4	2	11
Mille Lacs Central	246	168	244	120
	247	236	165	193
	248	74	92	55
	249	98	135	54
White Earth I.R.	297	5	8	5
	298	5	2	10
Big Woods North	409	112	158	159
	410	120	132	269
	411	136	127	231
	412	139	173	287
	413	165	179	165
	414	107	98	112
	415	230	199	216
	416	106	86	84
	417	268	259	245
	418	287	318	214
	419	254	479	132
Big Woods Central	221	116	79	83
	222	64	31	100
	223	187	128	218
	224	22	13	16
	225	276	356	151
	226	235	339	259
Big Woods Metro North	227	297	280	381
	235	94	52	35
	236	608	639	626
Big Woods Metro South	337	299	405	1,223
	338	394	368	195
	339	308	335	155

Table 50 (con't.)

Sub-DMU	Kill Block	1991	1992	1993
Prairie North	420	106	164	160
	421	60	105	108
	422	35	76	65
	423	22	22	49
	424	53	47	57
	425	40	130	41
	426	42	43	48
	427	98	87	53
	428	142	83	88
Prairie River	431	45	53	47
	433	195	147	171
	435	109	93	86
	440	113	109	113
	442	238	198	205
	443	92	68	82
Prairie Southwest	446	33	26	29
	447	64	58	48
	448	44	49	42
	449	128	113	92
	450	40	25	26
	451	105	73	76
	452	50	72	97
	453	50	42	46
	454	130	117	130
	455	30	20	19
	456	125	147	79
	457	66	79	61
	458	77	68	53
	459	107	96	71
Prairie Southeast	461	92	118	86
	462	116	130	127
	463	50	55	43
	464	60	59	57
	465	91	86	82
	466	120	118	122
	467	126	113	129
Unknown	UNK	128	124	8
Camp Ripley		219	158	287
TOTAL		12,964	12,999	13,722

STATE OF MINNESOTA
OFFICE MEMORANDUM

MEMO TO: Whom it may concern

FROM: Margaret Dexter MD

RE: Status of Wildlife Populations, Fall 1994, and 1982-1993 Hunting and Trapping Harvest Statistics book error correction

DATE: November 1, 1994

The Big Woods Southeast Deer Management Unit was unintentionally left off from "Table 50. Archery harvest by Sub-DMU and kill block, 1991-93." on page 106. Please paste this corrected portion of the table into your book. Sorry for the oversight and the inconvenience. Thanks.

Revised pg 106

Table 50 (con't.)

Sub-DMU	Kill Block	1991	1992	1993
Big Woods Southeast	341	114	117	196
	342	68	58	118
	343	233	350	281
	344	124	131	99
	345	88	92	148
	346	177	221	197
	347	68	129	141
	348	79	137	153
	349	101	89	129
Prairie North	420	106	164	160
	421	60	105	108
	422	35	76	65
	423	22	22	49
	424	53	47	57
	425	40	130	41
	426	42	43	48
	427	98	87	53
	428	142	83	88
Prairie River	431	45	53	47
	433	195	147	171
	435	109	93	86
	440	113	109	113
	442	238	198	205
	443	92	68	82
Prairie Southwest	446	33	26	29
	447	64	58	48
	448	44	49	42
	449	128	113	92
	450	40	25	26
	451	105	73	76
	452	50	72	97
	453	50	42	46
	454	130	117	130
	455	30	20	19
	456	125	147	79
	457	66	79	61
	458	77	68	53
	459	107	96	71
Prairie Southeast	461	92	118	86
	462	116	130	127
	463	50	55	43
	464	60	59	57
	465	91	86	82
	466	120	118	122
	467	126	113	129
Unknown	UNK	128	124	8
Camp Ripley		219	158	287
TOTAL		12,964	12,999	13,722

Table 51. Special Muzzleloader Season harvest by block, 1993. (Includes Special Permit Areas)

Block Number	Adult		Fawns		Total
	Male	Female	Male	Female	
110	0	1	0	0	1
152	0	8	2	1	11
157	0	1	3	1	5
159	2	1	1	0	4
169	0	2	3	2	7
171	1	0	0	0	1
173	0	1	0	1	2
180	1	0	1	0	2
182	0	2	0	0	2
184	0	1	0	0	1
201	3	3	0	0	6
202	6	4	2	4	16
204	7	7	1	0	15
205	14	9	1	2	26
206	18	15	8	0	41
207	3	1	0	0	4
208	2	0	0	0	2
211	13	23	8	2	46
212	1	1	1	2	5
223	1	1	0	1	3
225	3	9	1	2	15
226	1	1	2	3	7
235	3	7	5	6	21
236	1	0	1	0	2
245	8	14	3	2	27
246	2	2	2	1	7
286	0	1	0	0	1
338	1	0	0	0	1
339	1	0	0	0	1
341	1	2	2	0	5
342	1	8	7	5	21
344	6	41	15	15	77
345	0	0	1	0	1
347	0	3	0	0	3
348	1	3	2	0	6
401	1	1	0	0	2
407	1	5	0	3	9
409	0	0	1	0	0
412	0	0	2	2	4
414	1	0	0	1	2
415	1	2	0	0	3
416	0	0	0	1	1
417	0	28	9	14	51
420	0	2	2	2	6
421	2	2	2	0	6
424	4	5	4	2	15
427	0	1	0	1	2
428	0	0	1	0	1

Table 51. (Cont.)

Block Number	Adult		Fawns		Total
	Male	Female	Male	Female	
431	13	34	11	6	64
433	28	110	43	29	210
435	4	19	12	10	45
440	5	8	1	4	18
442	5	19	7	4	35
443	1	2	1	0	4
446	3	7	1	2	13
447	0	2	0	0	2
448	0	0	1	0	1
449	0	1	1	2	4
451	0	1	1	3	5
454	1	11	5	6	23
455	3	3	3	3	12
456	1	2	1	0	4
458	2	2	1	1	6
459	0	6	5	4	15
461	0	11	3	3	17
462	1	32	18	10	61
464	1	1	1	0	3
465	1	13	4	5	23
467	0	15	12	7	34
Total	180	517	225	175	1,097

Table 52. Muzzleloader Special Permit Area Data, 1993.

Area	Dates	Permits Issued		Harvest				Total
		Regular	Bonus	Adult male	Fawn male	Adult Female	Fawn Female	
Carlos Avery WMA (Sanctuary)	11/27-12/03 11/04-12/12	15 15	0 0	No Estimate No Estimate				
Garvin County Park	11/27-12/12	20[a]	0	0	1	1	1	3
Lake Louise State Park	11/27-11/28	26[a]	9	0	12	15	7	34
Lake Shetek State Park	11/27-11/30	33a	0	0	5	10	5	20
Nerstrand Woods State Park	11/27-11/29 12/04-12/05	89[a,b]	7	1	18	32	10	61
Rice Lake State Park	11/27-11/30	15[a]	2	0	4	11	4	19
Sakatah State Park	11/27-11/29	20[a]	3	0	3	9	3	15
Sibley State Park	11/27-11/30	72[a]	0	0	9	28	14	51
Upper Sioux Agency State Park	11/27-11/28 12/04-12/05	26[a] 25[a]	9 9	0 0	4 3	7 5	4 3	18 11

a Antlerless-only permits
b Fifty permits were issued for the first hunt period, and an additional 25 permits were issued for the second hunt period.

Table 53. Black bear registered harvest and hunter success, 1990-1993.

Quota Area	Harvest (success rate)			
	1990	1991	1992	1993
12	79 (29%)	93 (32%)	109 (36%)	90 (27%)
13	95 (37%)	93 (34%)	111 (36%)	98 (32%)
22	29 (13%)	39 (18%)	40 (21%)	26 (13%)
24	137 (30%)	155 (34%)	253 (45%)	199 (32%)
25	167 (32%)	237 (37%)	331 (47%)	248 (33%)
26	252 (40%)	337 (38%)	328 (40%)	330 (39%)
31	323 (38%)	377 (39%)	554 (55%)	342 (34%)
41	101 (39%)	74 (23%)	95 (28%)	85 (28%)
43	348 (34%)	234 (24%)	436 (36%)	539 (37%)
51	433 (39%)	247 (20%)	521 (37%)	585 (35%)
No Quota	417 (28%)	257 (19%)	397 (27%)	435 (29%)
Total	2,381 (37%)	2,143 (30%)	3,175 (41%)	2,977 (35%)

Table 54. Minnesota bear permits, licenses, hunters, harvests, and success rates during 1983-93.

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Permit applications	13,617	17,886	22,954	20,694	19,687	25,879	24,096	24,861	25,890	26,428	27,365
Permits available	3,550	3,880	4,290	4,730	4,810	5,310	5,520	6,370	7,140	7,920	8,630
Licenses purchased:											
Quota area	3,471	3,489	3,948	4,188	4,213	4,297	4,628	5,568	6,257	6,845	7,528
No-quota area	--	--	--	--	1,789	1,297	1,145	1,472	1,384	1,460	1,508
% Permit-holders buying license	97.8	89.9	92.0	88.5	87.6	80.9	83.8	87.4	87.6	86.4	87.2
Estimated number of hunters	3,100	3,100	3,700	3,900	5,500	5,100	5,400	6,500	7,100[b]	7,700[b]	8,400[b]
Harvest	1,038	919	1,340	1,438	1,577	1,509	1,930	2,381	2,143	3,175	2,976
% Success rate[c]	33	30	36	37	29	30	36	37	30	41	35

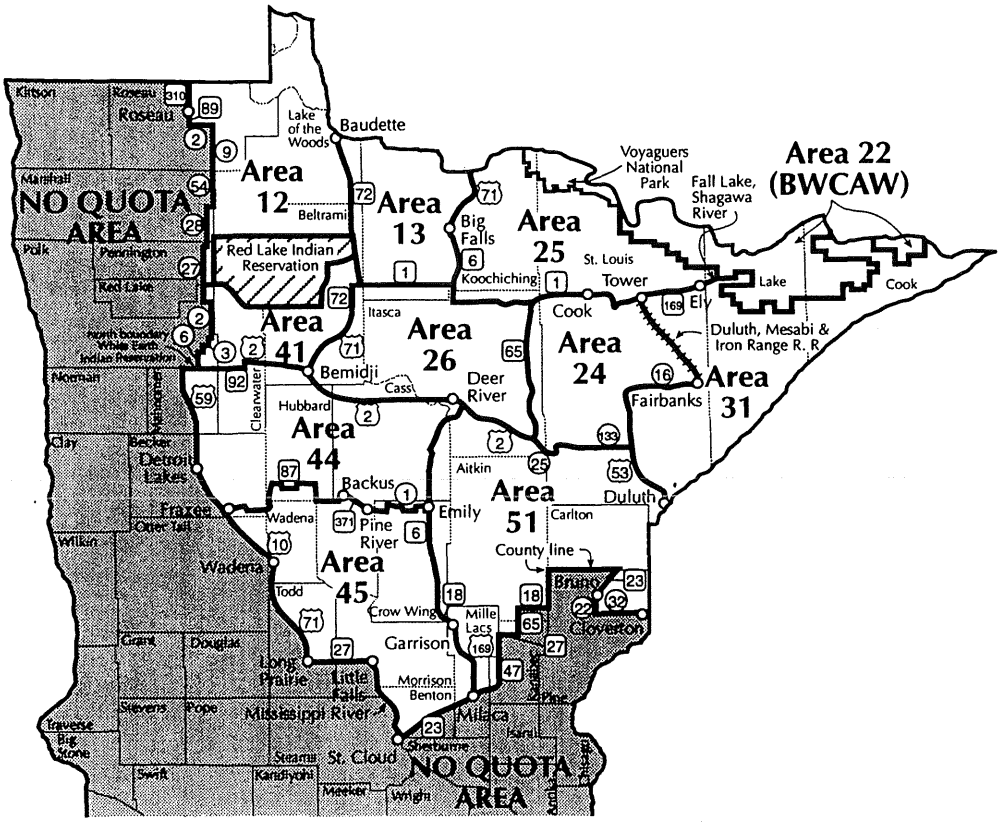
[a] License sales not limited by permit in 1981.

[b] In 1991thru 1993 No-quota hunters were not surveyed, so the percent of license-holders hunting in the qutoa areas was used to calculate the total number of hunters. Total number of people hunting was based on a three year average of survey data indicating that 93% of license holders hunt.

[c] Based on harvest divided by the estimated number of people hunting.

Table 55. Success rates of Minnesota bear hunters as measured by registered harvest/licenses sold, 1989-93.

Area	1989	1990	1991	1992	1993
12	31	29	32	36	27
13	46	37	34	36	32
22	16	13	18	21	13
24	32	30	34	45	32
25	33	32	39	47	33
26	47	40	38	40	39
31	38	38	39	55	34
41	28	39	23	28	28
43	39	34	24	36	37
51	35	39	20	37	35
No Quota Areas	-	28	19	27	29



No Quota Area extends south to the Iowa border

Figure 40. Black bear permit areas, 1993.

Table 56. Moose hunt quota and harvest statistics, 1971-93.

Year	Area	Number of 4-person licenses issued	Number of 4-person license applications	Chances for permit	Harvest	Party success (%)	Sex of Moose	
							Male	Female
1971	NW NE	250 150	9,264	1:23	240 134	96 89	159 (66%) 87 (65%)	81 (34%) 47 (35%)
1973	NW NE	335 185	13,560	1:26	306 159	91 86	213 (76%) 131 (83%)	91 (24%) 24 (13%)
1975	NW NE	475 275	15,792	1:20	449 227	94 82	259 (58%) 147 (65%)	188 (42%) 80 (35%)
1977	NW NE	630 300	16,586	1:18	598 243	95 81	348 (58%) 172 (71%)	250 (42%) 71 (29%)
1979	NW NE	395 290	19,023	1:28	330 236	83 81	196 (59%) 158 (67%)	134 (41%) 78(33%)
1981	NW NE	505 375	20,521	1:23	455 309	90 82	283 (62%) 218 (71%)	172 (38%) 91(29%)
1983	NW NE	780 523	17,754	1:14	737 442	94 84	493 (67%) 273 (62%)	244 (33%) 169 (38%)
1985	NW NE	768 300	14,772	1:14	718 250	93 83	419 (58%) 165 (66%)	299(42%) 85 (34%)
1987	NW NE	772 528	14,234	1:11	727 436	94 83	505 (69%) 292 (67%)	222 (31%) 144 (33%)
1989	NW NE	449 545	15,381	1:15	438 444	98 81	291 (66%) 285 (64%)	147 (34%) 159 (36%)
1991	NW NE	365 0	5,665	1:16	359 -	98 -	258 (72%)	101 (28%)
1993	NW NE	446 315	9,925	1:13	419 264	94 84	317 (76%) 200 (76%)	102 (24%) 64 (24%)

TRAPPING HARVEST STATISTICS
Section of Wildlife
Box 7, 500 Lafayette Rd.
St. Paul, MN 55155
(612) 296-3344

Table 57. Trapper response to mail surveys, 1979-80 through 1993-94.

Year	Number mailed	Number not delivered	Delivered questionnaires completed and returned	
			Number	Percent
1979-80	1,011	29	888	90.4
1980-81	1,345	110	1,072	86.8
1981-82	1,345	36	1,167	89.2
1982-83	925	28	794	88.5
1983-84	770	10	663	87.2
1984-85	556	9	495	90.5
1985-86	581	13	506	89.1
1986-87	582	8	514	89.5
1987-88	721	11	607	85.5
1988-89	852	25	727	87.9
1989-90	3,302	120	2,804	88.1
1990-91	2,294	102	1,875	85.5
1991-92	2,643	149	2,062	82.7
1992-93	2,080	76	1,681	83.9
1993-94	2,828	100	2,194	80.4

Table 58. Use of trapper licenses, 1981-82 through 1993-94.

		Return from mail survey	Projections from license sales
1981-82	Trapped	972 (83.3%)	19,725
	Did not trap	195 (16.7%)	3,954
		1,167 (100.0%)	23,679
1982-83	Trapped	688 (86.6%)	17,526
	Did not trap	106 (13.4%)	2,700
		794 (100.0%)	20,226
1983-84	Trapped	549 (82.8%)	13,862
	Did not trap	114 (17.2%)	2,879
		663 (100.0%)	16,741
1984-85	Trapped	445 (89.9%)	15,136
	Did not trap	50 (10.1%)	1,700
		495 (100.0%)	16,836
1985-86	Trapped	420 (83.0%)	12,201
	Did not trap	86 (17.0%)	2,498
		506 (100.0%)	14,699
1986-87	Trapped	442 (86.0%)	13,240
	Did not trap	72 (14.0%)	2,155
		514 (100.0%)	15,395
1987-88	Trapped	512 (84.6%)	15,777
	Did not trap	93 (15.4%)	2,866
		605 (100.0%)	18,643
1988-89	Trapped	582 (80.1%)	9,789
	Did not trap	145 (19.9%)	2,432
		727 (100.0%)	12,221
1989-90	Trapped	2,251 (80.3%)	7,314
	Did not trap	553 (19.7%)	1,794
		2,804 (100.0%)	9,108
1990-91	Trapped	1,399 (80.6%)	4,972
	Did not trap	337 (19.4%)	1,197
		1,736 (100.0%)	6,169[a]
1991-92	Trapped	1,639 (79.5%)	4,150
	Did not trap	423 (20.5%)	1,070
		2,062 (100.0%)	5,220[a]
1992-93	Trapped	1,438 (85.5%)	4,927
	Did not trap	243 (14.5%)	836
		1,681 (100.0%)	5,763[a]
1993-94	Trapped	1,904 (85.5%)	4,862
	Did not trap	290 (13.2%)	739
		2,194 (100.0%)	5,601[a]

[a] excludes duplicates.

Table 59. Estimated number of trappers of various furbearers, 1983-84 through 1993-94.

	Estimated number of trappers (thousands)										
	1983 -84	1984 -85	1985 -86	1986 -87	1987 -88	1988 -89	1989 -90	1990 -91	1991 -92	1992 -93	1993 -94
Muskrat	11	13	9	11	15	7	4	2	2	3	3
Mink	8	9	8	9	13	7	5	3	2	3	3
Short-tailed weasel	<1	1	<1	1	1	1	<1	<1	<1	<1	<1
Long-tailed weasel	<1	1	<1	1	2	1	1	<1	<1	<1	<1
Raccoon	9	9	8	8	11	6	4	2	2	2	3
Striped skunk	4	5	4	4	5	3	2	1	1	1	1
Eastern spotted skunk	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Badger	1	1	1	1	1	1	<1	<1	<1	<1	<1
Opossum	<1	<1	1	1	2	1	1	1	1	1	1
Red fox	6	6	5	5	6	4	2	2	2	2	2
Gray fox	2	2	2	2	2	1	1	<1	<1	<1	<1
Coyote	2	2	1	2	2	1	1	1	1	1	1
Beaver (fall)	4	5	4	6	8	4	3	2	2	2	2
Beaver (spring)	4	3	4	4	4	2	2	1	1	1	1

Table 60. Estimated take per trapper of various furbearers, 1983-84 through 1993-94.

	Estimated take per trapper reporting that species										
	1983 -84	1984 -85	1985 -86	1986 -87	1987 -88	1988 -89	1989 -90	1990 -91	1991 -92	1992 -93	1993 -94
Muskrat	75.8	75.1	51.8	72.9	68.7	28.3	26.5	24.3	20.3	35.9	64.1
Mink	6.8	8.0	7.6	8.7	8.5	8.9	8.8	9.5	8.3	11.6	12.2
Short-tailed weasel	4.6	3.5	2.6	4.2	4.7	4.2	4.6	3.2	4.3	4.9	6.1
Long-tailed weasel	4.0	2.1	2.0	5.2	4.4	5.0	4.6	2.8	5.2	3.6	3.6
Raccoon	7.8	8.3	11.3	11.4	11.9	12.8	11.6	15.8	14.2	16.1	4.8
Striped skunk	8.5	9.4	10.3	10.2	10.2	10.1	9.5	11.8	9.0	8.2	8.7
Eastern spotted skunk	2.5	1.4	2.5	2.5	1.8	2.0	4.8	7.3	2.7	1.6	5.6
Badger	2.1	1.6	2.1	1.7	1.9	2.0	1.8	2.4	2.2	1.8	1.8
Opossum	3.1	2.8	8.7	13.8	6.7	8.2	8.6	10.7	9.1	10.0	8.4
Red fox	6.9	9.2	6.1	7.5	8.7	13.3	10.1	18.3	13.7	10.8	11.3
Gray fox	2.5	2.9	3.5	2.9	2.6	4.1	3.1	3.0	2.0	3.5	3.1
Coyote	4.8	5.3	4.5	3.8	3.3	3.7	4.3	3.4	3.8	4.7	4.7
Beaver (fall	7.3	10.0	9.8	11.5	16.3	11.2	14.6	13.2	15.1	12.5	16.1
Beaver (spring)	25.4	30.3	21.7	21.7	22.7	14.1	19.9	18.8	26.7	28.7	28.9

Table 61. Minnesota trapper license sales and estimated annual harvest, 1983-84 through 1993-94.[a]

	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94
Trapper license sales[b]	16,741	16,836	14,699	15,395	18,643	12,221	9,108	6,163	5,220	5,763	5,763
Estimated harvest[c] (thousands)											
Muskrat	865	963	477	826	1,007	185	118	55	45	92	202
Mink	58	75	57	77	110	59	40	25	21	32	33
Short-tailed weasel	2	3	1[d]	3	7	3	2	1	1	1	2
Long-tailed weasel	1	1	1	3	7	3	2	1	1	1	1
Raccoon	69	78	89	95	134	74	41	34	31	34	56
Striped skunk	36	47	41	42	54	31	17	15	10	7	9
Eastern spotted skunk	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Badger	2	2	2	2	3	2	1	1	1	1	1
Opossum	2	1	7	14	10	9	6	6	5	6	5
Red fox	42	58	29	40	57	53	25	33	25	23	22
Gray fox	5	5	6	6	5	5	2	1	1	1	1
Coyote	9	10	7	7	7	3	4	3	3	4	4
Beaver (fall season)	30	51	43	71	132	47	48	24	25	22	29
Beaver (spring season)	101	103	92	101	26	-	31	20	26	34	32
Registered harvest											
Otter	408	529	559	777	1,386	922	1,294	88	855	1,368	1,459
Lynx[e]	9	closed	closed	closed	closed	closed	closed	closed	closed	closed	closed
Bobcat[e]	208	280	119	160	214	140	129	84	106	168	201
Fisher	631	1,289	678	1,068	1,642	1,025	1,243	746	528	778	1,159
Marten	closed	closed	430	798	1,363	2,072	2,119	1,349	656	1,602	1,438

[a] Includes data for all seasons from October through April of years indicated.

[b] Separate licenses were issued for juveniles (13-17 years old) and adults (18 and older), beginning in 1982. As of August 1, 1994, 5,601 trapping licenses were sold in 1993, 662 (11.8%) were juvenile licenses and 4,939 (88.2%) were adult licenses. Duplicate licenses excluded.

[c] Based upon trappers' responses to mail surveys.

[d] 1 is any number which rounds to 1.
<1 is any number which is <0.5.

[e] Registered harvest for lynx and bobcat includes animals taken by hunting.

Table 62. Average price per pelt paid to hunters and trappers in Minnesota, 1979-80 through 1993-94.

Species	Average pelt prices paid hunters and trappers in Minnesota (dollars)														
	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94
Muskrat	5.90	5.62	3.47	2.19	2.24	2.81	1.85	2.89	3.12	2.07	0.80	0.75	1.55	1.35	1.35
Mink (male)	42.83	37.55	34.35	24.43	30.33	28.40	25.29	35.75	40.54	39.76	30.38	23.06	27.30	24.74	21.89
Mink (female)	18.61	16.04	17.22	10.63	14.55	14.04	13.37	18.43	20.25	22.70	17.26	14.73	17.36	15.02	12.18
S.T. Weasel	0.56	0.64	0.59	0.56	0.56	0.77	0.98	0.98	0.89	1.11	1.20	1.55	0.77	1.31	1.72
L.T. Weasel	0.94	0.84	0.96	0.80	0.93	1.10	1.06	1.28	1.02	1.04	1.25	0.58	1.21	1.06	1.05
Raccoon	36.42	27.44	32.35	17.95	12.66	19.91	15.51	21.81	16.67	7.53	4.88	4.19	8.57	7.29	8.26
Striped Skunk	4.14	4.74	3.46	2.58	2.77	2.74	1.58	2.06	2.47	1.90	1.31	1.84	1.47	2.69	3.70
Eastern Spotted Skunk	3.48	6.06	2.58	1.75	N.A.	3.00	6.17	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Badger	24.02	18.39	18.14	9.04	10.96	9.18	6.45	5.43	5.74	2.99	2.91	4.33	3.51	4.20	4.62
Opossum	2.12	2.52	1.58	0.87	0.71	1.14	0.62	0.97	0.91	0.62	0.76	3.51	0.96	0.78	0.89
Red Fox	55.43	50.81	51.48	31.10	32.81	29.07	17.51	22.07	16.69	9.89	8.58	7.17	10.81	8.88	10.59
Gray Fox	42.51	37.87	26.74	23.48	22.95	21.58	15.00	22.60	22.56	11.45	7.39	5.16	5.22	6.73	6.55
Coyote	39.76	31.37	41.28	25.41	18.79	19.06	18.19	22.03	18.35	8.43	6.42	8.95	14.85	15.55	14.68
Lynx	199.19	94.91	180.33	94.17	125.00	-	-	-	-	-	-	-	-	-	-
Bobcat	117.74	78.55	73.35	66.40	61.40	75.81	70.00	120.15	101.10	68.31	48.50	42.50	37.44	28.18	43.42
Beaver[a] (fall-winter)	32.74	17.88	14.48	10.69	9.52	12.51	15.03	20.32	16.75	13.84	12.49	9.44	9.00	7.10	11.24
Beaver[a] (spring)	19.58	16.52	12.55	11.60	12.24	16.11	17.90	-	17.12	12.62	10.99	9.66	9.25	7.89	9.41
Otter	63.37	32.78	29.80	25.65	24.79	21.56	20.81	24.15	22.85	22.02	22.01	24.21	24.74	29.90	43.14
Fisher[a] (male)	107.67	89.51	94.42	69.91	70.59	70.26	73.55	84.32	84.36	53.83	26.15	34.85	21.46	15.73	14.17
Fisher[a] (female)	127.79	104.29	110.08	99.08	121.08	121.76	130.47	162.29	170.31	99.63	52.92	46.25	47.93	28.79	28.40
Marten (male)	No Open Season						30.29	35.68	43.13	50.08	47.90	43.89	39.59	27.87	35.86
Marten (female)							27.61	26.58	39.20	43.46	46.88	40.84	27.24	24.96	29.58

[a] Differences in pelt prices were not calculated before 1979 for beaver, and 1978 for fisher.

REGISTERED FURBEARER HARVEST STATISTICS

Forest Wildlife Populations and Research Group
1201 E. Hwy 2
Grand Rapids, MN 55744
(218) 327-4432

Table 63. Registered furbearer harvests and total permits issued, 1985-93[a].

Year	Bobcat		Fisher		Marten		Otter	
	Permits	Harvest	Permits	Harvest	Permits	Harvest	Permits	Harvest
1985	--	119	--	678	746	430	--	559
1986	--	160	3,302	1,607	2,171	798	3,198	777
1987	--	214	4,952	1,642	3,025	1,363	4,708	1,386
1988	--	140	4,419	1,025	3,369	2,072	4,070	922
1989	--	129	3,712	1,243	3,074	2,119	3,549	1,294
1990	--	84	2,385	746	2,090	1,349	2,199	888
1991[b]	--	106	2,360	528	2,020	686	2,282	855
1992[b]	--	168	2,420	778	2,050	1,602	3,440	1,368
1993[b]	--	201	2,299	1,159	1,925	1,438	2,254	1,459

[a] Prior request tags and permits were required beginning in 1985 for marten and in 1986 for fisher and otter. No possession tags or permits are required for bobcat.

[b] Confiscation and 1854 Authority removed.

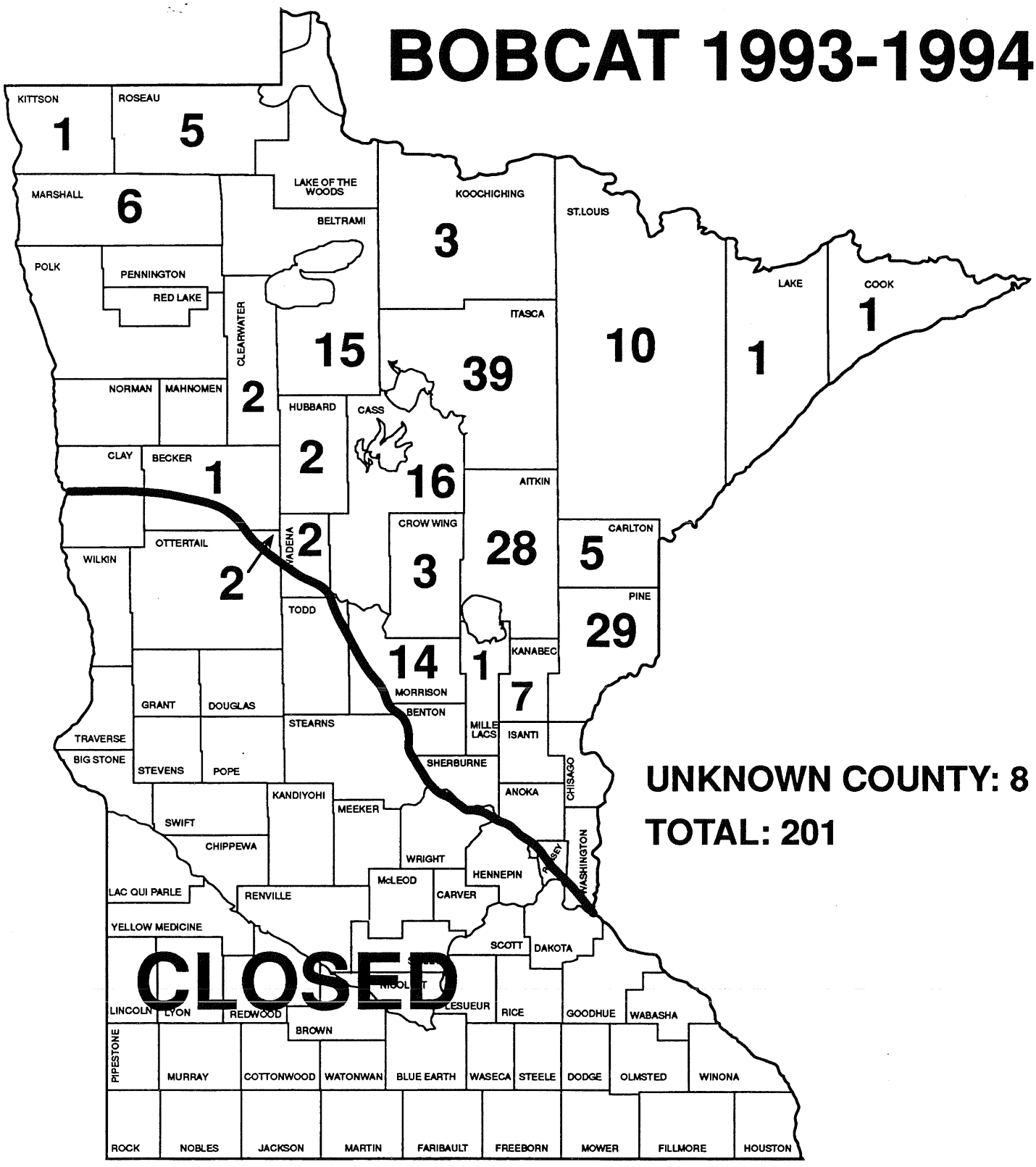


Figure 41. Bobcat harvest by county, 1993-1994.

Table 64. Time distribution of bobcat harvest by 5-day increments, 1993-94 season.

Interval	Sex			Total	% of Known Total	Cumulative Percent
	M	F	U			
Dec. 4- 8	16	13	1	30	18	18
Dec. 9-13	5	23	-	28	17	35
Dec. 14-18	19	12	-	31	19	54
Dec. 19-23	10	8	1	19	11	65
Dec. 24-28	7	14	1	22	13	78
Dec. 29-Jan 2	6	14	-	20	12	90
Jan. 3- 7	7	5	-	12	7	97
Jan. 8-9*	3	2	-	5	3	100
Unknown	8	13	13	34	-	-
Total	81	104	16	201	100	100

* 2-day interval

Table 65. Distribution of bobcat harvest among takers, 1983-84 thru 1993-94.

Number of Takers	Number Taken (# (%))					
	1	2	3	4	5	Total
1983-84	108 (72.0)	32 (21.3)	6 (4.0)	4 (2.7)	0 (0.0)	150
1984-85	116 (65.2)	39 (21.9)	13 (7.3)	9 (5.1)	1 (0.5)	178
1985-86	70 (78.7)	11 (12.4)	6 (6.7)	1 (1.1)	1 (1.1)	89
1986-87	92 (76.7)	18 (15.0)	9 (7.5)	0 (0.0)	1 (0.8)	120
1987-88	104 (71.7)	23 (15.9)	10 (6.9)	6 (4.1)	2 (1.4)	145
1988-89	88 (81.5)	11 (10.2)	7 (6.5)	1 (0.9)	1 (0.9)	108
1989-90	56 (69.1)	13 (16.0)	5 (6.2)	3 (3.7)	4 (4.9)	81
1990-91	47 (77.0)	9 (14.7)	1 (1.6)	4 (6.5)	0 (0.0)	61
1991-92	42 (63.6)	15 (22.7)	4 (6.1)	3 (4.5)	2 (3.0)	66
1992-93	69 (64)	21 (20)	9 (9)	5 (5)	2 (2)	106
1993-94	90 (70)	17 (13)	13 (10)	7 (5)	2 (2)	201
Total	882 (67.6)	209 (16.0)	83 (6.4)	43 (3.3)	16 (1.2)	1305

Table 66. Bobcat harvest by method of take, 1979-1993.

Year	Total Harvest	Trapping				Hunting			
		Harvest	(% of Total)	Takers	Average Take	Harvest	(% of Total)	Takers	Average Take
1979	291	253	(86.9)	--	--	38	(13.1)	--	--
1980	210	177	(84.3)	68	2.6	33	(15.7)	24	1.4
1981	260	219	(84.2)	143	1.5	41	(15.8)	30	1.4
1982	274	239	(87.2)	147	1.6	35	(12.8)	23	1.5
1983	208	168	(80.8)	118	1.4	40	(19.2)	32	1.3
1984	280	252	(90.0)	156	1.6	28	(10.0)	22	1.3
1985	119	83	(69.7)	62	1.3	36	(30.3)	27	1.3
1986	160	119	(74.4)	89	1.3	41	(25.6)	31	1.3
1987	214	177	(82.7)	118	1.5	37	(17.3)	26	1.4
1988	140	94	(67.1)	76	1.2	46	(32.9)	32	1.4
1989	129	90	(69.5)	49	1.8	39	(30.5)	28	1.4
1990	84*	61	(72.6)	43	1.4	22	(26.2)	17	1.3
1991	106*	59	(55.7)	31	1.9	43	(40.6)	33	1.3
1992	168	133	(80.0)	85	1.6	35	(20.0)	23	1.5
1993	201	147	(73.1)	88	1.7	54	(26.8)	41	1.3

* Sum of trapping and hunting harvest is not equal to total harvest due to incomplete method of take data.

Table 67. Comparison of bobcat harvest by county, 1983-84 through 1993-94.

County	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94
Aitkin	20	25	14	12	25	18	31	4	3	22	28
Becker	8	9	1	1	3	2	1	3	5	1	1
Beltrami	17	24	5	7	15	7	8	4	6	8	15
Benton									1	0	0
Carlton	4	20	6	9	9	4	1	1	2	10	5
Cass30	13	42	20	34	28	13	27	11	14	27	16
Chisago	0	0	1	0	0	1	0	0	0	0	0
Clearwater	1	0	0	3	0	1	2	0	0	5	2
Cook	0	1	0	1	2	4	2	3	0	0	1
Crow Wing	4	5	6	5	1	2	0	5	4	6	3
Douglas	0	0	0	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed
Hubbard	1	1	0	0	2	3	1	1	3	3	2
Isanti	0	0	0	1	0	0	1	0	0	0	0
Itasca	36	50	15	28	44	20	19	11	16	35	39
Kanabec	2	6	2	3	0	1	6	1	0	4	7
Kittson	3	0	0	3	6	2	0	3	3	3	1
Koochiching	12	8	8	6	9	13	1	0	5	5	3
Lake	3	1	1	3	4	2	1	0	1	5	1
Lake of the Woods1		1	1	0	2	4	0	0	0	0	0
Marshall	3	1	1	3	4	0	0	1	5	0	6
Mille Lacs	6	0	4	3	8	2	0	3	7	3	1
Morrison	7	5	4	4	4	2	2	2	2	5	14
Ottertail	1	1	3	2	1	2	1	0	1	0	2
Pennington	0	0	0	0	0	0	0	0	0	0	0
Pine	24	29	14	11	15	23	15	18	16	11	29
Polk	0	1	0	0	0	1	0	0	0	0	0
Red Lake	0	0	1	0	0	0	0	0	0	0	0
Renville	0	1	0	Closed	Closed	Closed	Closed	Closed	Closed	Closed	Closed
Roseau	9	14	2	2	2	2	0	2	1	3	5
St. Louis	32	43	8	19	26	10	7	8	3	8	10
Wadena	1	1	2	0	2	2	2	2	2	0	2
Unknown	0	1	0	2	0	0	1	1	6	5	8
Total	208	280	119	160	214	140	129	84	106	168	201

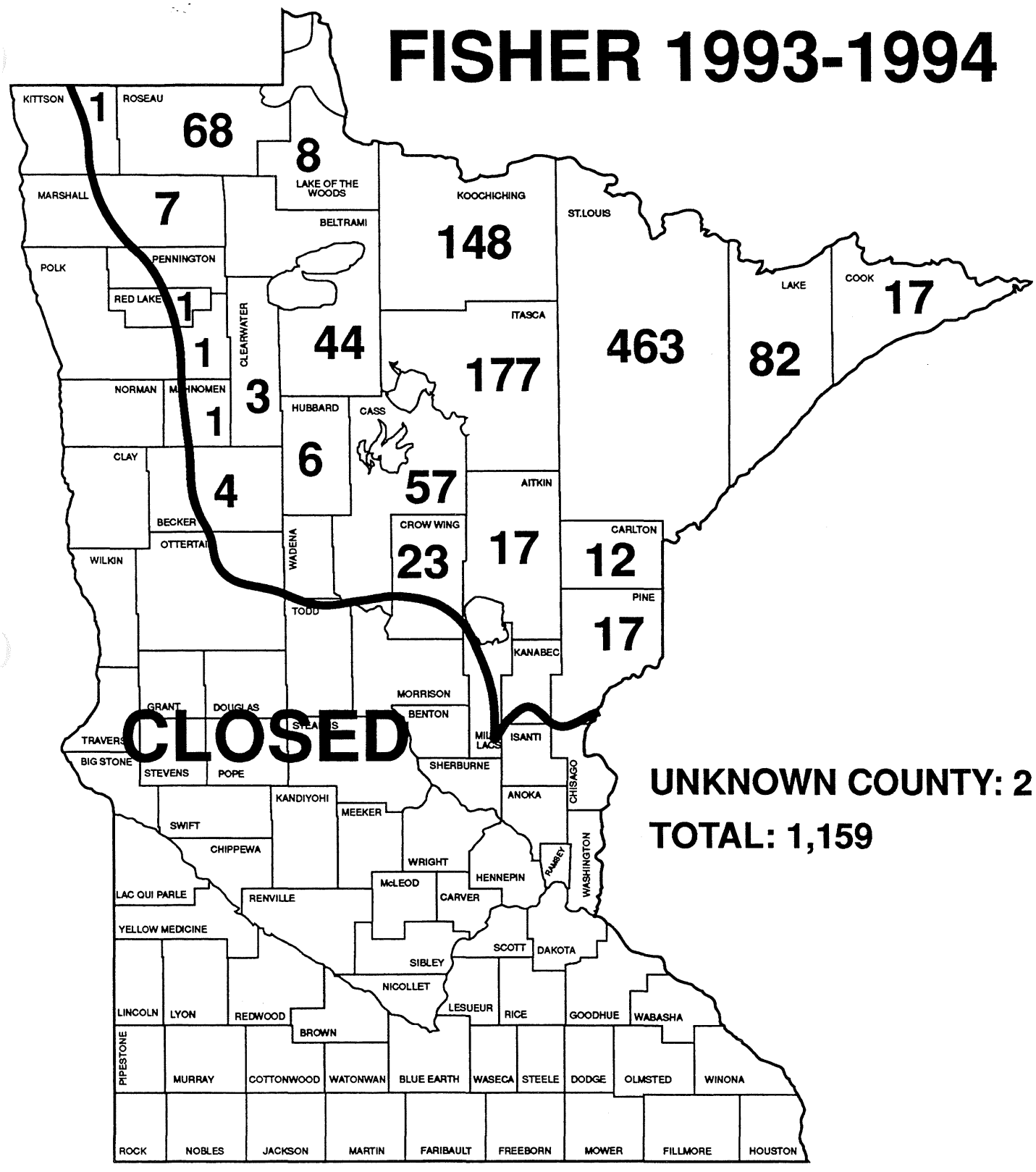


Figure 42. Fisher harvest by county, 1993-1994.

Table 68. Fisher harvest by date and sex, 1993-94 season.

Date	Sex			Total	% of known Total	Cumulative Percent
	Male	Female	Unknown			
Dec. 4	2	0	0	2	-	-
Dec. 5	24	20	0	44	4	4
Dec. 6	41	39	0	80	8	12
Dec. 7	45	49	0	94	9	21
Dec. 8	83	65	0	148	15	36
Dec. 9	19	35	0	54	6	42
Dec. 10	42	33	0	75	8	50
Dec. 11	49	64	0	113	11	61
Dec. 12	35	47	0	82	8	69
Dec. 13	18	23	0	41	4	73
Dec. 14	19	22	0	41	4	77
Dec. 15	31	17	0	48	5	82
Dec. 16	10	18	0	28	3	85
Dec. 17	21	19	0	40	4	89
Dec. 18	36	23	0	59	6	95
Dec. 19	27	22	0	49	5	100
Unknown	80	80	1	161	--	--
Total	582	576	1	1,159	100	100

Table 69. Fisher harvest by county and sex, 1993-94 season.

County	Sex			Total
	Male	Female	Unknown	
Aitkin	6	11	0	17
Becker	2	2	0	4
Beltrami	23	21	0	44
Carlton	9	3	0	12
Cass	38	19	0	57
Clearwater	2	1	0	3
Cook	7	10	0	17
Crow Wing	14	9	0	23
Hubbard	2	4	0	6
Itasca	101	75	1	177
Koochiching	66	82	0	148
Lake	45	37	0	82
Lake of the Woods	5	3	0	8
Mahnomen	1	0	0	1
Marshall	4	3	0	7
Pine	8	9	0	17
Red Lake	0	1	0	1
Roseau	47	21	0	68
St. Louis	198	265	0	463
Unknown	2	0	0	2
Total	582	576	1	1,159

Table 70. Comparison of fisher harvest by county, 1982-93.

County	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Aitkin	15	5	10	8	8	24	14	26	17	8	15	17
Becker	2	4	3	1	4	2	4	4	5	4	6	4
Beltrami	41	25	96	27	71	115	68	78	34	34	34	44
Carlton	4	4	3	0	3	6	3	2	3	3	8	12
Cass	6	3	19	17	32	60	24	43	34	30	33	57
Clearwater	1	3	6	4	4	3	1	3	3	2	3	3
Cook	21	18	16	9	15	29	29	10	14	4	17	17
Crow Wing	6	2	11	6	11	14	3	12	12	14	18	23
Hubbard	0	0	7	1	7	9	6	8	4	6	7	6
Itasca	139	72	228	84	183	247	135	184	99	73	76	177
Kanabec	0	0	0	0	0	0	1	0	0	0	2	0
Kittson	0	6	2	1	1	4	2	1	2	1	0	1
Koochiching	182	123	255	157	195	303	128	211	77	96	97	148
Lake	115	37	80	49	81	114	78	80	78	17	57	82
Lake of the Woods	52	32	85	46	58	91	66	58	27	21	26	8
Mahnomen	0	0	0	0	0	0	5	0	0	0	0	1
Marshall	6	13	10	5	2	19	7	4	3	2	3	7
Norman	----------closed----------					1[a]	1[a]	----------closed----------				
Pennington	0	0	0	0	0	0	1	0	0	0	0	0
Pine	0	1	1	0	0	1	1	3	2	0	3	17
Polk	0	0	0	0	1	0	1	0	0	0	0	1
Red Lake	0	0	0	0	0	1	0	0	0	1	0	1
Roseau	36	86	111	68	75	90	68	53	32	21	32	68
St. Louis	286	197	345	195	316	509	377	463	279	187	229	463
Unknown	0	0	1	0	0	0	3	0	21	4	112	2
Total	912	631	1289	678	1068	1642	1025	1243	746	528	778	1,159

[a] The reported harvest is accidental take - Norman County is closed to fisher trapping.

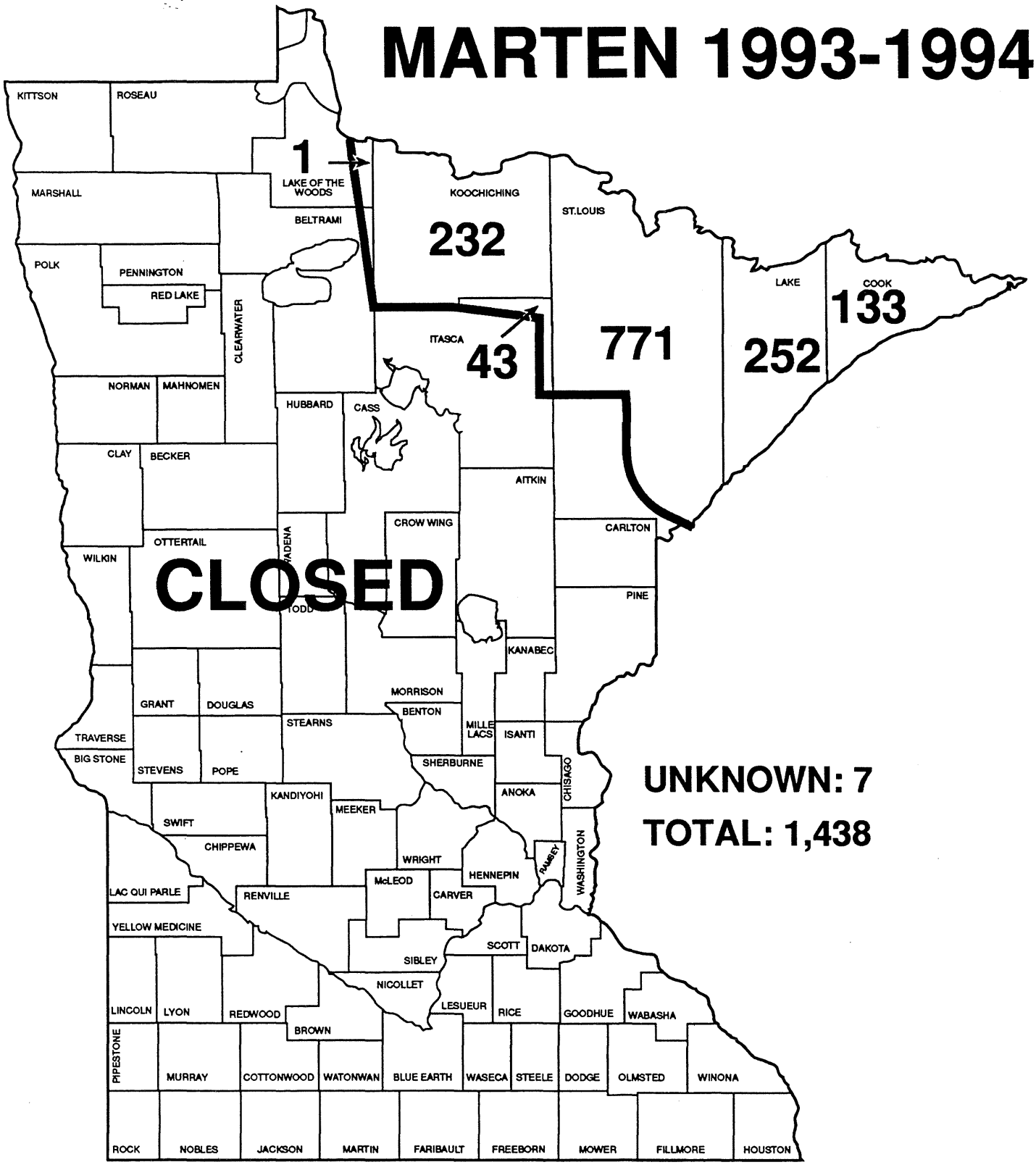


Figure 43. Pine marten harvest by county, 1993-1994.

Table 71. Marten harvest by date and sex, 1993-94 season.

Date	Sex			Total	% of Known Total	Cumulative Percent
	Male	Female	Unknown			
Dec. 4	9	3	1	13	1	1
Dec. 5	132	34	0	166	13	14
Dec. 6	110	47	1	158	12	26
Dec. 7	107	24	0	131	10	36
Dec. 8	94	38	2	134	10	46
Dec. 9	72	25	0	97	7	53
Dec. 10	69	40	0	109	8	61
Dec. 11	96	44	0	140	11	72
Dec. 12	59	26	0	85	6	78
Dec. 13	28	13	0	41	3	81
Dec. 14	18	19	0	37	3	84
Dec. 15	27	24	0	51	4	88
Dec. 16	23	7	0	30	2	90
Dec. 17	37	3	0	40	3	93
Dec. 18	42	17	0	59	4	97
Dec. 19	20	15	0	35	3	100
Unknown	64	45	3	112	-	-
Total	1,007	424	7	1,438	100	100

Table 72. Marten harvest by county and sex, 1993-94 season.

County	Sex			Total
	Male	Female	Unknown	
Cook	110	23	0	133
Itasca	28	14	1	43
Koochiching	156	76	0	232
Lake	189	63	0	252
Lake of the Woods	0	1	0	1
St. Louis	521	245	5	771
Unknown	3	2	1	6
Total	1,007	424	7	1,438

Table 73. Comparison of marten harvest by county, 1986-93.[a]

County	1986	1987	1988	1989	1990	1991	1992	1993
Beltrami	0	0	0	0	0	0	1	0
Cook	75	143	305	288	178	69	180	133
Itasca	--closed--		11	18	16	12	28	43
Koochiching	159	275	266	204	123	115	206	232
Lake	160	270	457	481	446	123	357	252
Lake of the Woods	--closed--		1	0	0	0	0	1
St. Louis	401	675	1,032	1,123	567	336	666	771
Unknown	3	0	0	5	19	1	164	6
Total	798	1,363	2,072	2,119	1,349	656	1,602	1,438

[a] No open season on marten prior to 1985.

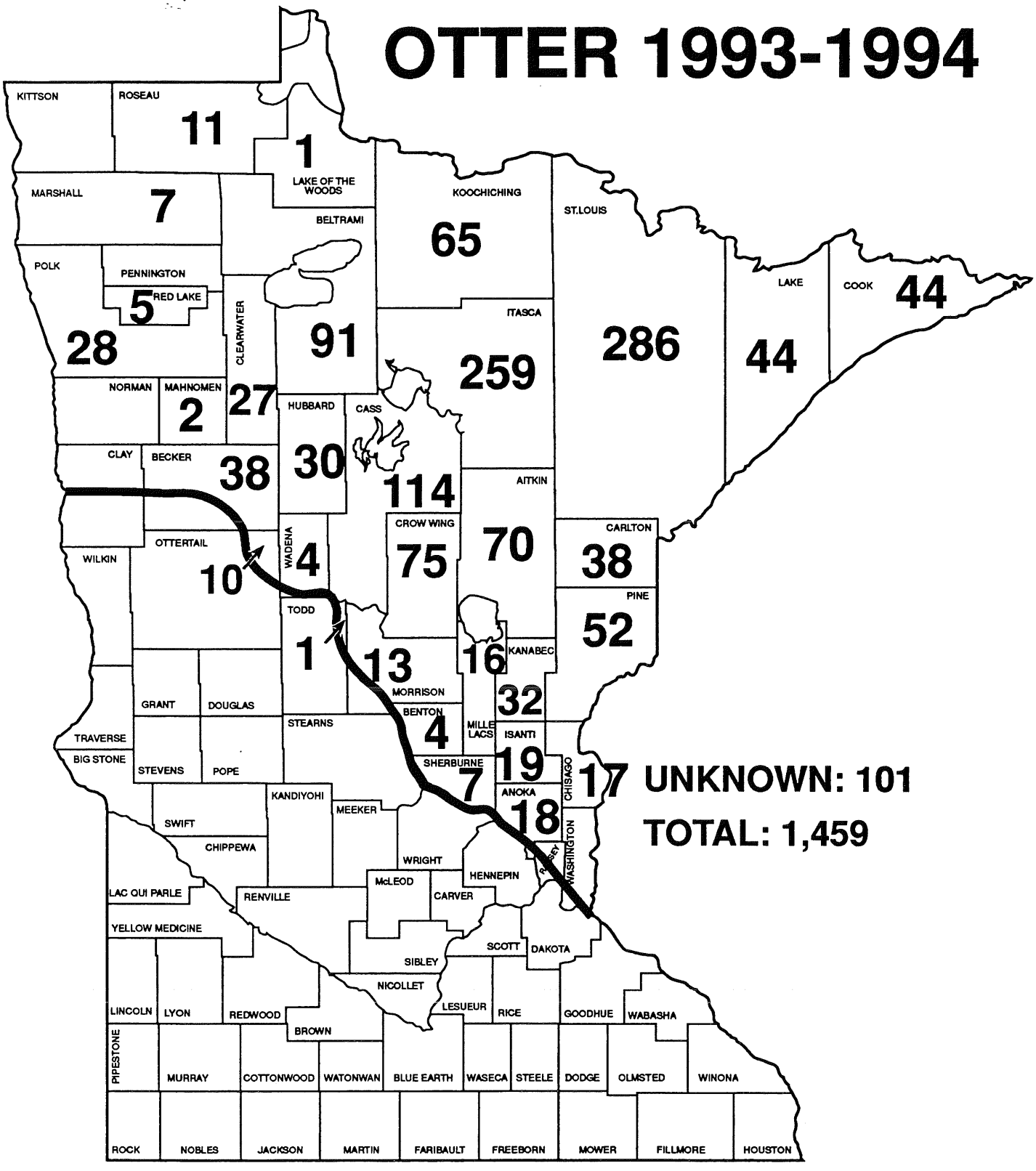


Figure 44. Otter harvest by county, 1993-1994.

Table 74. Otter harvest by 5-day interval and sex, 1993-94 season.

Interval	Sex			Total	% of Known Total	Cumulative Percent
	Male	Female	Unknown			
Oct. 23-27	31	29	0	60	5	5
Oct. 28-Nov. 1	46	49	2	97	8	13
Nov. 2-6	77	74	4	155	13	26
Nov. 7-11	88	54	1	143	12	38
Nov. 12-16	78	62	1	141	12	50
Nov. 17-21	40	34	1	75	6	56
Nov. 22-26	31	36	0	67	6	62
Nov. 27-Dec. 1	53	37	0	90	7	69
Dec. 2-6	44	24	0	68	6	75
Dec. 7-11	57	29	0	86	7	82
Dec. 12-16	26	28	0	54	4	86
Dec. 17-21	40	33	3	76	6	92
Dec. 22-26	17	21	0	38	3	95
Dec. 27-31	20	14	0	34	2	97
Jan. 1-5	10	8	0	18	2	99
Jan. 6-9*	3	7	0	10	1	100
Unknown	88	70	89	247	-	-
Total	749	609	101	1,459	100	100

* 4-day interval.

Table 75. Otter harvest by county and sex, 1993-94 season.

County	Sex			Total
	Male	Female	Unknown	
Aitkin	31	38	1	70
Anoka	10	8	0	18
Becker	19	19	0	38
Beltrami	58	33	0	91
Benton	1	3	0	4
Carlton	23	15	0	38
Cass	60	43	11	114
Chisago	7	10	0	17
Clearwater	13	14	0	27
Cook	25	19	0	44
Crow Wing	40	35	0	75
Hubbard	19	11	1	30
Isanti	9	10	0	19
Itasca	121	85	53	259
Kanabec	15	17	0	32
Kittson	0	0	0	0
Koochiching	40	25	0	65
Lake	23	20	1	44
Lake of the Woods	0	1	0	1
Mahnomen	0	2	0	2
Marshall	4	3	0	7
Mille Lacs	10	6	0	16
Morrison	6	7	0	13
Ottertail	6	4	0	10
Pine	27	25	0	52
Polk	14	14	0	28
Red Lake	0	5	0	5
Roseau	5	6	0	11
St. Louis	158	122	6	286
Sherburne	3	4	0	7
Todd	1	0	0	1
Wadena	0	4	0	4
Washington	0	0	0	0
Unknown	1	1	29	31
Total	479	609	101	1,459

Table 76. Comparison of otter harvest by county, 1982-1993.

County	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Aitkin	20	25	34	17	43	55	57	62	49	44	78	70
Anoka	----------closed----------				4	2	8	21	14	7	14	18
Becker	8	15	18	24	34	41	55	49	32	21	36	38
Beltrami	39	23	33	46	66	125	87	92	74	93	97	91
Benton	----------closed----------				0	0	1	0	1	1	0	4
Carlton	4	5	13	10	13	24	12	13	25	23	39	38
Cass	36	33	49	59	67	147	84	130	73	67	107	114
Chisago	----------closed----------				4	11	9	8	10	5	9	17
Clearwater	9	6	11	6	17	19	5	13	6	14	14	27
Cook	17	4	16	5	20	33	25	31	24	30	28	44
Crow Wing	15	13	15	26	27	57	31	65	40	41	83	75
Hubbard	21	15	22	25	27	36	19	39	45	34	44	30
Isanti	----------closed----------				12	24	12	17	7	5	10	19
Itasca	56	69	94	96	123	199	141	207	108	110	193	259
Kanabec	4	9	9	4	14	28	31	30	18	11	24	32
Kittson	0	0	0	0	1	0	0	0	0	0	1	0
Koochiching	23	26	34	38	45	77	48	59	31	59	52	65
Lake	15	20	18	25	47	61	33	40	26	21	91	44
Lake of the Woods	9	11	13	5	9	39	16	11	6	21	15	1
Mahnomen	2	2	3	14	6	5	8	13	8	0	0	2
Marshall	0	2	0	1	0	1	1	3	0	2	6	7
Mille Lacs	2	8	8	4	0	28	17	12	7	10	5	16
Morrison	----------closed----------				3	17	9	13	12	3	16	13
Norman	----------closed----------				0	1	6	1	1	0	0	0
Ottertail	1	1	1	1	4	1	1	3	5	4	5	10
Pennington	0	0	0	1	0	1	0	1	1	1	0	0
Pine	21	14	29	20	21	70	41	64	49	12	76	52
Polk	3	4	5	6	5	7	8	10	7	12	14	28
Ramsey	0	0	0	0	0	0	0	0	1	0	0	0
Red Lake	3	0	0	0	0	1	0	4	0	5	2	5
Roseau	3	3	5	5	7	12	9	13	6	7	14	11
St. Louis	69	96	96	119	145	256	135	248	180	159	187	286
Sherburne	----------closed----------				1	1	4	5	0	1	8	7
Todd	0	0	0	0	0	0	0	3	0	0	0	1
Wadena	4	4	2	2	1	4	1	7	5	7	2	4
Washington	----------closed----------				0	3	3	4	3	1	3	0
Unknown	1	1	2	0	2	0	5	3	12	24	91	31
Total	385	408	529	559	777	1,386	992	1,294	888	855	1,368	1,459