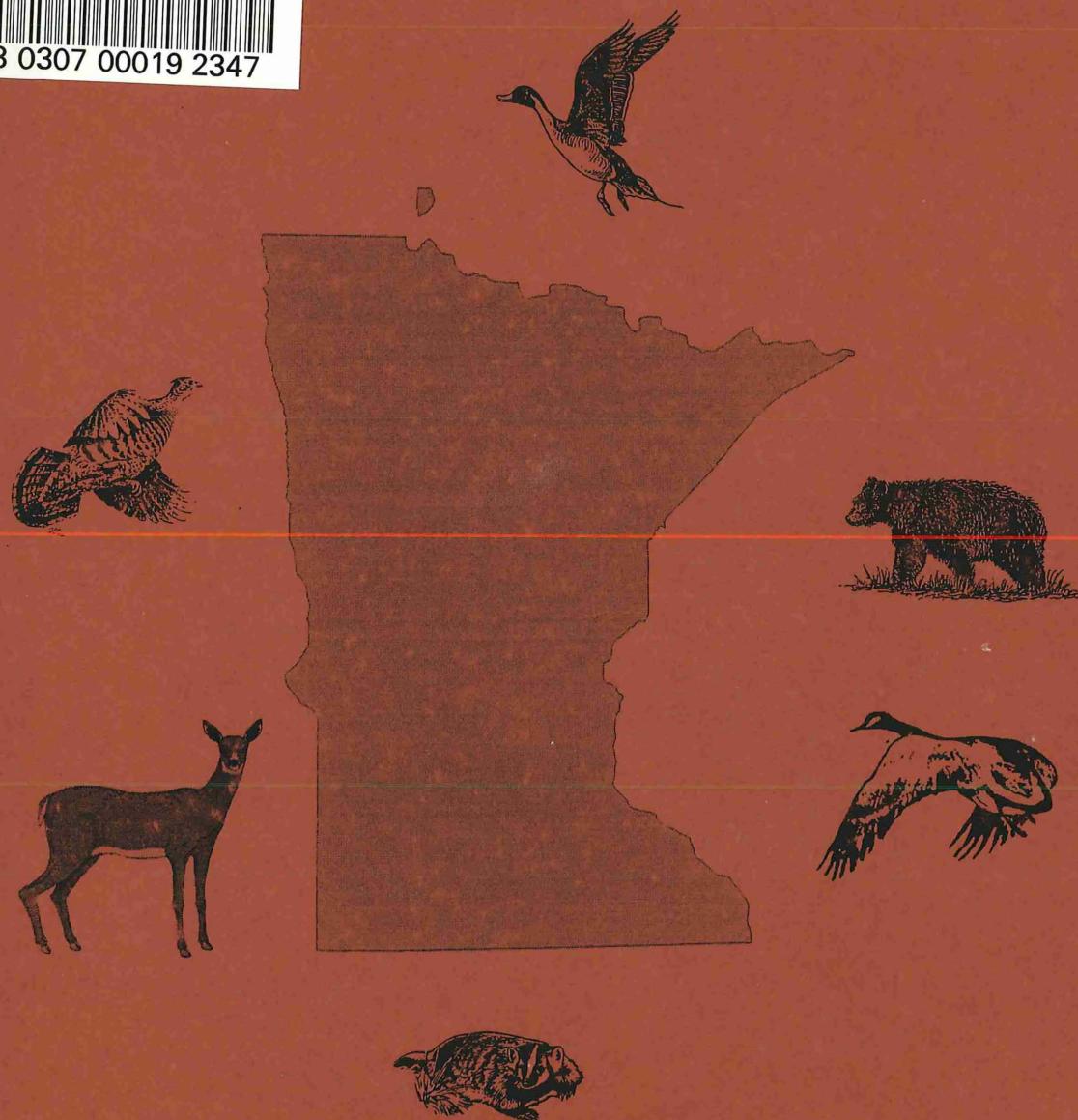


93 811

# *Status of Wildlife Populations, Fall 1999*

(Including 1989 - 1998 Hunting and Trapping Harvest Statistics)



Minnesota Department of Natural Resources  
Section of Wildlife  
Wildlife Populations and Research Unit  
St. Paul, Minnesota

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## Status of Wildlife Populations, Fall 1999

(Including 1989-1998 Hunting and Trapping Harvest Statistics)

compiled by  
Margaret H. Dexter

Minnesota Department of Natural Resources  
Section of Wildlife  
Wildlife Populations and Research Unit  
St. Paul, Minnesota

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

## Status of Wildlife Populations, Fall 1999

(Including 1989-98 Hunting and Trapping Harvest Statistics)

This is the 23<sup>rd</sup> 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.

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**FARMLAND WILDLIFE POPULATIONS**  
Wildlife Research Group  
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Madelia, MN 56062  
(507) 642-8478



WEST CENTRAL	
1994	25
1995	21
1996	23
1997	8
1998	25

1994-98 Mean	20
1999	31

% Change  
1998-99 +19%  
Difference, 1999  
from 5-year mean +55%

RANGE-WIDE	
1994	45
1995	59
1996	38
1997	32
1998	66

1994-98 Mean	48
1999	62

% Change  
1998-99 -5%  
Difference, 1999  
from 5-year mean +29%

EAST CENTRAL	
1994	31
1995	25
1996	35
1997	21
1998	59

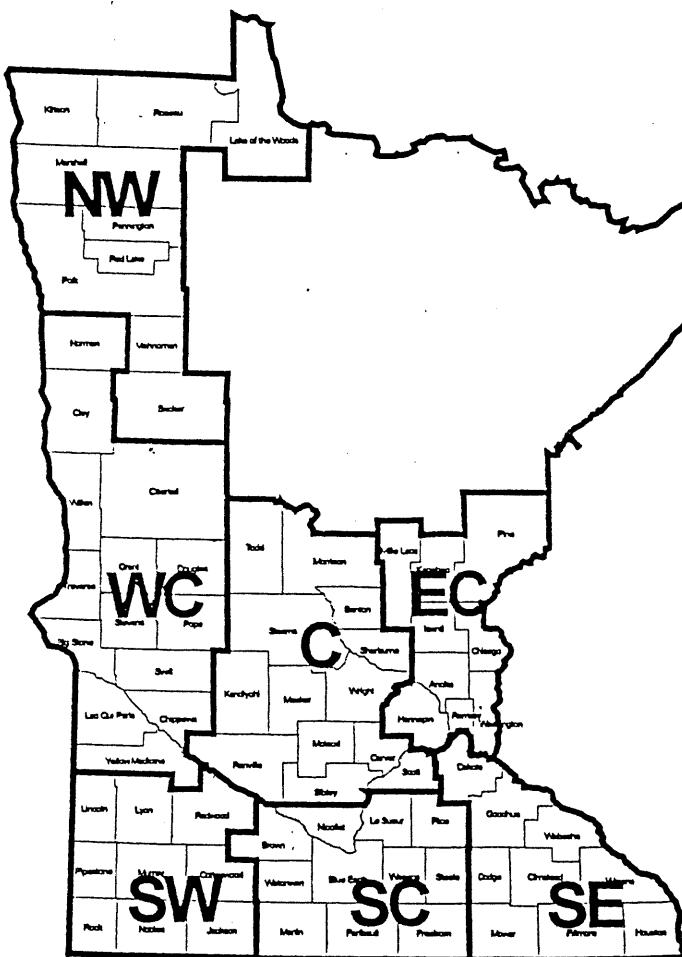
1994-98 Mean	34
1999	35

% Change  
1998-99 -41%  
Difference, 1999  
from 5-year mean +3%

SOUTH CENTRAL	
1994	61
1995	102
1996	65
1997	69
1998	126

1994-98 Mean	85
1999	79

% Change  
1998-99 -37%  
Difference, 1999  
from 5-year mean -7%



CENTRAL	
1994	30
1995	39
1996	17
1997	23
1998	30

1994-98 Mean	28
1999	56

% Change  
1998-99 +84%  
Difference, 1999  
from 5-year mean +100%

SOUTHWEST	
1994	52
1995	66
1996	42
1997	20
1998	88

1994-98 Mean	54
1999	136

% Change  
1998-99 +54%  
Difference, 1999  
from 5-year mean +152%

SOUTHEAST	
1994	81
1995	109
1996	53
1997	46
1998	83

1994-98 Mean	74
1999	56

% Change  
1998-99 -28%  
Difference, 1999  
from 5-year mean -24%

Figure 1. Ring-necked pheasants seen per 100 miles of August roadside count route, 1994-99, and percent change 1998-99 for routes surveyed both years.

Table 1. County, regional, and range-wide August roadside count indices for ring-necked pheasants in Minnesota, 1994-1999.

Region and County	Miles surveyed	Pheasants seen per 100 miles driven							Percent change <sup>a</sup> 1998-99
		1999	1994	1995	1996	1997	1998	1999	
		Mean						1994-98	
West Central	875	24.8	21.4	22.9	8.2	25.0	30.6	20.5	+19.1
Big Stone	75	3	19	0	0	7	1		
Chippewa	50	44	14	58	22	56	44		
Clay	75	0	25	0	0	0	0		
Douglas	50	0	2	8	0	18	20		
Grant	25	0	16	0	0	0	24		
Lac Qui Parle	75	116	70	98	31	39	53		
Norman	50	0	0	0	0	0	0		
Otter Tail	50	2	0	10	0	0	2		
Pope	75	88	17	4	35	44	80		
Stevens	75	19	28	23	5	0	1		
Swift	75	53	60	19	4	79	55		
Traverse	75	2	1	0	0	0	0		
Wilkin	50	0	0	0	0	0	0		
Yellow Medicine	75	16	21	81	9	83	115		
Central	775	29.9	39.5	17.3	23.0	30.2	55.6	28.0	+84.2
Benton	50	20	44	0	18	60	72		
Carver	50	40	52	52	--	60	42		
Kandiyohi	75	44	83	55	24	63	112		
McLeod	50	6	76	17	20	2	54		
Meeker	75	51	120	37	57	39	151		
Morrison	50	44	2	6	32	4	50		
Renville	50	0	14	26	14	2	12		
Scott	50	2	90	19	36	24	28		
Sherburne	50	0	0	0	0	20	2		
Sibley	75	58	27	0	24	72	23		
Stearns	100	41	12	1	11	5	62		
Todd	50	0	0	0	0	0	4		
Wright	50	42	10	0	40	26	46		
East Central	425	31.3	25.3	35.4	21.2	58.8	34.8	34.4	-40.8
Anoka	50	6	0	0	0	26	14		
Chisago	75	59	24	116	68	131	68		
Hennepin	25	0	88	77	16	80	0		
Isanti	75	20	5	9	0	21	25		
Kanabec	50	30	18	0	28	58	20		
Mille Lacs	50	28	22	32	12	72	34		
Pine	50	28	60	28	20	56	84		
Washington	50	56	26	16	10	20	4		

Table 1. Continued.

Region and County	Miles surveyed	Pheasants seen per 100 miles driven							Percent change <sup>a</sup> 1998-99
		1999	1994	1995	1996	1997	1998	1999	
		Mean						1994-98	
Southwest	475	51.8	65.9	41.6	20.0	88.2	135.6	53.5	+53.7
Cottonwood	50	12	172	147	38	374	422		
Jackson	50	98	92	38	28	126	52		
Lincoln	50	86	130	46	14	62	56		
Lyon	50	32	20	16	2	2	136		
Murray	50	4	38	10	2	30	178		
Nobles	75	53	52	32	25	79	132		
Pipestone	50	90	32	52	18	18	32		
Redwood	50	40	20	22	32	20	128		
Rock	50	50	44	16	18	88	86		
South Central	800	61.3	101.9	65.0	68.6	126.1	79.0	84.6	-37.4
Blue Earth	75	51	51	126	20	143	73		
Brown	75	60	68	49	69	135	184		
Faribault	75	12	72	48	60	89	83		
Freeborn	75	73	89	92	43	92	9		
LeSueur	75	113	259	147	200	128	75		
Martin	75	44	65	50	64	115	95		
Nicollet	75	9	20	15	1	41	36		
Rice	75	99	211	59	100	187	93		
Steele	50	74	110	38	92	186	60		
Waseca	75	112	143	52	72	173	124		
Watsonwan	75	31	36	29	41	119	31		
Southeast	500	81.2	109.2	53.1	46.2	82.7	56.2	74.5	-28.5
Dakota	50	12	62	84	36	24	18		
Dodge	50	84	204	110	42	106	118		
Fillmore	50	134	184	15	68	122	38		
Goodhue	50	20	46	2	24	78	20		
Houston	50	60	62	22	8	46	38		
Mower	75	91	76	56	88	95	108		
Olmsted	75	228	182	85	59	157	88		
Wabasha	50	22	148	86	46	56	36		
Winona	50	2	0	0	18	4	0		
Range-wide	3850	44.7	58.9	38.2	31.6	65.7	62.4	47.8	-5.0

<sup>a</sup> Percent change for 1998-99 calculated only for routes surveyed both years.

Table 2. Range-wide<sup>a</sup> pheasant population parameters calculated from August roadside count results, 1994-99.

Population Parameter	1994	1995	1996	1997	1998	1999	1994-98 Mean	Percent change <sup>b</sup> 1998-99
Cocks/100 Miles	3.8	4.5	3.0	3.4	4.2	5.4	3.8	+29
Hens/100 Miles	5.5	7.7	4.9	3.8	8.7	9.5	6.1	+9
Broods/100 Miles	6.5	8.6	5.5	4.6	9.9	9.7	7.0	-2
Mean Brood Size	5.5	5.5	5.5	5.3	5.3	4.9	5.4	-8
Broods/100 Hens	118.0	111.0	112.0	121.0	115.0	103.0	115.4	-10
Median Hatch Date	Jun 6	Jun 7	Jun 7	Jun 7	Jun 2	Jun 8	Jun 6 <sup>c</sup>	

<sup>a</sup> Does not include the Northwest agricultural region.

<sup>b</sup> Percent change for 1998-99 calculated only for routes surveyed both years.

<sup>c</sup> Median hatch date, 1994-98.

Table 3. Regional and range-wide August roadside count indices for gray (Hungarian) partridge, 1994-99.

Agricultural Region	Miles Surveyed 1999	Partridge seen per 100 miles driven						Percent change <sup>a</sup> 1998-99
		1994	1995	1996	1997	1998	1999	
Northwest	475	0.2	0.0	0.0	0.0	0.0	0.0	0
West Central	875	2.2	2.1	1.0	0.2	1.7	2.4	1.4
Central	775	7.4	2.8	0.1	3.1	7.6	9.9	+30
East Central	425	0.0	0.0	0.0	0.0	0.2	0.0	-100
Southwest	475	36.0	23.5	7.9	18.5	65.5	96.0	+47
South Central	800	22.1	24.5	15.4	35.4	43.4	36.4	-16
Southeast	500	23.4	15.0	22.5	18.4	9.5	9.4	+4
Range-wide <sup>b</sup>	4325	12.5	9.8	6.5	11.4	18.0	20.6	+15

<sup>a</sup> Percent change 1998-99 for routes surveyed both years only.

<sup>b</sup> Range-wide means do include the Northwest agricultural region.

Table 4. Regional and range-wide gray (Hungarian) partridge population parameters calculated from August roadside count results, 1999.

Agricultural Region	Adults per 100 miles driven	Broods per 100 miles driven	Mean Brood size	Broods per 100 adults	Median hatch date
Northwest	0.0	0.0	NA <sup>a</sup>	NA	NA
West Central	1.1	0.3	3.7	30.0	July 8
Central	1.9	1.2	6.9	60.0	June 22
East Central	0.0	0.0	NA	NA	NA
Southwest	25.5	9.5	7.4	37.2	July 2
South Central	9.3	3.4	8.0	36.5	June 30
Southeast	2.2	1.0	7.2	45.5	July 4
Range-wide <sup>b</sup>	5.3	2.1	7.4	38.5	July 2

<sup>a</sup> NA is Not Applicable.

<sup>b</sup> Range-wide means do include the Northwest agricultural region.

Table 5. August roadside count indices for selected farmland wildlife species and percent change 1998-99 by agricultural region.

Agricultural Region	Miles Surveyed 1999	Animals seen per 100 miles driven												
		Eastern Cottontail			White-tailed Jackrabbit			Mourning dove			White-tailed deer			
		1998	1999	Percent change <sup>a</sup>	1998	1999	Percent change <sup>a</sup>	1998	1999	Percent change <sup>a</sup>	1998	1999	Percent change <sup>a</sup>	
8	Northwest	475	0.6	0.6	0	0.0	0.2	+	83.2	72.0	-27	22.3	21.9	+6
	West Central	875	2.8	3.0	+8	1.0	0.8	-22	389.0	340.8	-13	9.4	10.5	+12
	Central	775	2.1	7.7	+275	0.3	0.4	+50	199.7	223.5	+12	3.5	4.5	+30
	East Central	425	4.5	9.4	+110	0.0	0.0	0	134.6	64.7	-52	3.5	6.1	+73
	Southwest	475	7.2	10.1	+41	0.4	0.8	+100	328.6	318.3	-3	5.1	5.3	+4
	South Central	800	7.6	8.6	+13	0.1	0.4	+200	245.8	212.4	-14	3.1	4.1	+32
	Southeast	500	8.0	9.0	+18	0.0	0.4	+	212.6	195.6	-3	15.4	15.4	-3
Range-wide <sup>b</sup>		4325	4.5	6.7	+49	0.3	0.5	+43	244.0	220.1	-10	8.2	9.1	+12

<sup>a</sup> Percent change 1998-99 calculated only for routes surveyed both years.

<sup>b</sup> Range-wide means do include the Northwest agricultural region.

Table 6. Range-wide August roadside count indices for selected farmland wildlife species, 1994-1999.

Species	Animals seen per 100 miles driven						Percent change <sup>a</sup>
	1994	1995	1996	1997	1998	1999	
Ring-necked pheasant <sup>b</sup>	44.7	58.9	38.2	31.6	65.7	62.4	-5
Gray (Hungarian) partridge	12.5	9.8	6.5	11.4	18.0	20.6	+15
Mourning dove	167.1	173.4	203.6	219.6	244.0	220.1	-10
Eastern cottontail	3.4	4.4	5.0	3.2	4.5	6.7	+49
White-tailed jack rabbit	0.4	0.4	0.5	0.4	0.3	0.5	+43
White-tailed deer	10.3	10.5	11.1	10.9	8.2	9.1	+12
Sharp-tailed grouse	0.00	0.02	0.00	0.00	0.00	0.02	+
Greater prairie-chicken	0.00	0.00	0.00	0.00	0.02	0.00	-100
Sandhill crane	4.71	4.63	2.67	3.16	5.06	5.99	+34
Badger	0.02	0.02	0.02	0.02	0.02	0.00	-100
Gray and fox squirrel	0.83	1.34	0.39	1.03	0.51	0.74	+45
Gray and red fox	0.67	0.28	0.51	0.09	0.25	0.35	+36
Striped and spotted skunk	0.25	0.25	0.18	0.19	0.42	0.35	-22

<sup>a</sup> Percent change 1998-99 calculated only for routes surveyed both years.

<sup>b</sup> 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, range-wide<sup>a</sup>, 1955-1999.

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 <sup>b</sup>
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 <sup>c</sup>	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)

(Table 7 cont.)

Year	Animals seen per 100 miles driven						
	Ring-necked Pheasant	Gray Partridge	Eastern Cottontail	White-tailed Jackrabbit	Mourning Dove		
1994	44.7	14.0 (12.5)	3.8 (3.4)	0.4 (0.4)	179.7 (167.1)		
1995	58.9	11.1 (9.8)	4.9 (4.4)	0.4 (0.4)	184.1 (173.4)		
1996	38.2	7.4 (6.5)	5.6 (5.0)	0.5 (0.5)	219.4 (203.6)		
1997	31.6	12.8 (11.4)	3.6 (3.2)	0.4 (0.4)	232.0 (219.6)		
1998	65.7	20.2 (18.0)	5.0 (4.5)	0.4 (0.3)	263.8 (244.0)		
1999	62.4	23.2 (20.6)	7.5 (6.7)	0.5 (0.5)	238.4 (220.1)		

<sup>a</sup> Range-wide estimates do not include the Northwest agricultural region unless the estimates are in parentheses. The Northwest region is not calculated for ring-necked pheasants because that region is outside the pheasant range.

<sup>b</sup> No count.

<sup>c</sup> Eight counties in the Northwest agricultural region were added to the August Roadside Count in 1982.

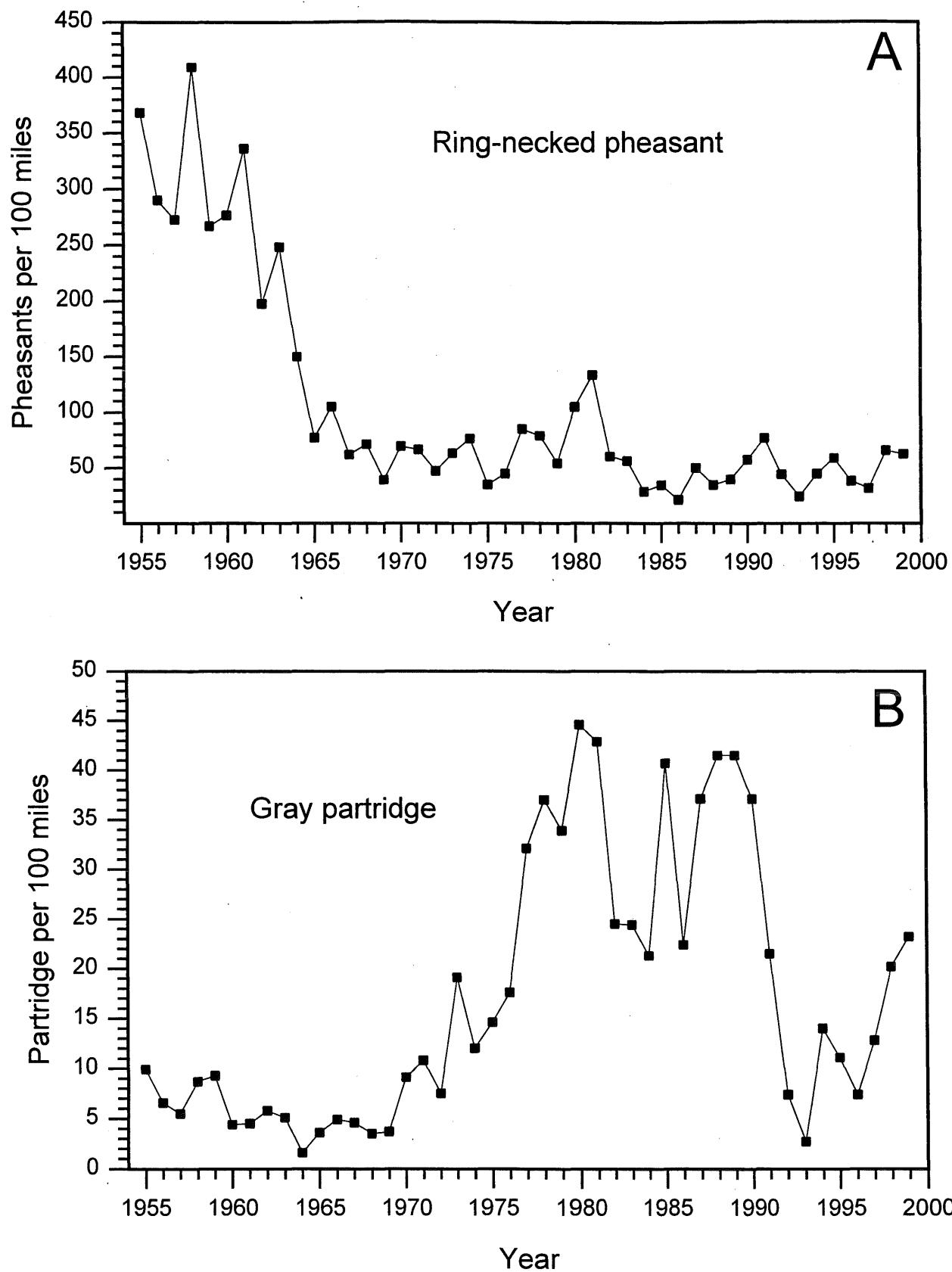


Figure 2. August roadside count indices (birds seen per 100 miles driven) for (A) Ring-necked pheasant and (B) Gray partridge, 1955-1999. Indices do not include the Northwest agricultural region.

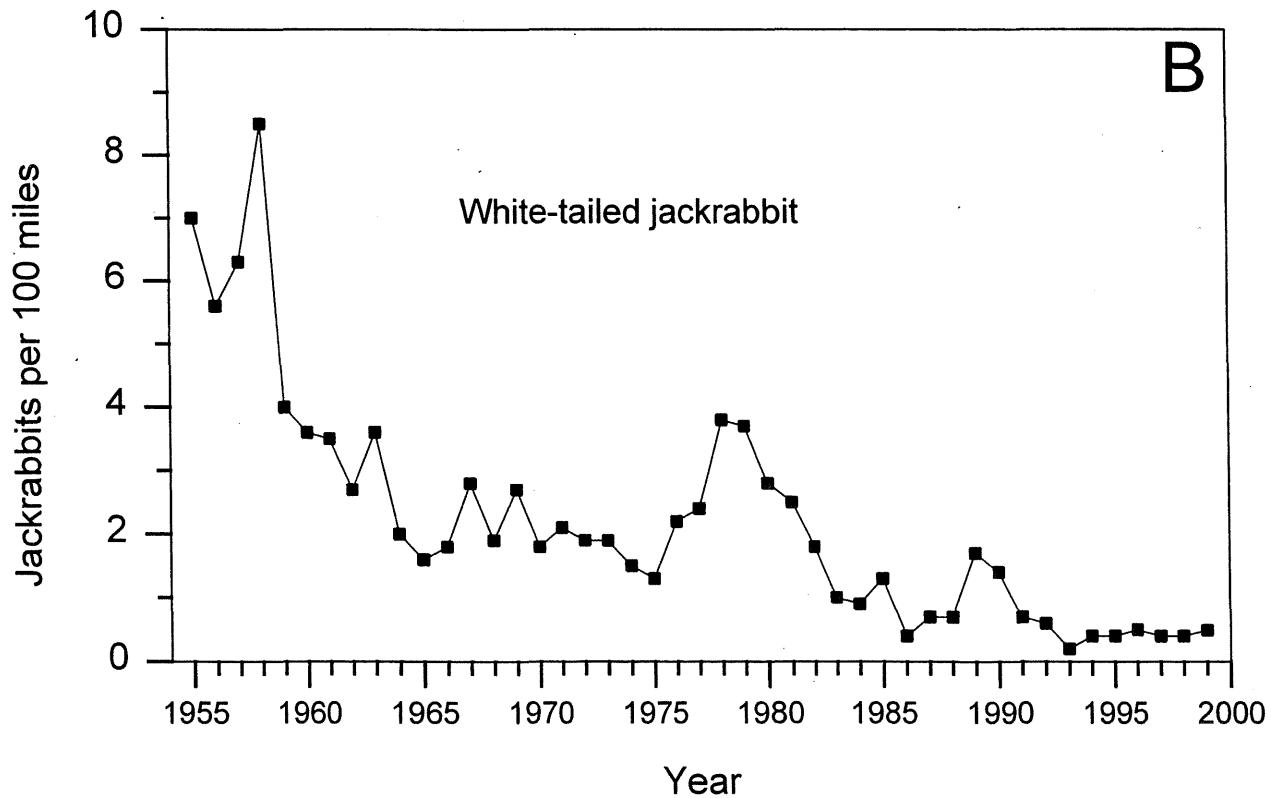
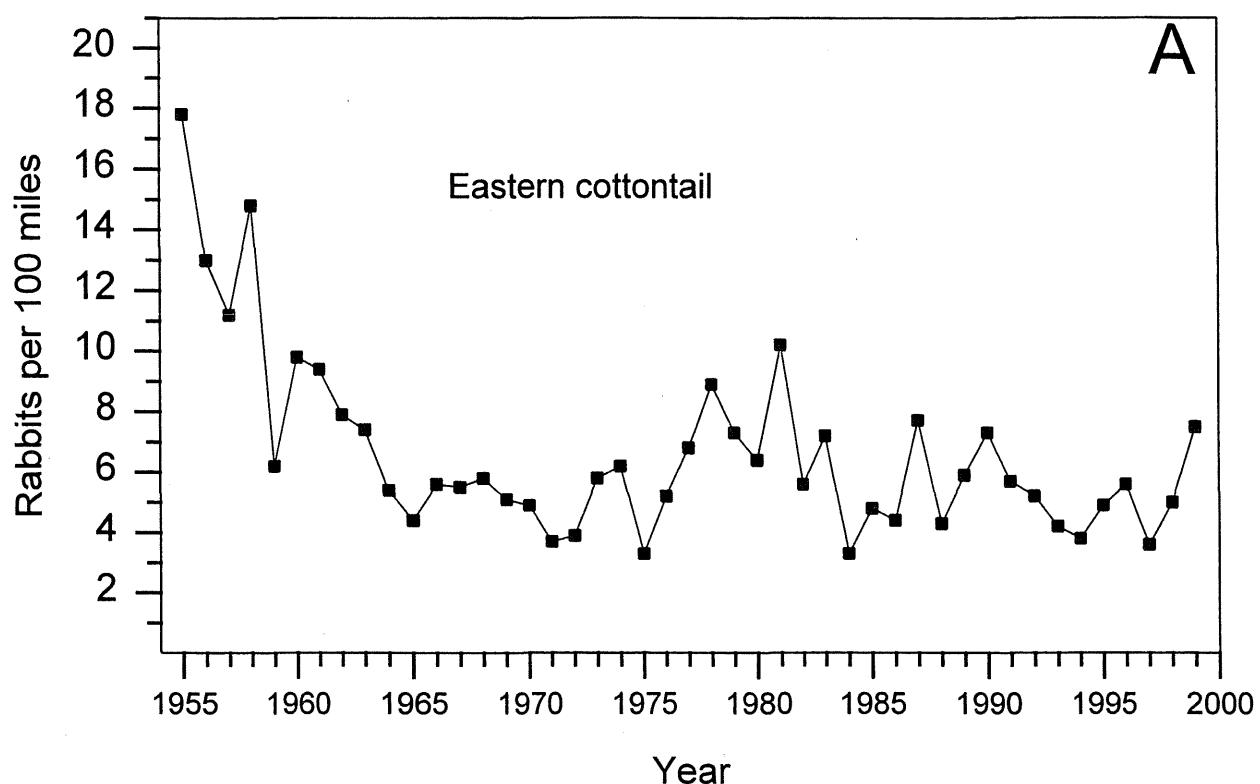


Figure 3. August roadside count indices (animals seen per 100 miles driven) for (A) Eastern cottontail and (B) White-tailed jackrabbit, 1955-1999. Indices do not include the Northwest agricultural region.

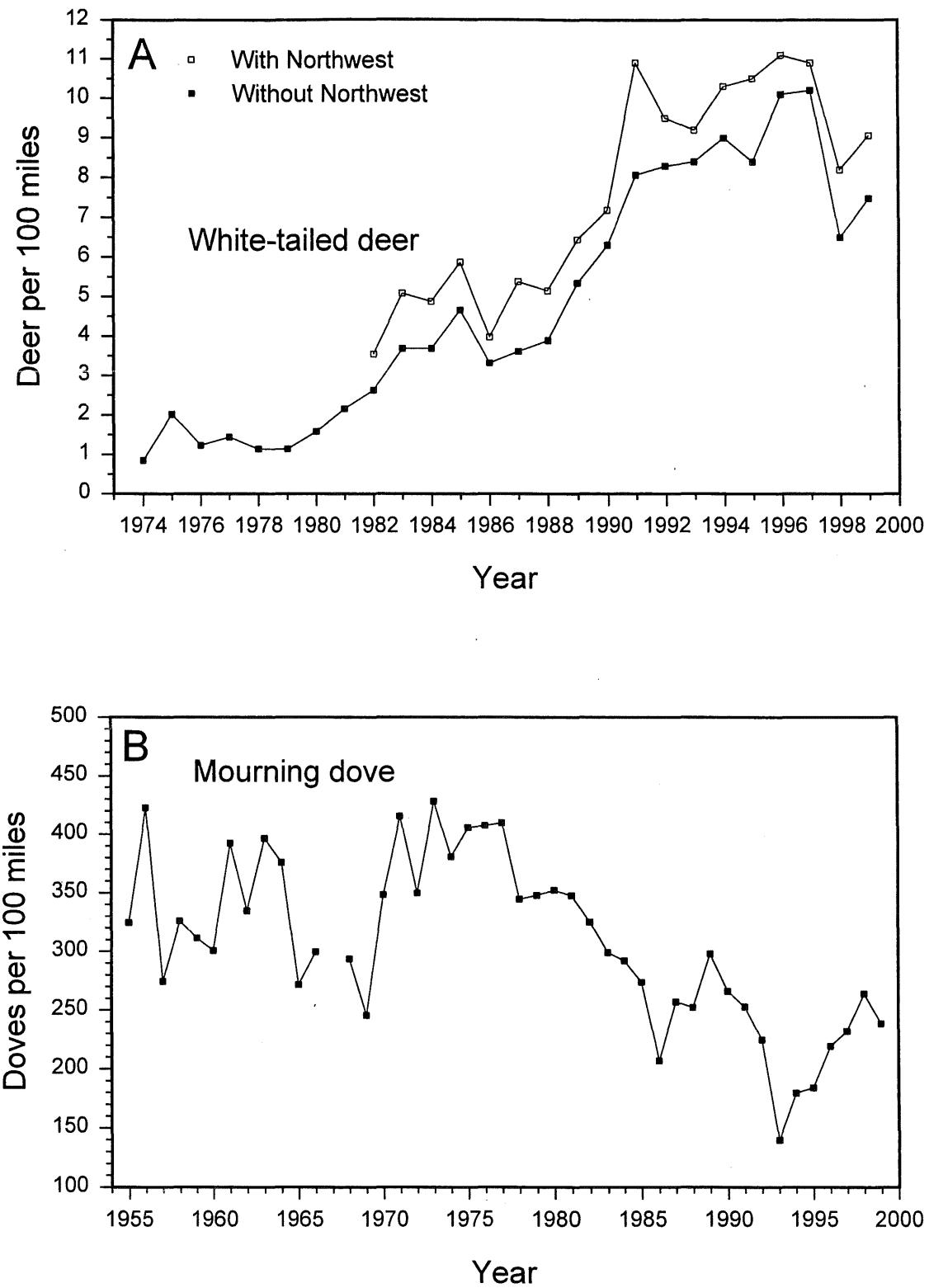


Figure 4. August roadside count indices (animals seen per 100 miles driven) for (A) White-tailed deer, including and excluding the Northwest agricultural region, 1974-1999; and (B) Mourning dove, 1955-1999. Dove means do not include the Northwest agricultural region. Doves were not counted in 1967.

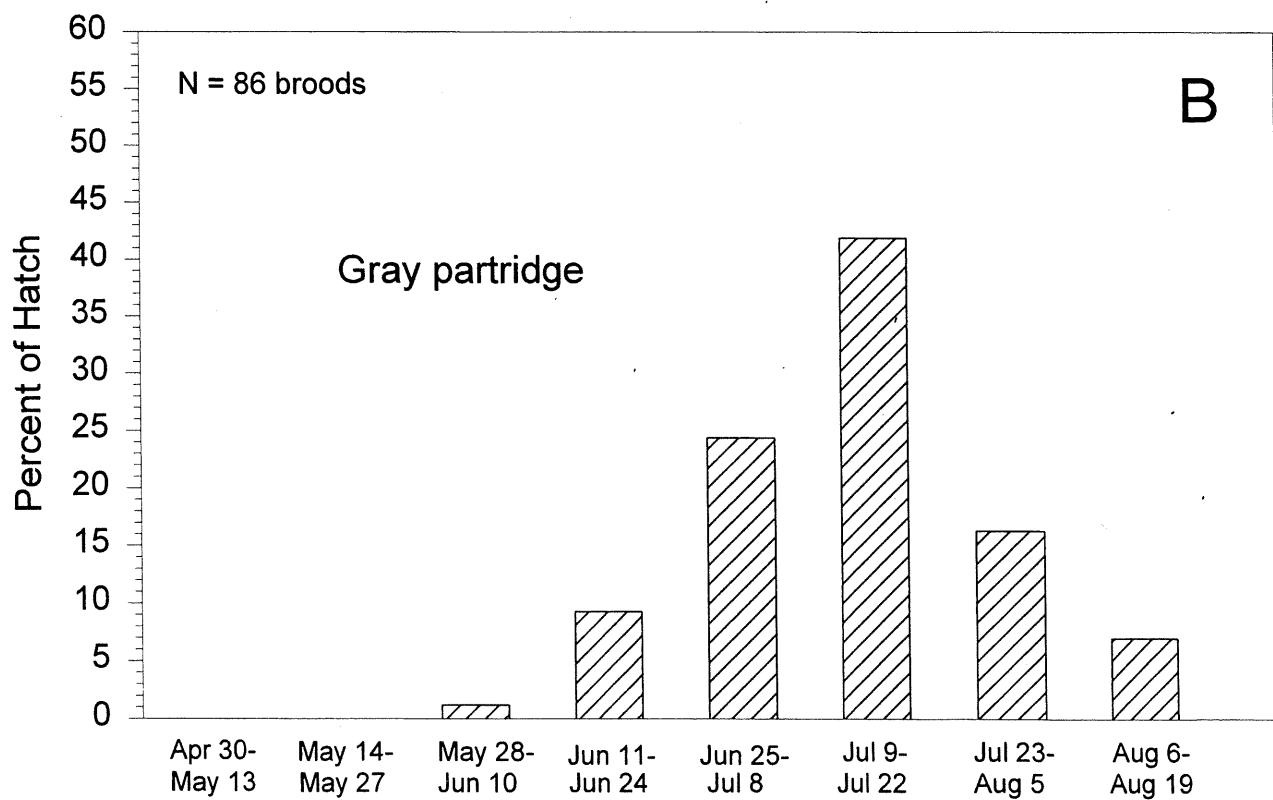
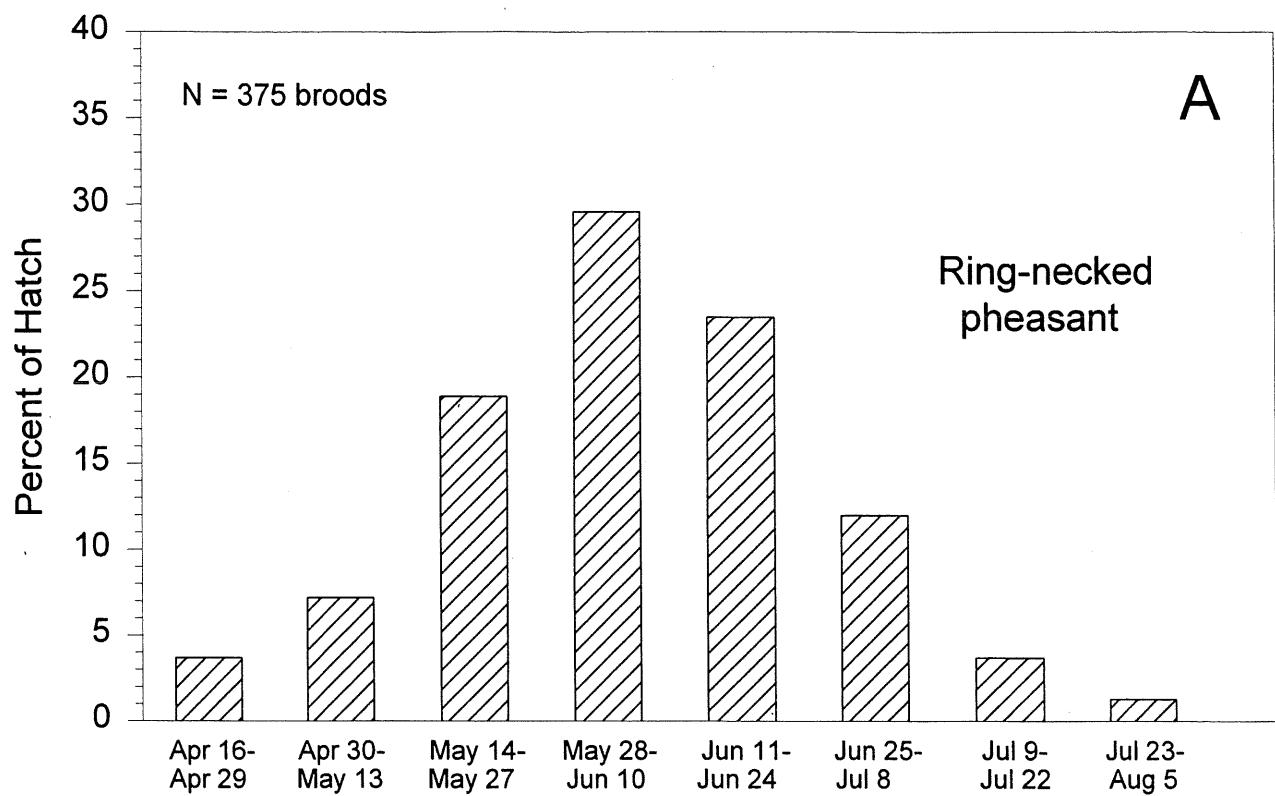


Figure 5. Biweekly distribution of (A) Ring-necked pheasant, and (B) Gray partridge hatch, 1999.

Table 8. Ring-necked pheasants seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1999.

Year	Agricultural region							Range-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 <sup>b</sup>	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

(Table 8 cont.)

Year	Agricultural region							Range-a wide
	WC	C	EC	SW	SC	SE	NW	
1995	21.4	39.5	25.3	65.9	101.9	109.2	0.0	58.9
1996	22.9	17.3	35.4	41.6	65.0	53.1	0.0	38.2
1997	8.2	23.0	21.2	20.0	68.6	46.2	0.0	31.6
1998	25.0	30.2	58.8	88.2	126.1	82.7	0.0	65.7
1999	30.6	55.6	34.8	135.6	79.0	56.2	0.0	62.4

<sup>a</sup> Range-wide means do not include the Northwest agricultural region because counties there are outside the pheasant range.

<sup>b</sup> 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 partridge seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1999.

Year	Agricultural region							Range-wide Mean	
	WC	C	EC	SW	SC	SE	NW	Without	With
								NW	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 <sup>a</sup>	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

(Table 9 cont.)

Year	Agricultural region							Range-wide Mean	
	WC	C	EC	SW	SC	SE	NW	Without NW	With NW
1995	2.1	2.8	0.0	23.5	24.5	15.0	0.0	11.1	9.8
1996	1.0	0.1	0.0	7.9	15.4	22.5	0.0	7.4	6.5
1997	0.2	3.1	0.0	18.5	35.4	18.4	0.0	12.8	11.4
1998	1.7	7.6	0.2	65.5	43.4	9.5	0.0	20.2	18.0
1999	2.4	9.9	0.0	96.0	36.4	9.4	0.0	23.2	20.6

<sup>a</sup> 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, 1955-1999.

Year	Agricultural region							Range-wide Mean	
	WC	C	EC	SW	SC	SE	NW	Without	With
								NW	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 <sup>a</sup>	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

(Table 10 cont.)

Year	Agricultural region							Range-wide Mean	
	WC	C	EC	SW	SC	SE	NW	Without	With
								NW	NW
1995	2.3	3.7	6.7	4.2	6.5	8.1	0.6	4.9	4.4
1996	1.4	2.9	7.5	6.6	10.5	6.5	0.2	5.6	5.0
1997	1.2	3.3	5.4	2.3	4.9	5.6	0.2	3.6	3.2
1998	2.8	2.1	4.5	7.2	7.6	8.0	0.6	5.0	4.5
1999	3.0	7.7	9.4	10.1	8.6	9.0	0.6	7.5	6.7

<sup>a</sup> 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, 1955-1999.

Year	Agricultural region							Range-wide Mean	
	WC	C	EC	SW	SC	SE	NW	Without	With
								NW	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 <sup>a</sup>	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

(Table 11 cont.)

Year	Agricultural region							Range-wide Mean	
	WC	C	EC	SW	SC	SE	NW	Without	With
								NW	NW
1995	0.4	0.3	0.0	0.2	1.0	0.4	0.2	0.4	0.4
1996	0.8	0.1	0.0	0.2	1.0	0.2	0.8	0.5	0.5
1997	0.6	0.1	0.5	0.6	0.5	0.0	0.2	0.4	0.4
1998	1.0	0.3	0.0	0.4	0.1	0.0	0.0	0.4	0.3
1999	0.8	0.4	0.0	0.8	0.4	0.4	0.2	0.5	0.5

<sup>a</sup> 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, 1955-1999.

Year	Agricultural region							Range-wide 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 <sup>a</sup>									
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 <sup>b</sup>	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

(Table 12 cont.)

Year	Agricultural region							Range-wide Mean	
	WC	C	EC	SW	SC	SE	NW	Without	With
								NW	NW
1995	242.2	169.1	74.5	112.9	197.5	234.5	85.2	184.1	173.4
1996	425.3	138.0	75.8	141.4	181.4	232.7	70.1	219.4	203.6
1997	368.4	169.0	111.3	309.5	195.6	162.0	120.4	232.0	219.6
1998	389.0	199.7	134.6	328.6	245.8	212.6	83.2	263.8	244.0
1999	340.8	223.5	64.7	318.3	212.4	195.6	72.0	238.4	220.1

<sup>a</sup> Mourning doves were not counted in 1967.

<sup>b</sup> 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. 1986-98  
 (counts summarized by AWM Terry Wolfe, Crookston).

County	Number of booming males (Number of booming grounds)												
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Becker	99 (11)	53 (7)	19 (3)	18 (3)	69 (7)	30 (3)	69 (6)	58 (10)	21 (3)	20 (3)	2 (1)	14 (1)	51 (5)
Cass	52 (14)	60 (15)	59 (13)	48 (9)	51 (8)	52 (12)	55 (10)	38 (8)	30 (5)	18 (5)	17 (2)	7 (2)	8 (3)
Chippewa	0	0	0	0	0	0	0	0	0	0	0	0	0
Clay	86 (9) <sup>a</sup>	87 (9)	0	83 (8)	307 (18)	441 (28)	654 (45)	366 (36)	306 (31)	422 (38)	539 (46)	335 (32)	411 (39)
Hubbard	16 (4)	22 (5)	24 (4)	19 (5)	29 (5)	24 (5)	18 (2)	17 (3)	14 (3)	9 (3)	9 (3)	3 (1)	2 (1)
Mahnomen	102 (17)	63 (9)	29 (5)	0	46 (6)	21 (3)	143 (13)	76 (76)	31 (4)	21 (6)	11 (2)	53 (4)	32 (3)
Marshall	0	0	0	0	1 (1)	0	0	0	0	0	0	0	0
Norman	128 (10)	87 (9)	111 (9)	73 (7)	145 (11)	215 (12)	339 (15)	221 (26)	248 (25)	278 (30)	314 (37)	160 (19)	260 (26)
Ottertail	0 <sup>a</sup>	0	21 (3)	0	0	1 (1)	4 (1)	16 (2)	5 (1)	0	28 (3)	19 (3)	58 (7)
Pennington	0	0	0	0	9 (1)	0	0	0	0	0	0	0	0
Polk	96 (17) <sup>a</sup>	72 (8)	72 (10)	150 (17)	204 (23)	267 (25)	311 (27)	190 (22)	189 (18)	228 (27)	197 (19)	154 (21)	251 (25)
Red Lake	0	0	0	5 (1)	34 (6)	38 (6)	38 (5)	12 (2)	21 (3)	25 (4)	32 (4)	33 (6)	21 (3)
Wadena	17 (7) <sup>a</sup>	105 (20)	99 (16)	59 (13)	134 (17)	145 (21)	38 (7)	43 (8)	12 (4)	9 (2)	15 (3)	18 (2)	0
Wilkin	81 (9) <sup>a</sup>	99 (8)	58 (3)	100 (6)	199 (15)	228 (13)	244 (13)	142 (11)	207 (12)	213 (16)	283 (19)	138 (12)	368 (22)
Total	677 (98)	648 (90)	492 (66)	555 (69)	1228 (118)	1432 (129)	1913 (144)	1179 (138)	1084 (109)	1274 (133)	1447 (142)	934 (103)	1462 (134)
males/ground	6.9	7.2	7.4	8.0	10.4	11.1	13.3	8.5	9.9	9.6	10.2	9.1	10.9

<sup>a</sup> 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.

# 1999 Deer Permit Areas, Farmland

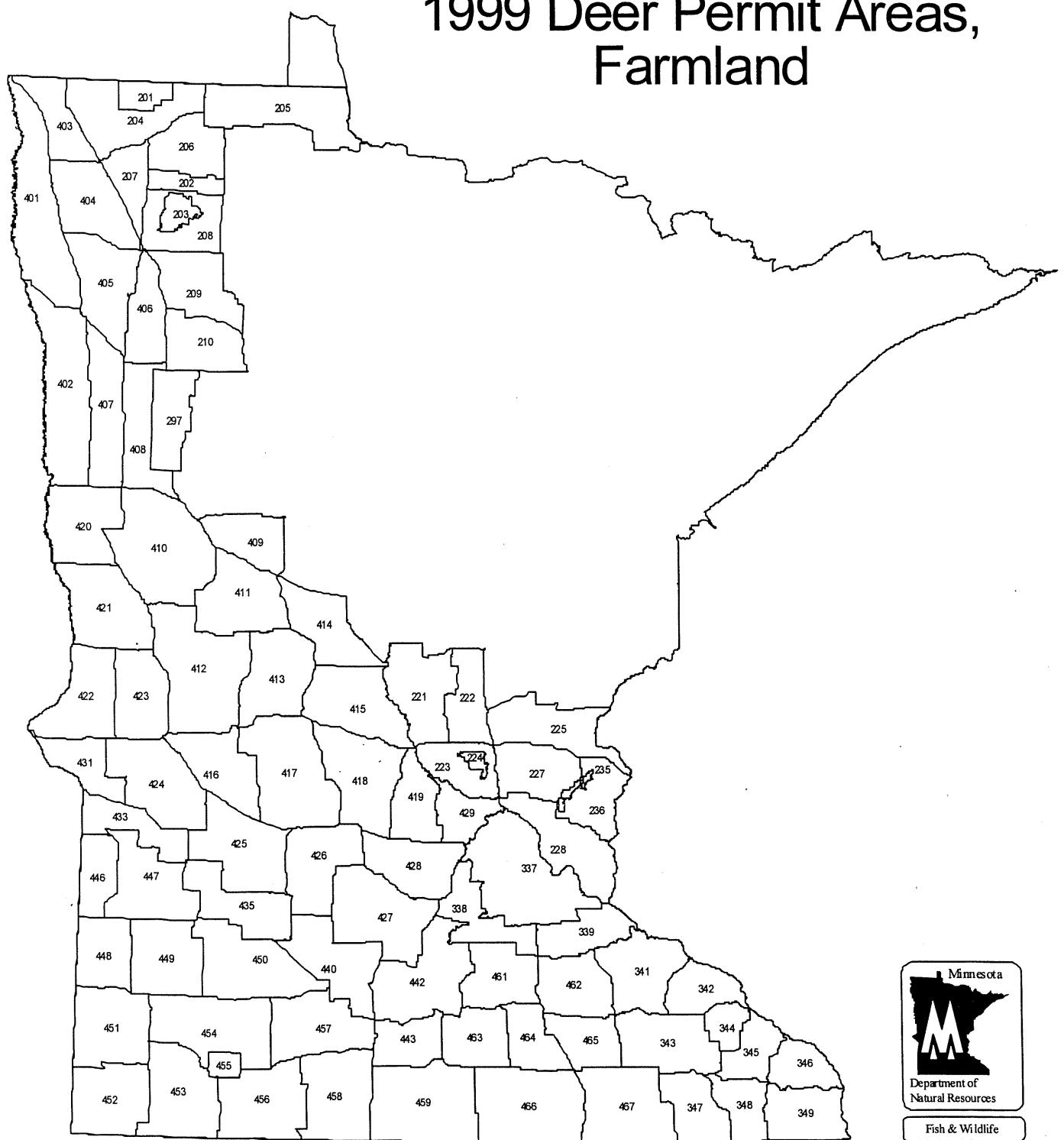


Figure 6. Deer permit areas in Minnesota's Farmland zone, 1999.

Table 14. Reproductive performance of white-tailed deer in Minnesota for the Northwest<sup>a</sup> Deer Management Unit (DMU), 1994-1999. The mean values (1994-98) are provided as references.

Year	Fawns			Adults		
	n	Percent pregnant	Fetuses per doe	n	Percent pregnant	Fetuses per doe
1999	5	0	0.00	14	100	1.57
1998	3	0	0.00	7	86	1.57
1997	4	0	0.00	12	100	1.50
1996	5	0	0.00	21	81	1.33
1995	4	25	0.25	6	100	2.00
1994	7	14	0.14	13	92	1.38
<u>Mean (1994-98)</u>	<u>8</u>	<u>0.08</u>		<u>92</u>	<u>1.56</u>	

<sup>a</sup>Red River (East and West) and Agassiz DMUs were combined into the Northwest DMU due to the small sample sizes.

Table 15. Reproductive performance of white-tailed deer in Minnesota for the Big Woods Deer Management Unit, 1994-1999. The mean values (1994-98) are provided as references.

Year Subunit	Fawns			Adults		
	n	Percent pregnant	Fetuses per doe	n	Percent pregnant	Fetuses per doe
1999	49	37	0.43	95	91	1.61
North	7	14	0.14	4	100	1.50
Central	3	67	0.67	5	100	2.00
Metro	26	35	0.46	63	87	1.51
Southeast	13	46	0.46	23	100	1.83
1998	53	23	0.25	109	91	1.71
1997	40	33	0.35	96	88	1.64
1996	59	9	0.17	112	96	1.84
1995	21	19	0.19	54	91	1.78
1994	46	15	0.17	99	94	1.67
<u>Mean (1994-98)</u>	<u>20</u>	<u>0.23</u>		<u>92</u>	<u>1.73</u>	

Table 16. Reproductive performance of white-tailed deer in Minnesota for the Prairie Deer Management Unit, 1994-1999. The mean values (1994-98) are provided as references.

Year Subunit	Fawns			Adults		
	n	Percent pregnant	Fetuses per doe	n	Percent pregnant	Fetuses per doe
1999	26	19	0.23	47	96	1.74
North	7	0	0.00	10	100	2.00
River	11	36	0.45	24	92	1.71
Southwest	8	13	0.13	11	100	1.64
Southeast	0	0	0.00	2	100	1.50
1998	18	17	0.17	38	97	1.66
1997	26	4	0.04	49	92	1.67
1996	28	14	0.14	30	90	1.57
1995	39	21	0.26	50	92	1.72
1994	32	16	0.22	46	98	1.89
Mean (1994-98)	14	14	0.17	94	94	1.70

Table 17. Pre-fawning deer density estimates<sup>a</sup> (deer/mi<sup>2</sup>) and population goals (deer/mi<sup>2</sup>) by deer management unit (DMU), sub-unit, (DMSU), and permit area (PA) in Minnesota's farmland zone, 1993-99.

DMU DMSU PA	Area (mi <sup>2</sup> )	Density							Goal		
		1993	1994	1995	1996	1997	1998	1999			
<b>RED RIVER</b>											
West											
401	1,039	1.8	1.9	1.7	1.7	1.4	1.4	2.1	0.8-1.2		
402	1,021	2.5	2.7	2.2	2.2	2.2	1.8	2.3	1.7-2.3		
Total	2,060	2.1	2.3	1.9	2.0	1.8	1.6	2.2			
East											
403	396	4.6	4.1	3.6	5.1	3.0	4.0	4.0	2.2-2.8		
404	631	5.5	5.8	4.4	4.5	3.5	4.3	4.7	2.7-3.3		
405	654	4.5	4.4	3.8	3.9	2.9	2.8	3.2	2.2-2.8		
406	413	7.3	6.9	5.6	6.8	4.1	4.6	5.1	2.7-3.3		
407	618	5.6	4.9	3.7	4.1	2.6	3.1	3.7	3.6-4.4		
408	494	5.3	4.8	4.7	4.6	3.0	3.2	3.8	3.6-4.4		
Total	3,206	5.4	5.1	4.2	4.7	3.2	3.6	4.0			
RED RIVER TOTAL	5,266	4.1	4.0	3.3	3.6	2.6	2.8	3.3			
<b>AGASSIZ</b>											
201	155	8.6	8.3	7.3	5.1	3.5	2.0	3.0	9.0-11.0		
202	156	15.0	11.1	12.1	10.9	8.9	4.9	9.0	10.0-12.0		
203	108	23.3	17.1	15.2	14.2	3.1	1.8	3.4	13.5-16.5		
204	718	8.5	7.4	6.8	6.7	5.1	4.4	5.8	5.0-6.0		
205	642	8.3	7.5	6.7	6.5	4.2	4.5	7.0	6.2-7.4		
206	471	6.7	6.4	6.9	7.1	5.8	3.5	6.0	5.3-6.3		
207	300	8.7	7.6	7.5	6.6	4.1	4.5	6.7	7.7-9.2		
208	448	5.0	4.4	4.1	4.6	2.2	2.0	3.6	2.7-3.3		
209	576	4.7	4.4	3.5	3.6	2.8	2.3	3.8	2.3-2.7		
210	485	7.5	6.5	6.7	5.4	4.4	4.1	6.2	2.3-2.7		
AGASSIZ TOTAL	4,059	7.9	6.9	6.5	6.2	4.3	3.6	5.6			

Table 17. Continued.

DMU DMSU PA	Area (mi <sup>2</sup> )	Density							Goal		
		1993	1994	1995	1996	1997	1998	1999			
<b>BIG WOODS</b>											
North											
409	417	18.5	16.4	18.0	14.8	15.5	16.2	15.1	5.6-6.8		
410	924	8.8	9.3	9.4	7.1	5.9	7.1	8.8	5.5-6.5		
411	642	14.6	9.8	12.2	9.1	8.5	11.0	11.9	5.0-6.0		
412	989	7.2	6.9	7.2	5.9	5.3	5.3	6.0	3.6-4.4		
413	644	7.7	7.4	7.9	7.5	6.5	6.1	9.1	5.6-6.0		
414	557	11.2	8.8	11.4	8.3	8.3	10.6	10.2	8.0-10.0		
415	702	4.9	5.1	7.0	6.0	4.7	6.0	5.8	4.0-6.0		
416	544	7.7	5.6	6.1	5.6	4.4	5.2	5.9	3.6-4.4		
417	939	7.1	5.1	6.1	6.1	4.6	5.2	5.7	3.0-5.0		
418	760	5.6	4.1	4.9	5.9	3.2	4.2	5.3	4.0-6.0		
419	393	6.7 <sup>b</sup>	6.9	10.1	5.8	6.0	7.0	7.3	3.0-4.0		
429	288	3.8 <sup>b</sup>	3.7	6.6	2.1	3.0	3.6	4.1	3.0-4.0		
Total	7,799	8.4	7.2	8.5	6.9	6.1	7.0	7.7			
Central											
221	642	9.8	7.4	7.4	7.5	6.7	6.9	7.2	9.0-11.0		
222	412	15.6	10.7	13.0	11.7	10.1	9.5	9.7	10.8-13.2		
223	376	12.2	10.6	8.6	11.0	8.5	11.3	10.5	6.0-8.0		
224	48	25.8	21.4	11.5	20.5	16.2	21.5	14.5	14.0-18.0		
225	329	11.0 <sup>b</sup>	6.2	8.6	10.5	8.4	8.7	8.4	7.2-8.8		
226	290	16.1 <sup>b</sup>	11.7	9.6	7.6	9.4	8.0	9.9	5.4-6.6		
Total	2,097	12.8	9.4	9.3	9.7	8.5	9.0	9.0			
Metro <sup>c</sup>											
227	472	14.5 <sup>b</sup>	12.3	6.1	6.9	12.1	9.7	11.4	4.5-5.8		
235	33	29.2	17.0	21.6	13.1	18.9	21.0	16.8	23.0-28.0		
236	374	17.8 <sup>b</sup>	15.3	7.5	9.1	16.6	14.3	16.8	2.0-2.5		
338	452	4.6 <sup>b</sup>	3.9	4.6	5.1	4.6	3.8	4.4	4.5-5.5		
339	395	4.6 <sup>b</sup>	4.2	5.5	5.7	5.4	6.2	5.2	3.2-3.8		
Total	1,726	10.6	9.0	6.2	6.7	9.7	8.6	9.4			

Table 17. Continued.

DMU DMSU PA	Area (mi <sup>2</sup> )	Density							Goal
		1993	1994	1995	1996	1997	1998	1999	
<b>Southeast</b>									
341	611	6.6	5.3	6.6	8.4	7.4	8.7	9.1	4.5-5.5
342	352	11.8	8.6	9.4	10.9	10.7	8.0	13.9	7.0-9.0
343	663	6.1	5.5	6.3	8.3	7.4	8.5	8.3	4.5-5.5
344	189	22.5	19.3	17.8	20.0	20.4	19.7	20.0	18.0-22.0
345	326	11.9	9.5	10.0	13.5	7.5	12.3	11.9	8.1-9.9
346	319	20.7	11.0	12.7	14.7	17.4	13.5	17.8	9.0-11.0
347	434	7.9	6.8	8.2	6.9	8.8	10.6	9.4	5.4-6.6
348	332	13.4	10.5	13.6	12.2	12.3	16.8	15.9	9.0-11.0
349	492	11.0	9.7	10.2	9.9	12.9	14.0	14.5	9.0-11.0
Total	3,718	10.8	8.4	9.5	10.6	10.6	11.5	12.3	
BIG WOODS TOTAL	15,340	9.9	8.0	8.6	8.2	7.9	8.5	9.2	
<b>PRAIRIE</b>									
North									
420	651	4.0	3.7	3.6	3.1	2.8	2.0	1.9	1.7-2.3
421	749	3.2	2.6	2.7	2.7	2.1	1.7	2.1	1.6-2.2
422	634	3.7	3.7	2.9	2.3	2.9	1.6	2.8	1.4-2.0
423	531	3.1	2.6	2.9	2.7	2.8	2.1	2.8	1.3-1.9
424	766	4.6	3.1	4.1	3.0	2.8	2.3	3.3	1.8-2.0
425	779	1.8	2.0	2.3	2.2	2.0	1.3	1.0	1.0-2.0
426	614	3.7	3.5	3.8	2.1	3.0	2.3	3.2	2.3-3.0
427	837	3.1	1.8	2.3	2.5	1.5	1.6	1.8	1.3-1.7
428	550	3.7	2.4	3.8	2.8	2.8	2.5	3.0	2.3-2.8
Total	6,111	3.4	2.8	3.1	2.6	2.5	1.9	2.4	
<b>River</b>									
431	360	5.3	5.7	4.7	3.1	4.7	3.3	4.0	2.2-2.5
433	397	10.3	6.4	6.7	6.3	6.4	5.5	6.7	4.0-5.0
435	575	6.5	5.3	4.4	4.2	4.2	3.5	4.9	3.2-3.8
440	662	4.4	2.0	3.3	3.4	3.8	3.5	3.6	3.2-3.8
442	806	4.3	3.6	3.9	3.7	3.8	3.6	3.5	3.2-3.8
443	386	3.4	3.6	4.5	4.4	4.4	4.1	5.0	3.2-4.0
Total	3,186	5.5	4.2	4.4	4.1	4.4	3.8	4.4	

Table 17. Continued.

DMU DMSU PA	Area (mi <sup>2</sup> )	Density							Goal
		1993	1994	1995	1996	1997	1998	1999	
<b>Southwest</b>									
446	345	4.7	3.4	3.3	3.2	3.2	3.0	3.1	2.7-3.5
447	675	2.5	1.9	2.3	2.8	2.0	1.9	2.8	2.5-3.1
448	447	3.2	2.7	3.7	3.1	3.2	2.5	3.6	3.2-4.0
449	625	3.6	3.1	3.6	3.5	3.0	3.4	3.8	3.2-4.0
450	816	1.3	1.3	2.1	2.0	1.4	1.3	1.2	1.2-1.8
451	687	1.9	2.7	2.9	2.3	2.8	3.2	1.9	2.4-3.0
452	637	1.0	1.4	1.7	2.3	1.9	2.1	2.0	1.4-2.0
453	729	1.2	1.8	1.8	2.5	2.1	2.1	1.9	1.4-2.0
454	840	2.5	2.6	3.1	3.6	2.5	2.6	3.0	2.0-2.6
455	95	2.4	3.3	4.7	3.1	3.5	3.0	4.3	3.7-4.5
456	712	2.4	2.2	2.6	2.5	2.6	2.6	3.3	1.7-2.3
457	666	2.3	1.5	3.2	2.6	2.0	2.2	2.3	1.7-2.3
458	715	2.0	1.8	2.6	2.6	2.8	2.5	2.6	1.5-2.1
459	974	1.7	1.8	2.5	3.4	2.7	2.9	3.0	1.7-2.3
Total	8,963	2.2	2.1	2.7	2.8	2.4	2.5	2.6	
<b>Southeast</b>									
461	481	4.2	3.8	4.6	3.4	5.1	4.6	4.4	2.5-3.1
462	511	4.4	3.9	4.6	4.3	4.7	5.0	5.3	2.7-3.3
463	453	2.2	2.4	2.1	2.7	2.7	2.5	3.0	1.7-2.3
464	377	2.5	2.3	3.3	3.5	4.1	3.6	3.5	1.7-2.3
465	385	2.0	2.3	2.7	2.6	1.9	3.3	2.9	1.5-2.1
466	931	2.1	1.9	2.5	2.6	3.2	2.5	2.9	1.6-2.2
467	774	1.4	1.4	2.6	3.5	2.7	2.4	2.2	1.0-2.0
Total	3,912	2.6	2.4	3.1	3.2	3.4	3.2	3.3	
<b>PRAIRIE TOTAL</b>	<b>22,172</b>	<b>3.1</b>	<b>2.6</b>	<b>3.1</b>	<b>3.0</b>	<b>2.9</b>	<b>2.6</b>	<b>2.9</b>	
<b>FARMLAND TOTAL</b>	<b>46,837</b>	<b>5.8</b>	<b>4.9</b>	<b>5.2</b>	<b>5.0</b>	<b>4.6</b>	<b>4.7</b>	<b>5.3</b>	

<sup>a</sup>Pre-fawning deer density estimates are determined from population modeling. Historical estimates may differ from those previously published due to periodic recalculation as more accurate modeling information becomes available.

<sup>b</sup>Because of boundary changes within this permit area, deer density was back-calculated using 1993 deer harvest data.

<sup>c</sup>Excluding permit areas 228 and 337, which are not modeled.

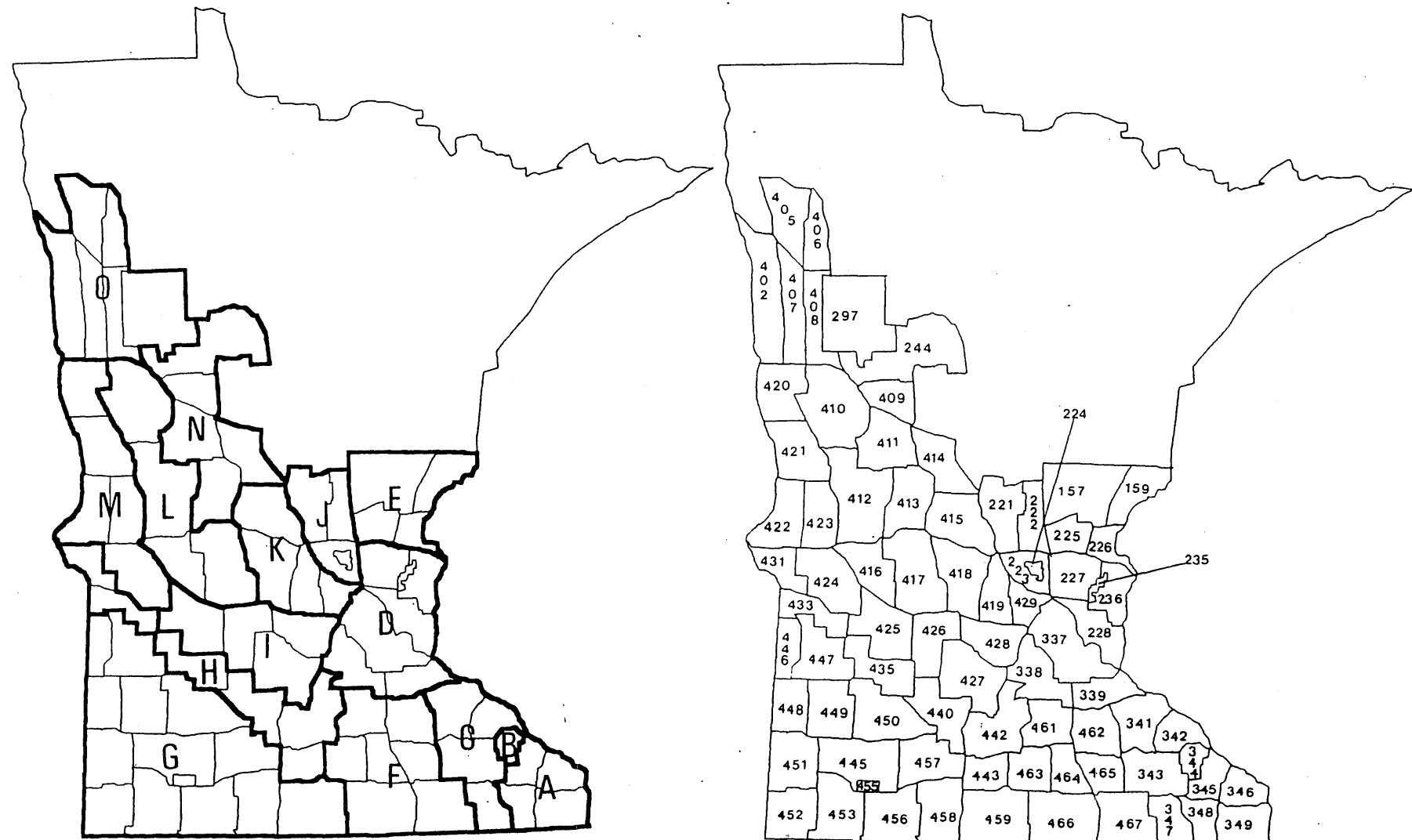


Figure 7. (a) Location of turkey management units (TMU's) and (b) antlerless deer permit areas used for the wild turkey survey, Minnesota, November-December, 1997.

Table 18. Percent of antlerless-deer hunters observing wild turkeys (HOWT) in Minnesota, November-December, 1992-97. Note: No survey conducted in 1995, 1996 or 1998.

Turkey Management Unit	Year	n (Respondents)	HOWT	99% CI on HOWT for 1993-94
A	1992	629	62.8	7.2
	1993	637	64.8	
	1994	618	61.2	
	1997	593	64.1	
B	1992	473	62.4	8.9
	1993	467	53.1	
	1994	421	59.6	
	1997	409	58.8	
C	1992	632	52.4	7.3
	1993	637	57.6	
	1994	615	55.0	
	1997	577	64.9*	
D	1992	563	17.1	6.6
	1993	633	17.4	
	1994	633	19.3	
	1997	603	38.0*	
E	1992	581	3.4	4.2
	1993	647	7.1	
	1994	638	4.7	
	1997	628	14.1*	
F	1992	583	19.0	6.7
	1993	594	24.8	
	1994	652	27.6	
	1997	642	36.3*	
G	1992	625	3.7	4.7
	1993	644	5.3	
	1994	616	7.6	
	1997	612	14.8*	
H	1992	598	16.4	6.1
	1993	655	16.0	
	1994	636	17.1	
	1997	639	31.8*	
I	1992	596	4.5	3.8
	1993	569	3.9	
	1994	562	2.7	
	1997	537	9.7*	
J	1992	560	2.1	4.5
	1993	609	1.6	
	1994	539	4.6	
	1997	585	15.0*	
K	1992	600	6.0	4.9
	1993	624	5.6	
	1994	614	8.5	
	1997	596	16.6*	
L	1992	653	1.7	3.6
	1993	687	2.5	
	1994	667	4.2	
	1997	693	10.1*	
M	1992	578	2.9	3.0
	1993	597	3.4	
	1994	613	3.1	
	1997	564	4.8	
N	1992	663	2.1	2.7
	1993	710	1.7	
	1994	657	2.3	
	1997	629	4.6	
O	1992	576	3.8	2.0
	1993	626	1.9	
	1994	620	2.6	
	1997	572	1.3	

\* Significant change in index from 1994 to 1997 ( $p < 0.01$ )



PREDATOR SCENT POST SURVEY

AND

WINTER TRACK INDICES

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.



### 1998 SCENT STATION ROUTE SPECIFICS

Zone	Routes Done	No. Segments	Segment Density	Station Nights
Forest	47	190	1/171 mi <sup>2</sup>	1,850
Transition	31	129	1/197 mi <sup>2</sup>	1,185
Farm	22	86	1/305 mi <sup>2</sup>	827
Totals	100	405		3,862

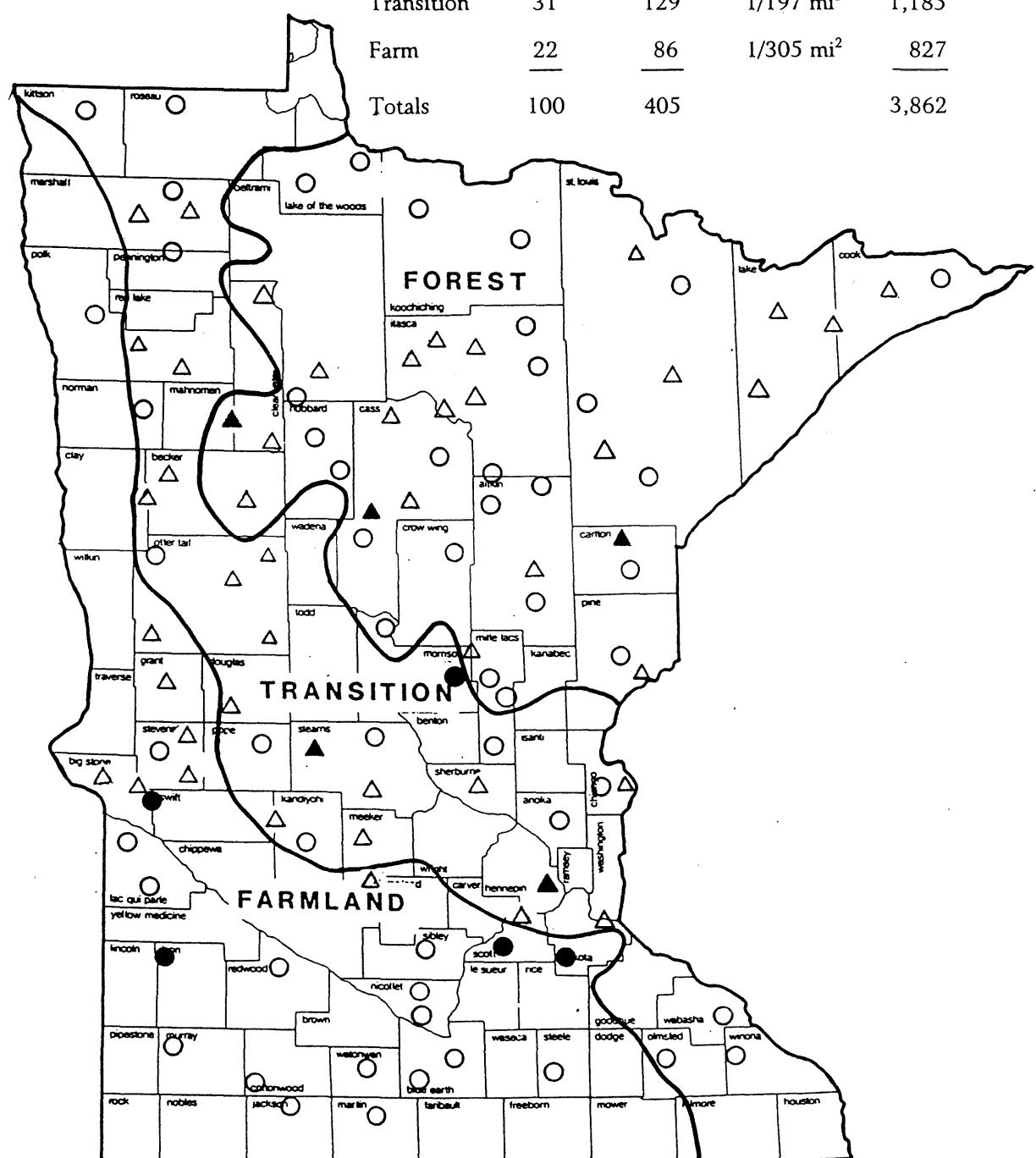


Figure 8. Approximate locations of scent station routes conducted by DNR Section of Wildlife (O) and interagency cooperators ( $\Delta$ ) in the Forest, Transition, and Farmland Survey Zones, 1998. Shaded symbols indicate routes not completed in 1998.

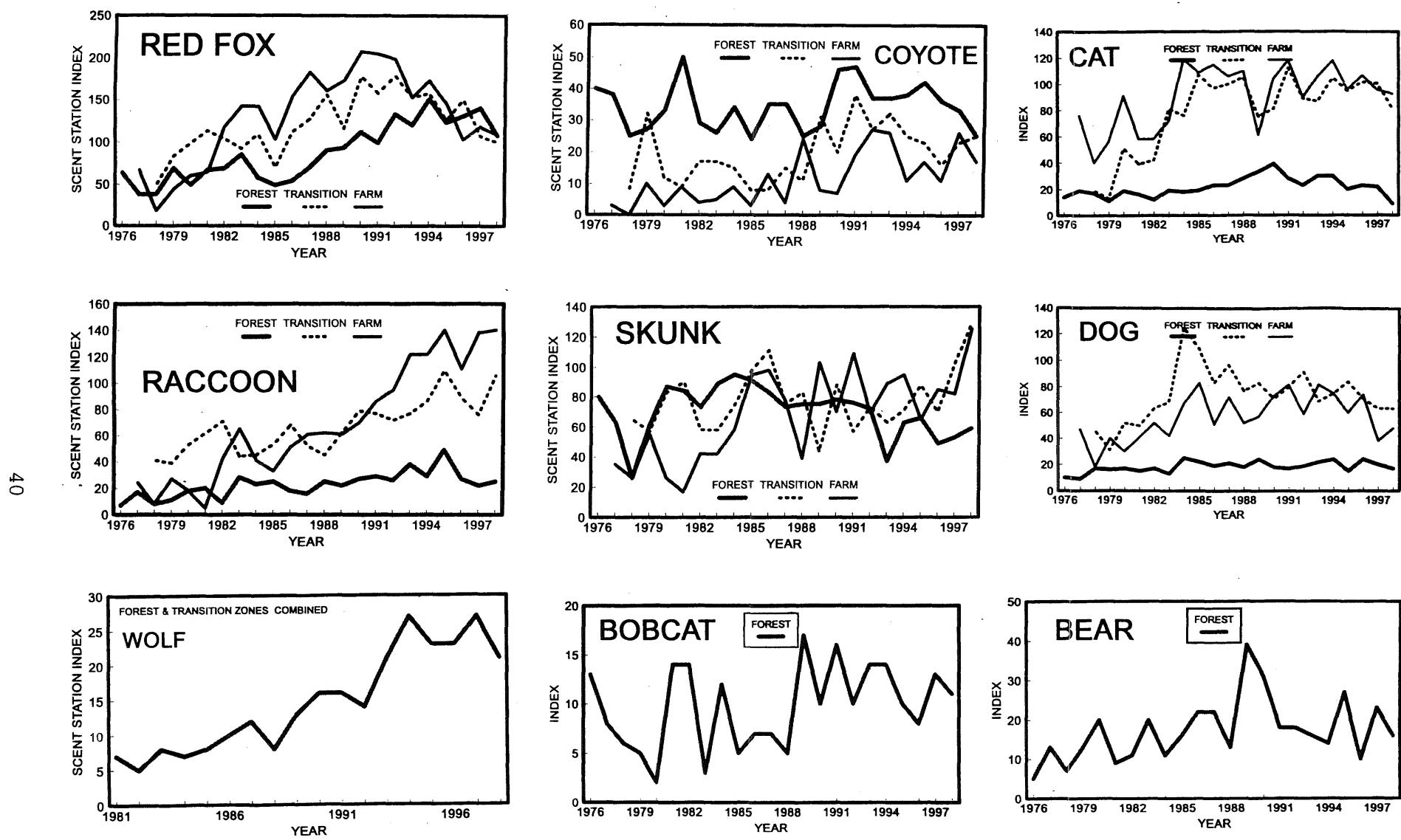


Figure 9. Scent post visitation indices for nine species in the Forest, Transition, and Farmland survey zones, 1976-98.

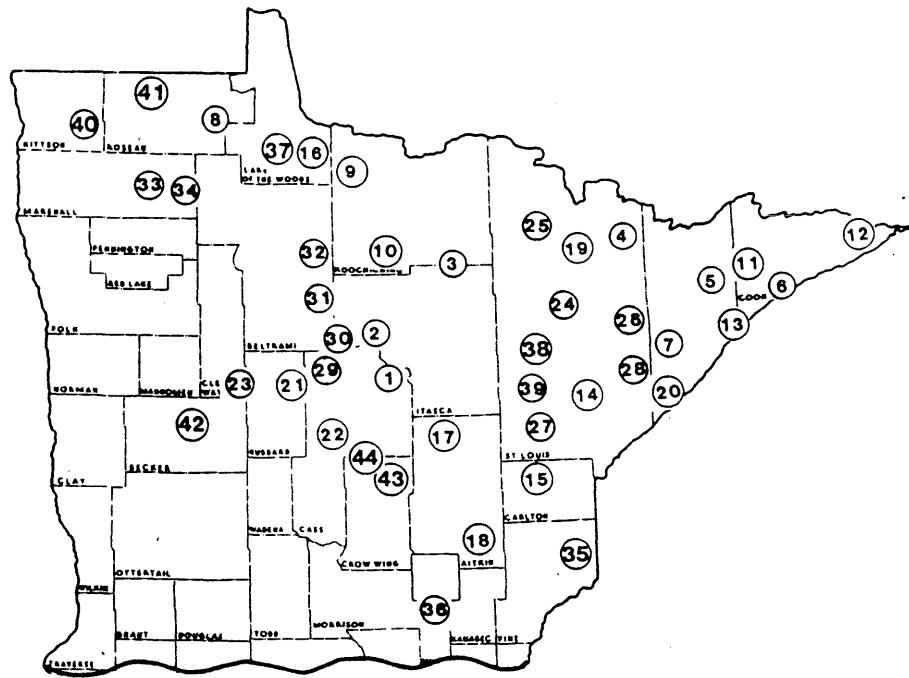


Figure 10. General locations of 44 winter track routes, 1998.

Table 19. Range-wide winter track indices<sup>1</sup> for 7 species, 1991-98.

Species	1991	1992	1993	1994	1995	1996	1997	1998
Fisher	100	128	93	253	345	237	189	212
Marten	250	293	286	223	490	272	283	126
Red Fox	167	172	214	682	393	458	593	774
Coyote	0	43	71	39	150	117	137	93
Wolf	216	307	193	202	462	268	684	419
Hare <sup>2</sup>	1166	607	1000	1147	2107	1408	2370	1756
Weasel <sup>3</sup>	-	-	-	-	1186	612	642	549
No. Routes	6	7	7	22	21	30	31	36

adjusted total tracks x 1000

<sup>1</sup> index =      total miles

<sup>2</sup> index calculated from tracks on only 2 miles (20 0.1 segments) of each route

<sup>3</sup> weasel were first recorded in 1995



**FOREST WILDLIFE POPULATIONS**  
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Table 20. Mean number of ruffed grouse drums per stop by census zone, 1961-99.

Year	Census Zone					Rangewide mean
	Northwest	North	Northeast	Central Hardwoods	Southeast	
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
1995	2.1	1.5	0.6	0.9	0.5	1.2
1996	2.4	1.8	0.7	0.8	0.5	1.4
1997	2.0	2.3	1.5	0.9	0.4	1.7
1998	1.7	2.7	1.2	1.2	0.5	1.8
1999	2.3	2.1	1.2	1.3	0.5	1.7

## RUFFED GROUSE 1998-1999

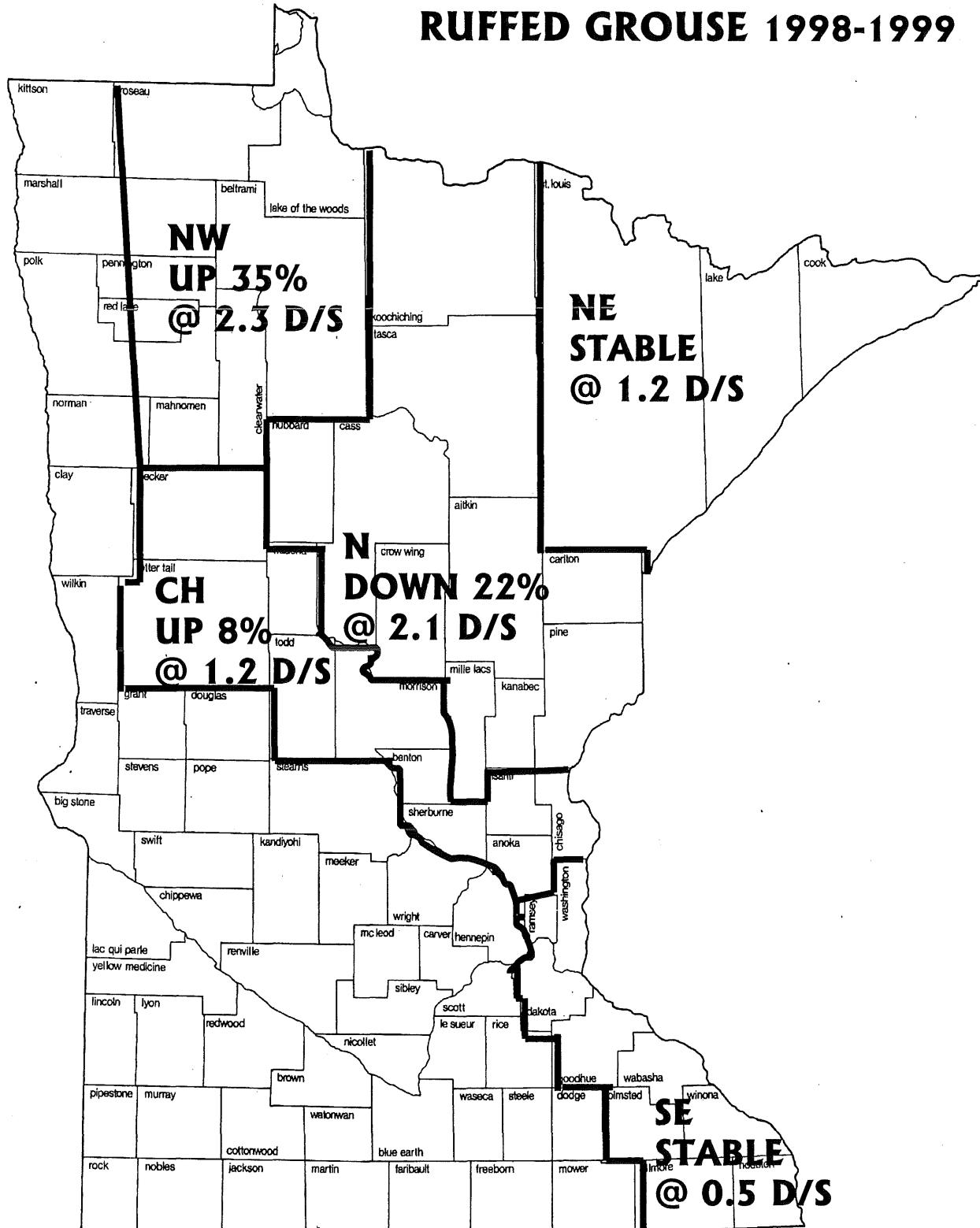


Figure 11. Changes in average numbers of ruffed grouse drums per stop on roadside counts, 1998-1999.

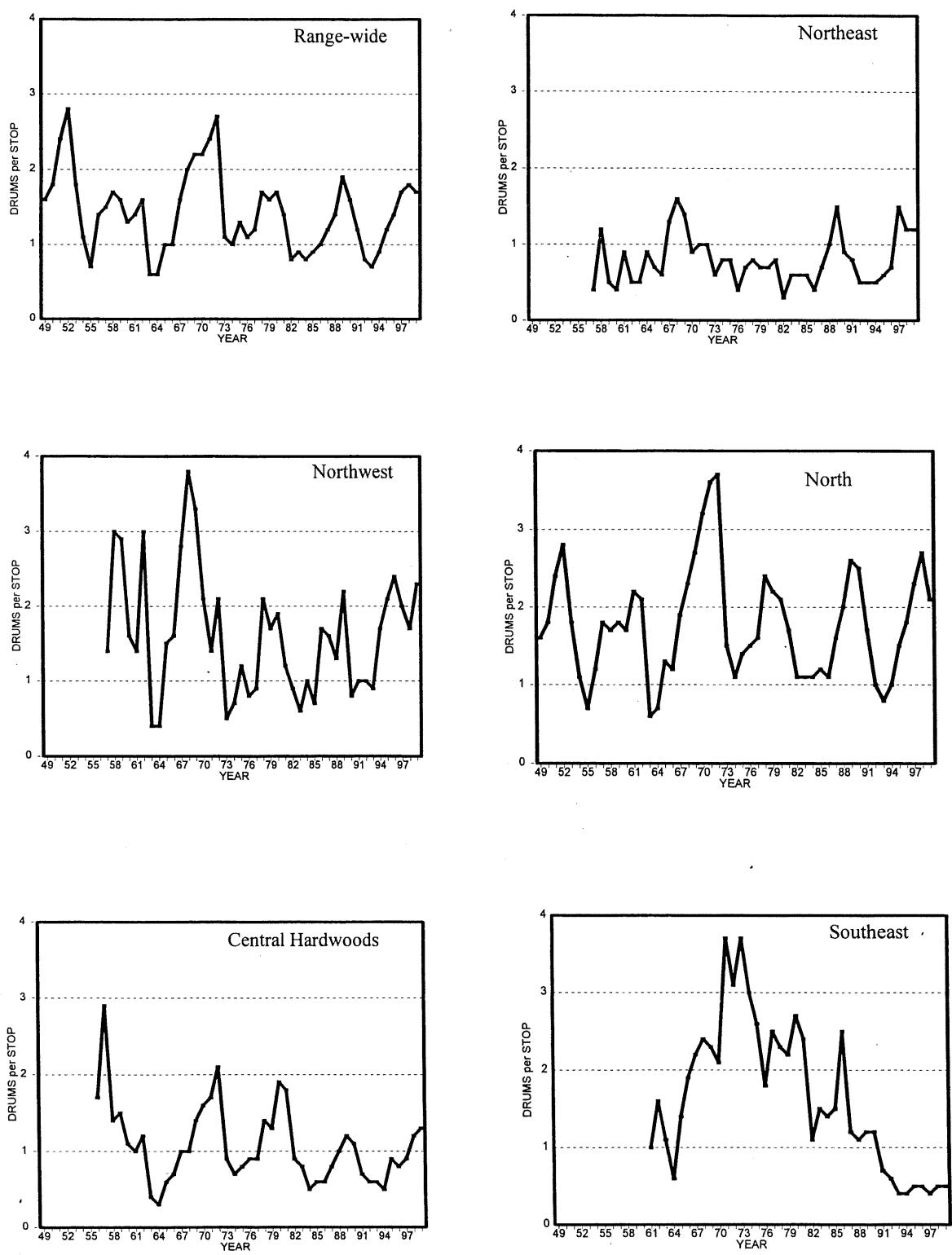


Figure 12. Summary of ruffed grouse drumming trends range-wide and in each of five survey zones, 1949-99.

# **SHARP-TAILED GROUSE**

## **1998-1999**

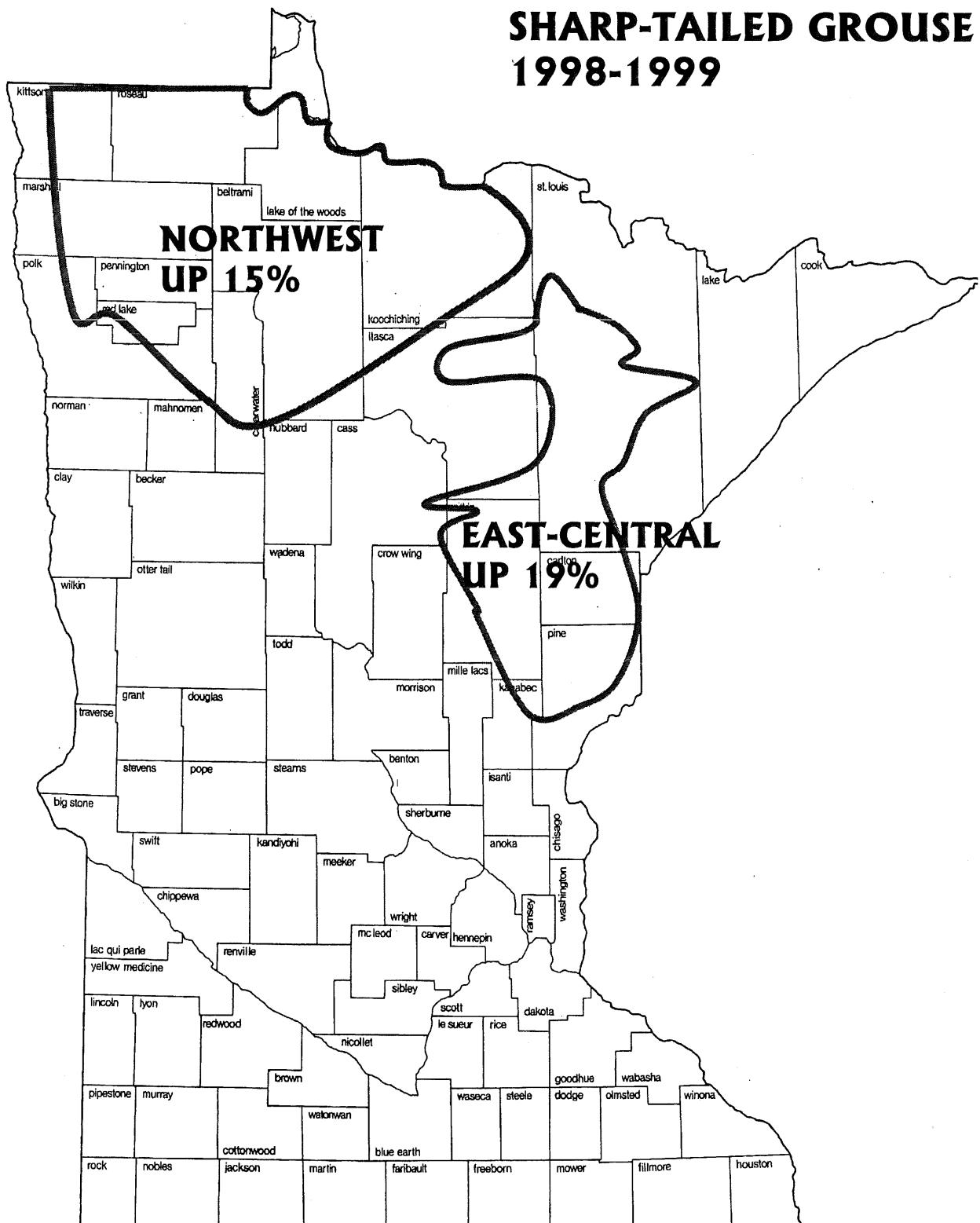


Figure 13. Changes in male sharp-tailed grouse counted on comparable dancing grounds in the Northwest and East-central ranges, 1998-1999.

Table 21. Number of snowshoe hares seen per 100 km of ruffed grouse drumming routes in the North, Northwest, and Northeast survey zones, 1974-99.

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
1995	0.5
1996	1.3
1997	0.9
1998	0.4
1999	1.08

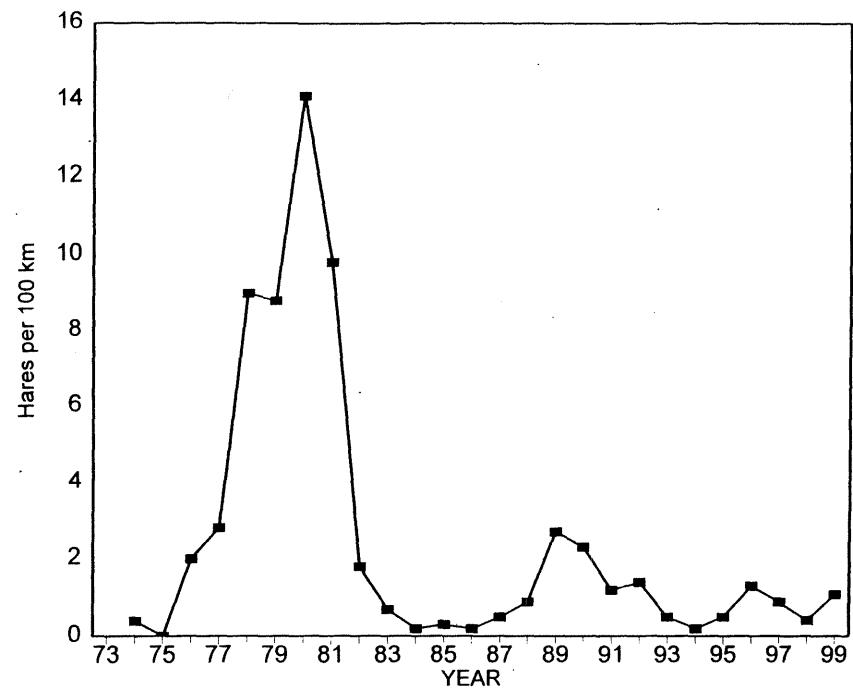


Figure 14.

Snowshoe hare index (hares/100 km) based on hares seen on northern ruffed grouse drumming routes, 1974-99.

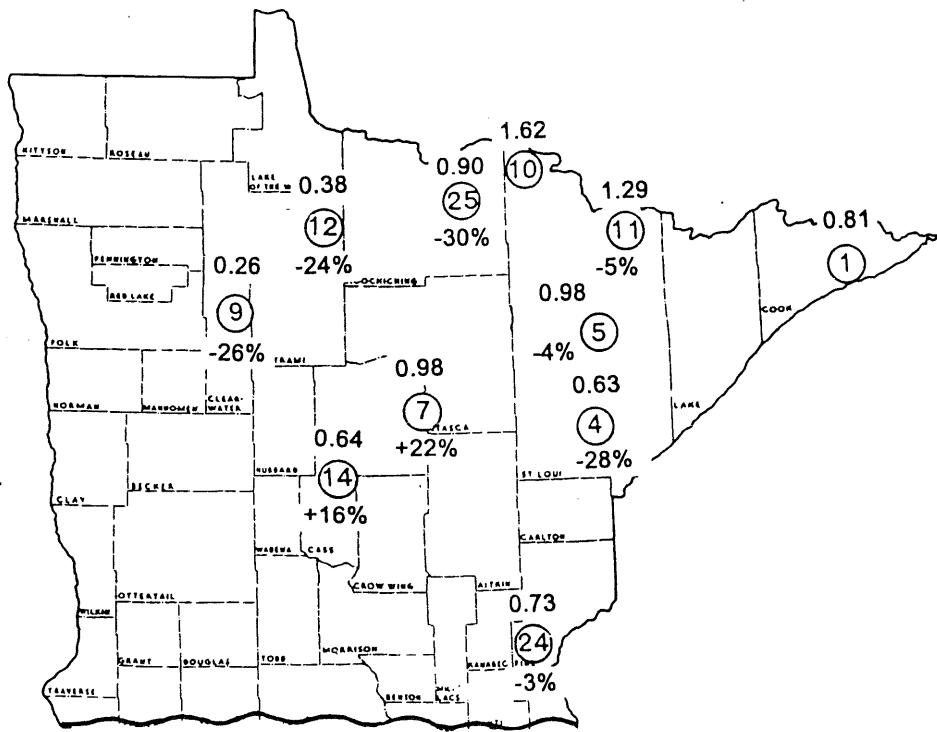


Figure 15. Approximate locations of the aerial beaver routes (route numbers circled), live colonies per mile (LC/M) in 1998, and percent change from 1997.

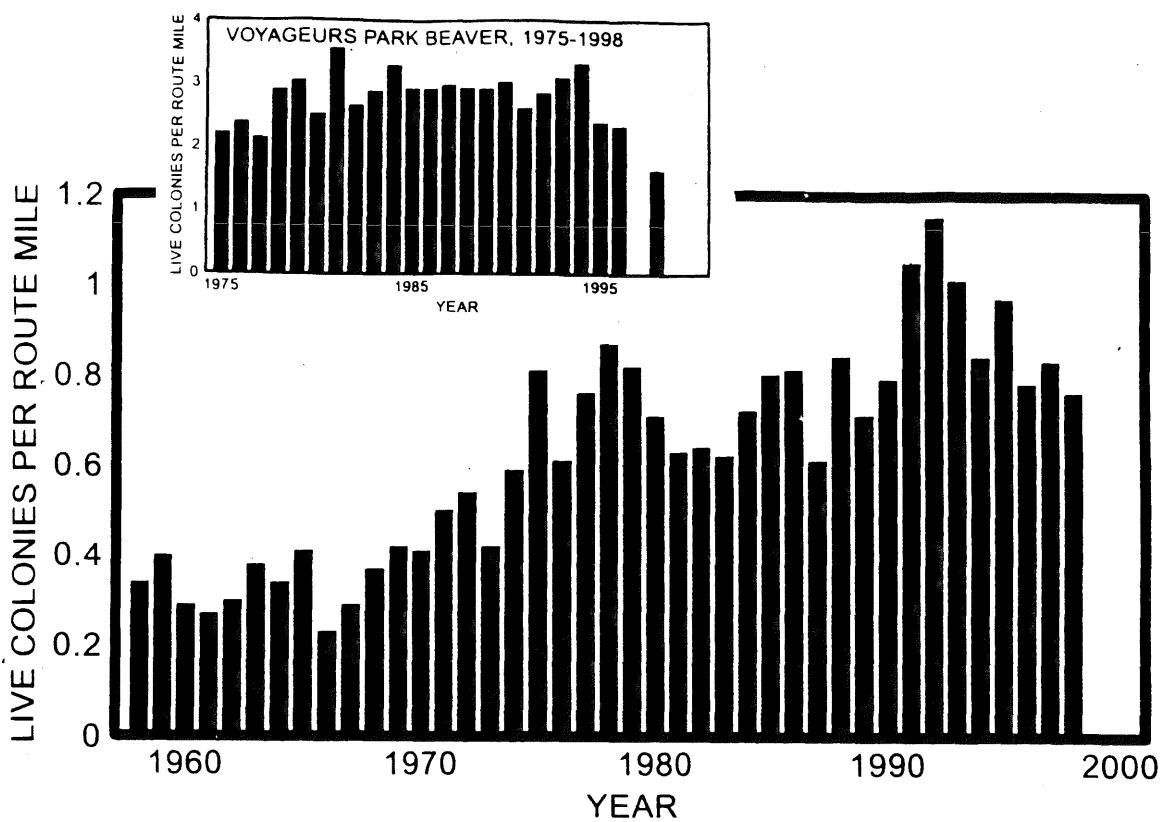


Figure 16. Average range-wide (excluding route 10, VNP Kabetogama peninsula) LC/M of survey route, 1958-98. Inset shows the high LC/M for route 10, 1975-98.

Table 22. Live beaver colonies per mile of census route in northern Minnesota, 1989-98.

Number	Route name	Year										1993-97 Mean
		1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
1	Cascade	0.43	0.44	1.13	1.50	0.68	0.43	1.51	0.90	-	0.81	0.70
2	Kawishiwi	0.47	0.80	1.03	1.08	-	-	-	-	-	-	-
3	Itasca	0.56	0.45	0.92	1.09	-	-	-	-	-	-	-
4	South St. Louis	-	0.92	1.35	0.87	0.70	0.57	0.78	0.64	0.88	0.63	0.71
5	Central St. Louis	0.83	0.81	1.12	1.02	0.98	1.06	0.89	0.88	1.02	0.98	0.97
6	Carlton & Pine	-	1.06	1.50	1.09	-	-	-	-	-	-	-
7	Cass	0.84	0.98	1.16	1.62	1.14	1.00	0.82	0.79	0.80	0.98	0.91
8	Balsam-Hennepin	0.59	0.46	0.61	-	-	-	-	-	-	-	-
9	Pinewood-Mississippi	0.36	0.49	0.41	-	0.79	0.40	0.64	0.37	0.35	0.26	0.51
10	Kabetogama Peninsula	2.92	3.3	2.62	2.85	3.10	3.33	2.40	2.34	-	1.62	2.23
11	Ely-Finger Lakes	1.09	1.20	1.67	1.35	1.40	1.52	1.45	0.83	1.36	1.29	1.31
12	Hay Creek-Kelliher	0.56	0.46	0.58	0.78	0.84	0.36	0.64	0.50	0.50	0.38	0.57
13	Cook County Transect	0.68	0.38	1.18	0.83	-	-	-	-	-	-	-
14	Cass-Crow Wing	0.89	0.87	0.96	0.88	0.75	0.77	0.65	0.62	0.55	0.64	0.67
15	Little Willow-Aitkin	0.59	0.63	0.68	-	-	-	-	-	-	-	-
16	East Aitkin County	0.80	-	-	-	-	-	-	-	-	-	-
17	West Vermilion	-	1.29	-	1.25	-	-	-	-	-	-	-
18	Blackduck	-	1.24	-	1.55	-	-	-	-	-	-	-
19	Splitrock	0.53	0.73	2.42	1.80	-	-	-	-	-	-	-
20	Isabella	-	-	-	-	-	-	-	-	-	-	-
21	Red Lake-Pine Island	0.36	0.33	0.51	0.56	-	-	-	-	-	-	-
22	Northome	-	1.14	0.78	1.08	-	-	-	-	-	-	-
23	Kanabec County	0.94	0.81	0.58	0.77	-	-	-	-	-	-	-
24	Southern Pine	1.03	0.93	0.89	1.15	0.86	0.86	0.67	0.83	0.75	0.73	0.79
25	Koochiching North	1.15	1.05	1.43	1.62	2.00	1.58	1.65	1.46	1.28	0.90	1.59

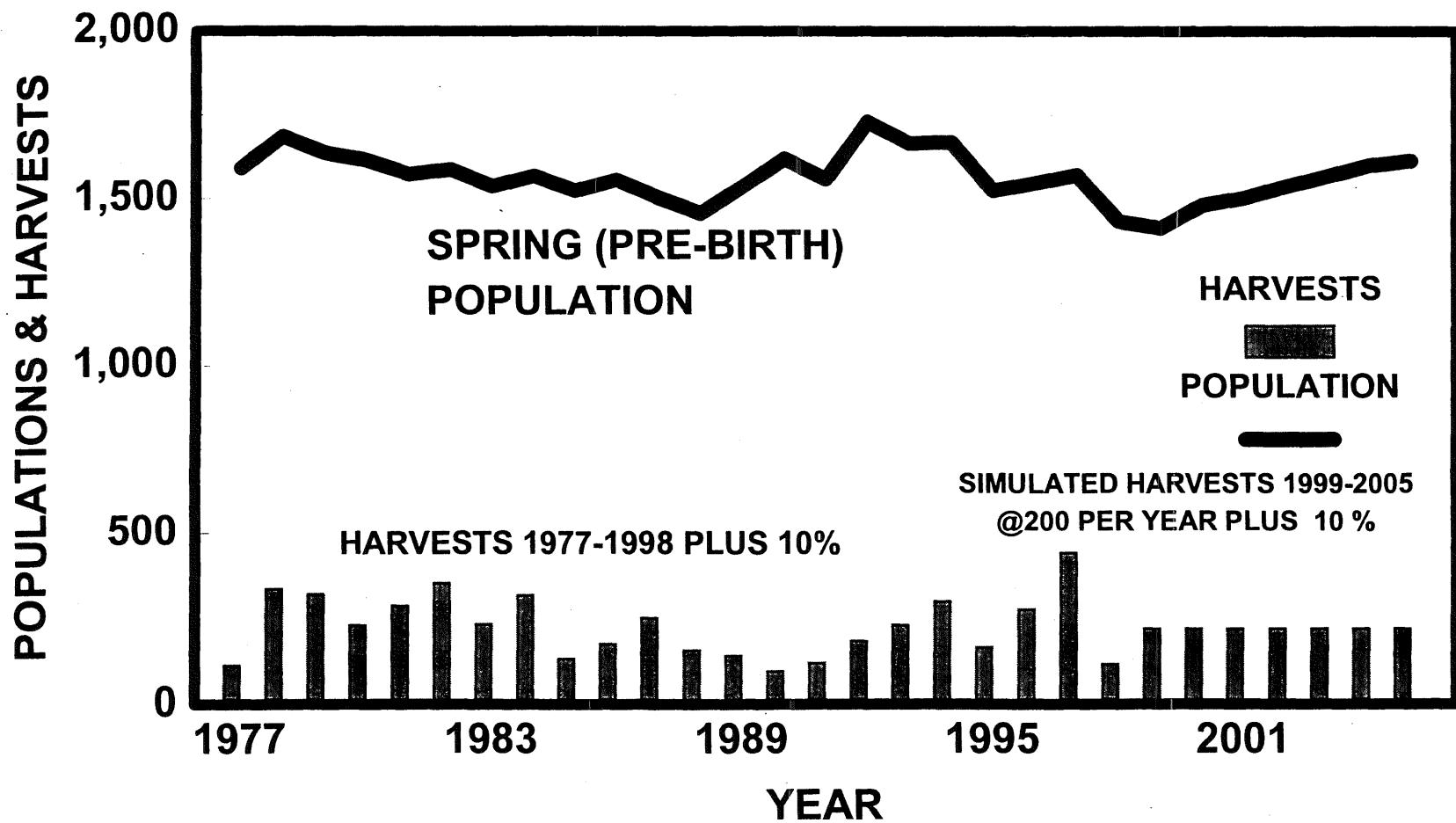


Figure 17. Population modeling summaries for bobcat, 1977-2005.

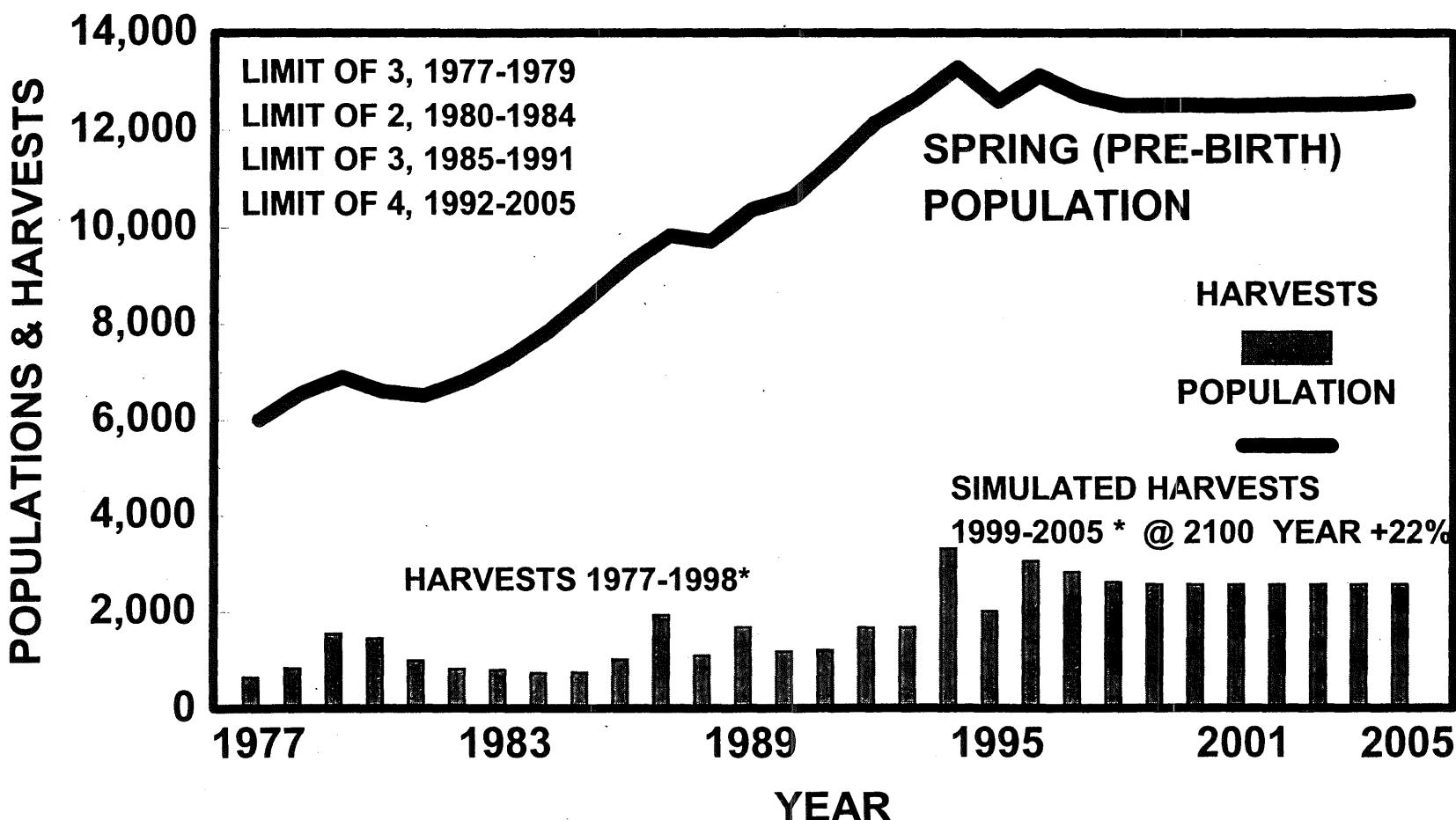
Table 23. Bobcat harvest, age structure, and population index data, 1984 to 1998

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Registered take	280	119	160	214	140	129	84	106	167	201	238	134	223	364	103
% autumn pop. taken <sup>1</sup>	13	6	8	11	8	6	5	6	9	12	14	9	13	20	6
Carcasses examined	288	99	132	163	114	119	62	93	151	161	187	96	164	270	77
% juveniles	37	33	26	33	49	39	20	35	28	32	26	31	35	35	29
% 1.7 yrs. old	13	19	17	16	18	17	34	33	22	20	16	15	20	16	26
% ≥ 2.7 yrs. old	50	48	57	51	42	44	46	32	50	48	58	54	45	49	45
Juv.::≥2.7 yr. females	1.4	1.2	0.9	1.4	1.7	2.0	0.8	3.6	1.2	1.4	0.8	2.7	1.5	1.2	1.6
% male juveniles	52	41	53	44	58	49	58	59	55	51	64	57	51	60	59
% male 1.7 yrs.	66	41	32	52	62	53	80	55	45	45	43	71	30	37	60
% male ≥ 2.7 yrs.	44	43	51	48	46	56	44	70	53	52	45	79	49	43	60
Overall % males	51	42	51	48	54	53	59	61	53	50	50	71	46	48	60
Mean pelt price	\$76	\$70	\$120	\$101	\$68	\$48	\$43	\$37	\$28	\$43	\$36	\$34	\$33	\$30	\$28
Scent post index <sup>2</sup>	12	5	8	7	5	17	10	16	10	14	14	10	9	13	9
Snowshoe hare index <sup>3</sup>	0.3	0.2	0.5	0.9	2.7	2.3	1.2	1.4	0.5	0.2	0.5	0.8	0.8	0.6	0.4

<sup>1</sup> estimated from population model

<sup>2</sup> index for autumn prior to harvest

<sup>3</sup> index for spring after harvest season



\*REGISTERED HARVESTS EXPANDED BY 30% PRIOR TO 1991, AND BY 22% 1992-2005

Figure 18. Population modeling summaries for otter, 1977-2005.

Table 24. Otter harvest, carcass collection, and pelt price data, 1986-98. Carcasses were not collected after 1986.

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Season dates	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	10/29-1/8	10/28-1/7	10/26-1/5	10/28-1/4	10/24-1/3
Limit	3	3	3	3	3	3	4	4	4	4	4	4	4
Registered harvest	777	1,386	922	1,294	903	855	1,365	1,454	2,445	1,435	2,219	2,145	1,946
% of autumn pop. harvested <sup>a</sup>	11	20	12	17	13	13	17	18	22	14	21	16	16
No. of carcasses examined	745	---	---	---	---	---	---	---	---	---	---	---	---
% juveniles	45.2	---	---	---	---	---	---	---	---	---	---	---	---
% yearlings	23.3	---	---	---	---	---	---	---	---	---	---	---	---
% male juveniles	45.1	---	---	---	---	---	---	---	---	---	---	---	---
% males ≥ 1.7 yrs.	48.1	---	---	---	---	---	---	---	---	---	---	---	---
Mean pelt prices:												---	---
Otter	\$24	\$23	\$22	\$22	\$24	\$25	\$29	\$43	\$48	\$38	\$39	\$40	\$34
Beaver (fall)	\$20	\$17	\$14	\$12	\$9	\$9	\$7	\$11	\$14	\$13	\$19	\$16	\$11

<sup>a</sup> From population modeling; includes additional accidental harvests of 30% to 1991, and 22% after 1991 over registered total.

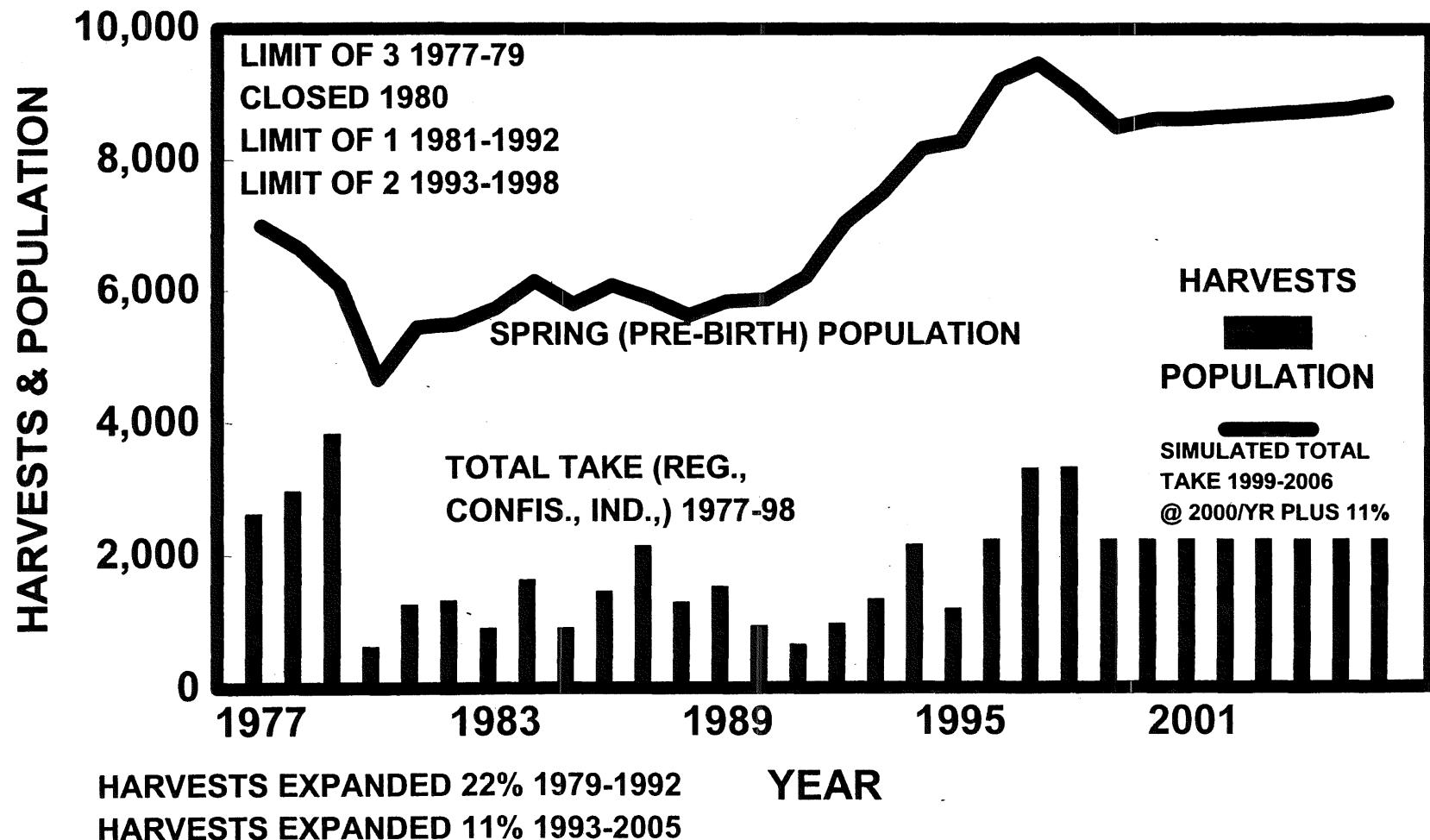


Figure 19. Population modeling summaries for fisher, 1977-2006.

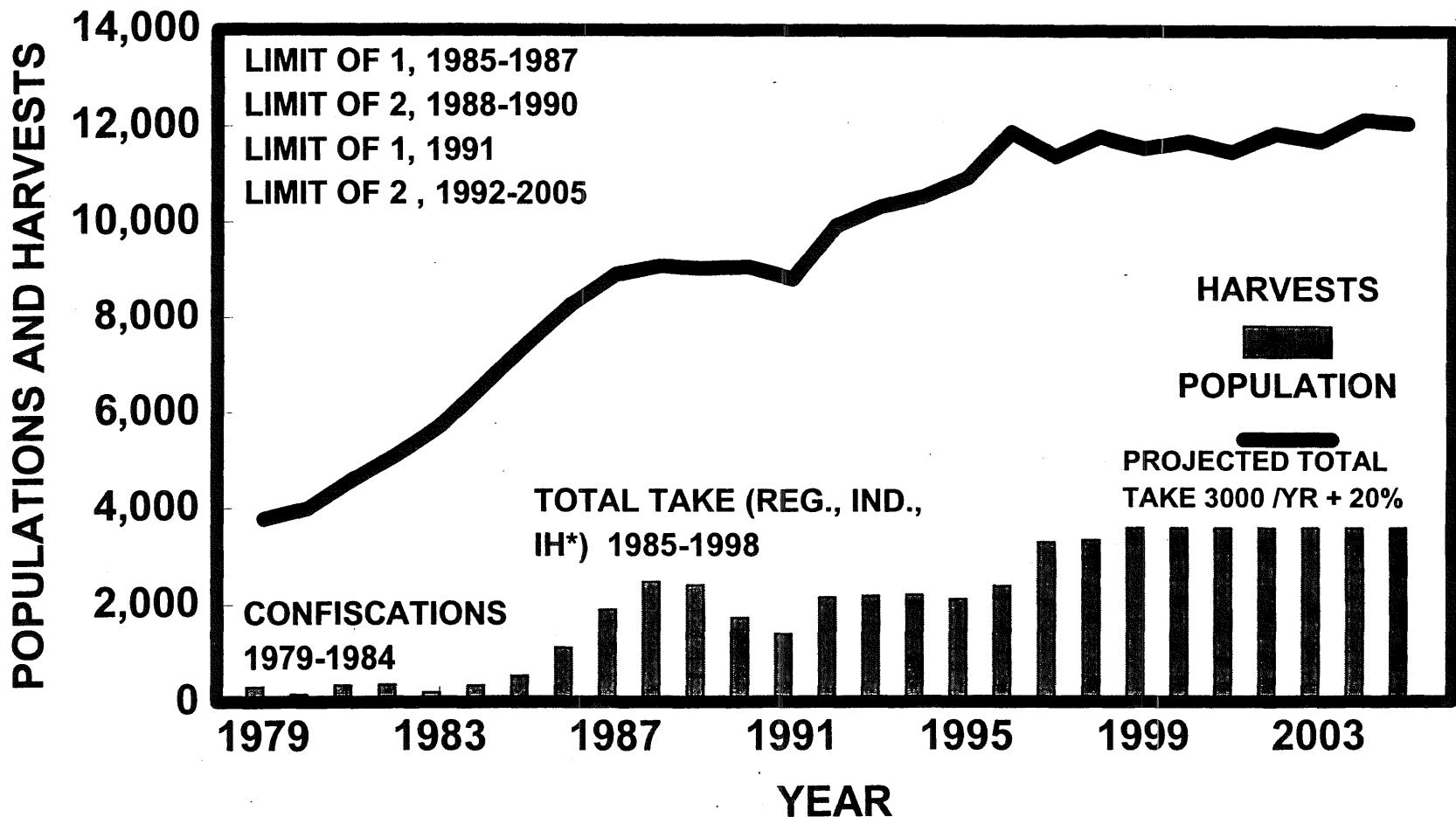
Table 25. Fisher harvest, carcass collection, and pelt price data, 1984-98. Carcass collection ended in 1994.

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Season	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	12/3-12/18	12/2-12/17	11/30-12/15	11/29-12/14	11/28-12/13
Limit	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
Registered Harvest	1285	678	1068	1642	1025	1243	746	528	777	1158	1771	942	1773	2,761	2,431
% of available fall population harvested <sup>1</sup>	18	10	14	21	16	15	12	10	11	16	21	12	22	26	25
No. carcasses examined <sup>2</sup>	1270	712	1186	1534	805	1024	592	410	629	937	1360	---	---	---	---
% juveniles	63	63	59	53	70	64	65	66	54	59	56	---	---	---	---
% 1.7 yrs.	20	20	24	15	15	19	14	21	25	22	18	---	---	---	---
% ≥ 2.7 yrs.	17	18	18	22	15	17	21	13	21	19	26	---	---	---	---
Juv.:adult female ratio	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	4.0:1	---	---	---	---
% male juveniles	52	46	48	46	48	47	44	50	42	47	47	---	---	---	---
% male 1.7 yrs.	45	40	50	40	45	47	55	52	55	37	54	---	---	---	---
% male ≥ 2.7 yrs.	45	34	37	37	33	36	30	35	45	42	44	---	---	---	---
% males overall	49	43	46	43	45	45	43	48	46	44	48	---	---	---	---
Pelt price: males	\$70	\$74	\$84	\$84	\$54	\$26	\$35	\$21	\$16	\$14	\$19	\$16	\$25	\$31	\$19
females	\$122	\$130	\$162	\$170	\$100	\$53	\$46	\$48	\$29	\$28	\$30	\$25	\$34	\$34	\$22
Snowshoe hare index <sup>3</sup>	0.3	0.2	0.5	0.9	2.7	2.3	1.2	1.4	0.5	0.2	0.5	0.5	0.8	0.6	0.4

<sup>1</sup> estimated from population model

<sup>2</sup> may exceed registration totals due to accidental catches, Indian Reservation season framework, etc.

<sup>3</sup> index for Spring after harvest season.



\*IH=40%, 1979-87 & 1991, 20% 1988-90 & 1992-2005

Figure 20. Population modeling summaries for pine marten, 1979-2005.

Table 26. Pine marten harvest, carcass collection, and pelt price data, 1986-98.

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Season	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	12/3-12/18	12/2-12/17	11/30-12/15	11/29-12/14	11/28-12/13
Limit	1	1	2	2	2	1	2	2	2	2	2	2	2
Registered take	798	1,363	2,072	2,119	1,349	656	1,601	1,436	1,527	1,500	1,625	2,261	2,299
% of available fall population harvested <sup>1</sup>	9	16	20	20	16	12	17	22	18	18	18	21	20
No. carcasses examined <sup>2</sup>	884	1,754	1,977	1,014	1,375	716	1,661	1,396	1,452	1,393	1,372	2,238	1,577
% juveniles	64	66	66	68	48	74	65	57	58	60	48	61	57
% 1.7 yrs.	21	18	11	12	18	9	18	20	15	18	22	13	18
% ≥ 2.7 yrs.	15	16	23	20	34	17	17	23	27	22	30	26	25
juv.:adult female ratio	12.3:1	11.2:1	8.6:1	9.7:1	3.6:1	16.1:1	15.1:1	7.5:1	6.4:1	8.2:1	4.8:1	6.2:1	6.6:1
% male juveniles	65	65	58	57	59	69	63	61	62	63	62	60	62
% male 1.7 yrs.	71	67	50	63	54	71	70	71	76	68	69	60	66
% male ≥ 2.7 yrs.	81	75	66	65	61	72	75	67	67	66	67	63	65
% males overall	69	67	59	59	59	70	66	64	66	65	65	61	63
Pelt price: male	\$36	\$43	\$50	\$48	\$44	\$40	\$28	\$36	\$34	\$28	\$34	\$28	\$20
female	\$27	\$39	\$43	\$47	\$41	\$27	\$25	\$30	\$28	\$21	\$29	\$22	\$16

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

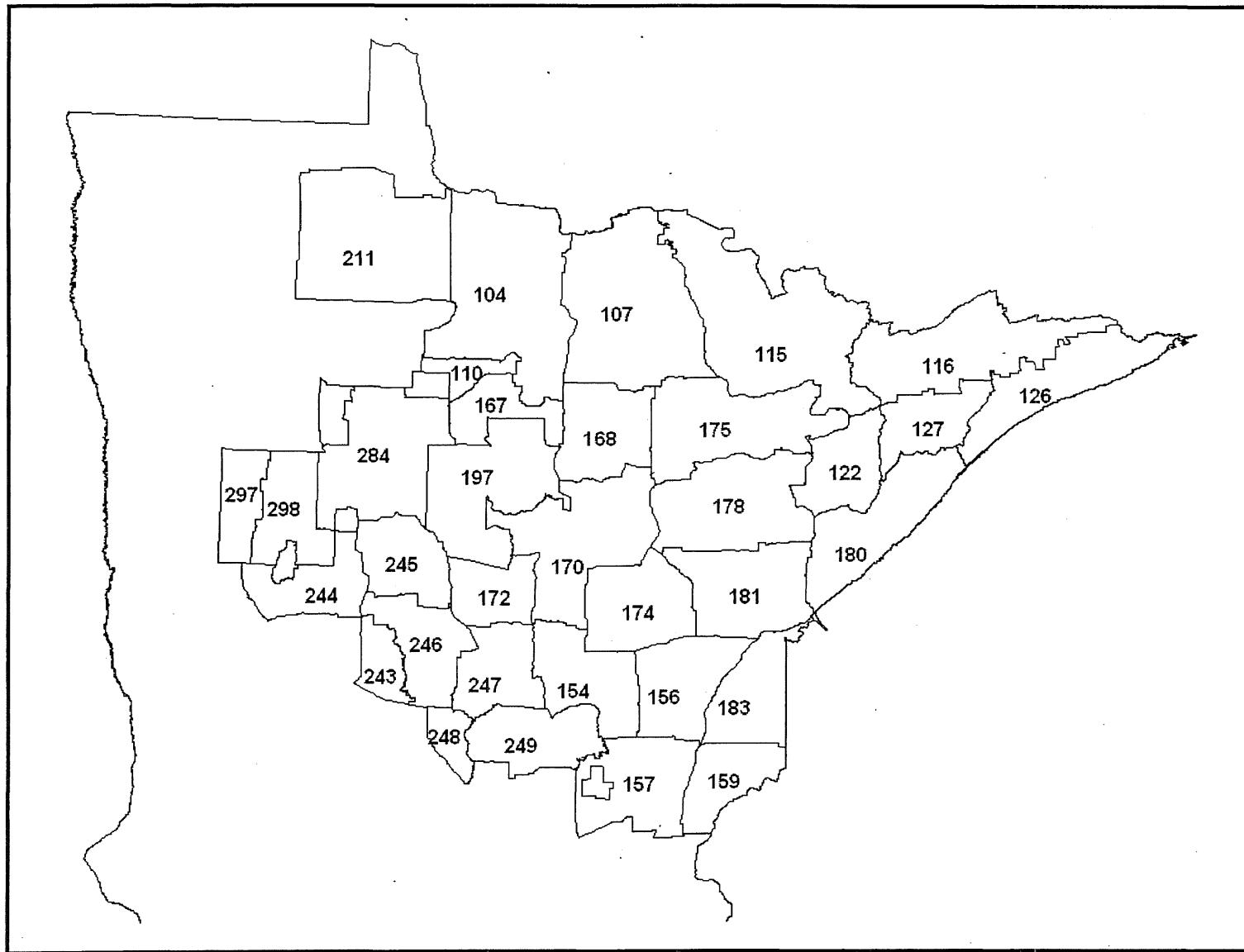


Figure 21. Deer Permit Areas in the Forest Zone.

Table 27. Spring white-tailed deer densities (pre-fawning) estimated from population modeling in Minnesota's Forest zone, 1989-99<sup>a</sup>

PERMIT AREA	Deer per square mile											% Change
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
Permit Area 104	6	7	7	7	6	6	6	4	3	3	4	9%
Permit Area 107	8	9	9	10	9	9	9	7	6	8	9	16%
Permit Area 110	14	16	17	18	15	15	15	9	6	8	9	6%
Permit Area 115	11	13	13	13	13	12	13	9	8	10	12	13%
Permit Area 116	3	3	3	4	3	3	3	3	2	3	3	4%
Permit Area 122	9	10	10	10	9	8	9	6	6	8	8	11%
Permit Area 126	3	4	4	3	3	3	3	2	2	3	3	11%
Permit Area 127	5	6	7	8	8	8	10	8	7	9	10	13%
Permit Area 154	18	20	21	20	18	17	18	16	14	16	17	6%
Permit Area 156	17	19	20	18	17	16	17	15	13	15	15	5%
Permit Area 157	25	28	30	27	22	22	23	19	16	17	17	-5%
Permit Area 159	23	26	26	23	21	22	23	21	20	22	22	1%
Permit Area 167	17	21	22	22	20	17	18	12	11	15	17	16%
Permit Area 168	11	13	14	14	12	11	10	7	7	10	13	30%
Permit Area 170	14	16	17	17	15	13	14	12	11	14	16	17%
Permit Area 172	20	24	26	26	23	21	20	16	14	18	21	19%
Permit Area 174	12	13	13	14	12	11	12	10	9	12	14	17%
Permit Area 175	8	9	9	9	8	8	8	7	6	8	9	19%
Permit Area 178	8	9	9	9	9	8	8	7	7	8	10	19%
Permit Area 180	7	8	8	7	7	7	7	6	5	7	8	16%
Permit Area 181	11	12	12	12	11	11	12	10	9	11	13	16%
Permit Area 183	11	12	12	12	11	11	12	10	9	11	13	16%
Permit Area 197	8	9	9	10	9	9	9	6	5	6	7	18%
Permit Area 211	8	9	9	10	9	9	9	6	4	5	5	0%
Permit Area 243	23	27	29	30	27	25	24	20	16	17	18	7%
Permit Area 244	17	21	24	26	24	22	23	15	13	14	15	6%
Permit Area 245	18	21	24	25	22	20	21	15	14	17	21	18%
Permit Area 246	26	30	32	33	31	28	28	24	19	21	21	0%
Permit Area 247	23	25	27	27	25	24	20	16	15	13	-12%	
Permit Area 248	20	22	24	24	23	21	21	18	14	16	15	-4%
Permit Area 249	20	23	25	25	23	22	22	18	15	16	17	2%
Permit Area 284	17	20	22	23	21	21	20	13	11	13	15	15%
Permit Area 297	9	9	10	10	10	9	9	6	6	6	7	9%
Permit Area 298	8	8	9	9	9	8	8	6	5	6	6	9%
Forest Zone	12	14	15	15	14	13	13	13	9	10	12	12%

<sup>a</sup> Historical density figures may differ from those previously published because of annual recalculation as more accurate modeling data are available.

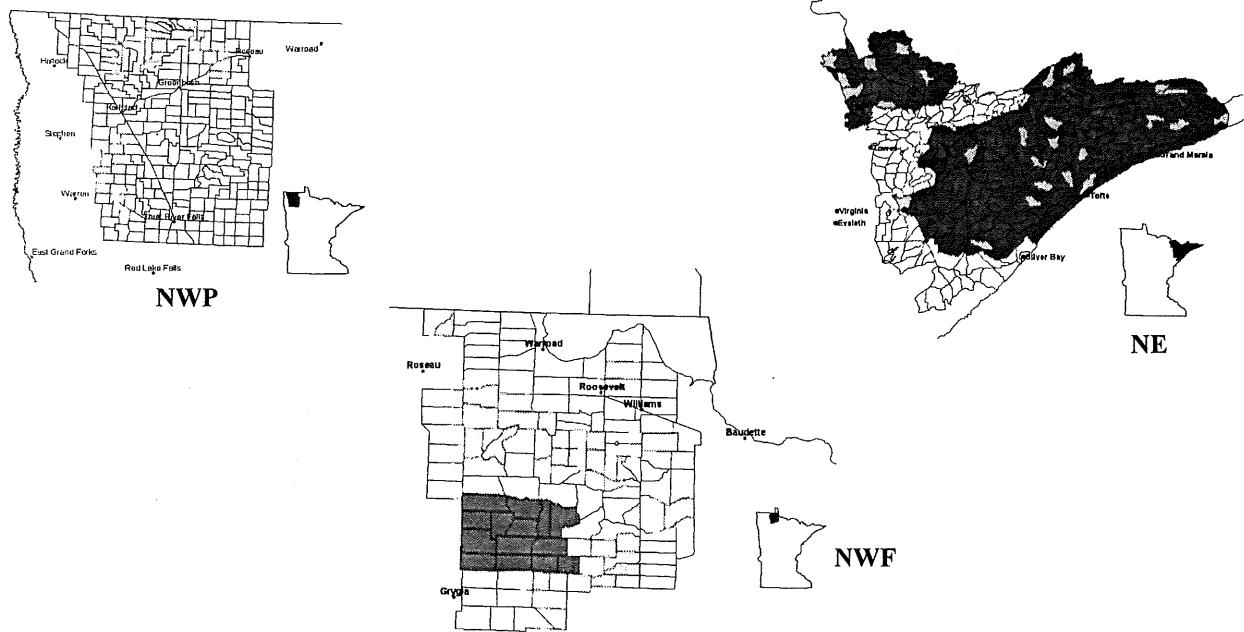


Figure 22. Aerial moose survey area boundaries.

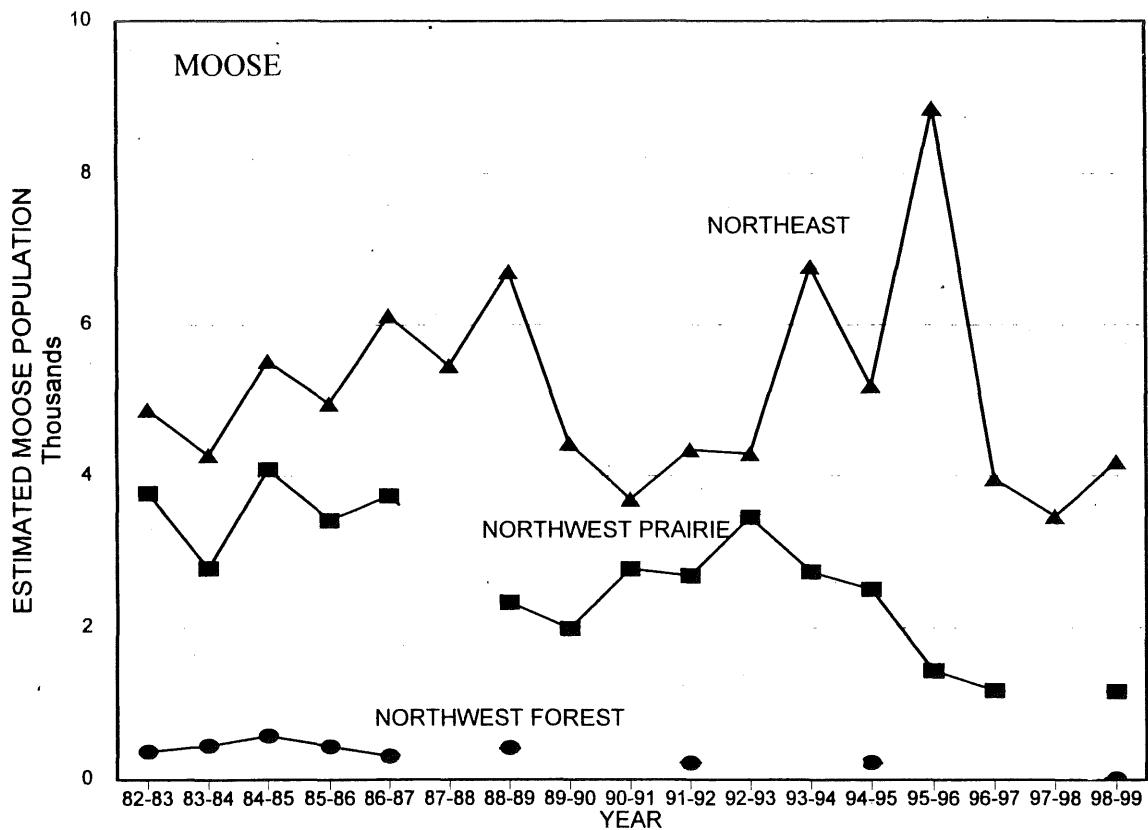


Figure 23. Moose population trends by survey area in northern Minnesota. Trend lines are broken where survey information was not collected.

Table 28. Moose population estimates from aerial moose survey in Minnesota, 1982-99

Year	<u>Population Estimate by Survey Area (+90% CI)</u>		
	Northwest Prairie	Northwest Forest	Northeast
1982-83	3772 ( $\pm$ 930)	370 ( $\pm$ 124)	4877 ( $\pm$ 999)
1983-84	2784 ( $\pm$ 567)	446 ( $\pm$ 139)	4274 ( $\pm$ 925)
1984-85	4086 ( $\pm$ 518)	578 ( $\pm$ 148)	4451 ( $\pm$ 774)
1985-86	3415 ( $\pm$ 412)	433 ( $\pm$ 100)	4918 ( $\pm$ 1029)
1986-87	3740 ( $\pm$ 747)	307 ( $\pm$ 83)	5994 ( $\pm$ 1438)
1987-88	no survey	no survey	5492 ( $\pm$ 1090)
1988-89	2328 ( $\pm$ 474)	419 ( $\pm$ 153)	6938 ( $\pm$ 2502)
1989-90	1985 ( $\pm$ 435)	no survey	4492 ( $\pm$ 1227)
1990-91	2771 ( $\pm$ 817)	no survey	3572 ( $\pm$ 1670)
1991-92	2678 ( $\pm$ 629)	223 ( $\pm$ 65)	4362 ( $\pm$ 1323)
1992-93	3452 ( $\pm$ 640)	no survey	4292 ( $\pm$ 1371)
1993-94	2735 ( $\pm$ 491)	no survey	6768 ( $\pm$ 1807)
1994-95	2500*	229 ( $\pm$ 88)	5193 ( $\pm$ 1516)
1995-96	1436*	no survey	8854 ( $\pm$ 9513)
1996-97	1170 ( $\pm$ 359) <sup>†</sup>	no survey	3960 ( $\pm$ 1416)
1997-98	no survey	no survey	3464 ( $\pm$ 1247) <sup>‡</sup>
1998-99	1,160 ( $\pm$ 384)	11 ( $\pm$ 8)	4186 ( $\pm$ 1423)
change since last survey	+ 1%	-95%	+20%

\* The Northwest Prairie (NWP) survey area was re-stratified and split into two separate survey areas, the Northwest Prairie East (NWPE) and the Northwest Prairie West (NWPW). Results from these two areas were combined to give the NWP population estimate.

† Because of reduced moose numbers, the Northwest Prairie East and West survey areas were combined into a single area for this year's survey.

‡ In order to maximize the "sampling fraction", the survey area in the northeast was reduced in size so as to include only the moose hunting zones. As a result, this year's survey is not directly comparable with previous year's estimates. For comparative purposes, this year's estimate has been extrapolated to reflect the older, larger survey area.



MIGRATORY BIRD POPULATIONS  
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Table 29. Estimates of Minnesota mallard breeding populations, 1975-99.

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	144,126	2.50	360
	1993	123,771	2.47	306
	1994	138,481	3.08	426
	1995	142,556	2.24	319
	1996	153,473	2.05	315
	1997	160,628	2.54	407
	1998	188,972	1.95	368
	1999	169,213	1.87	316

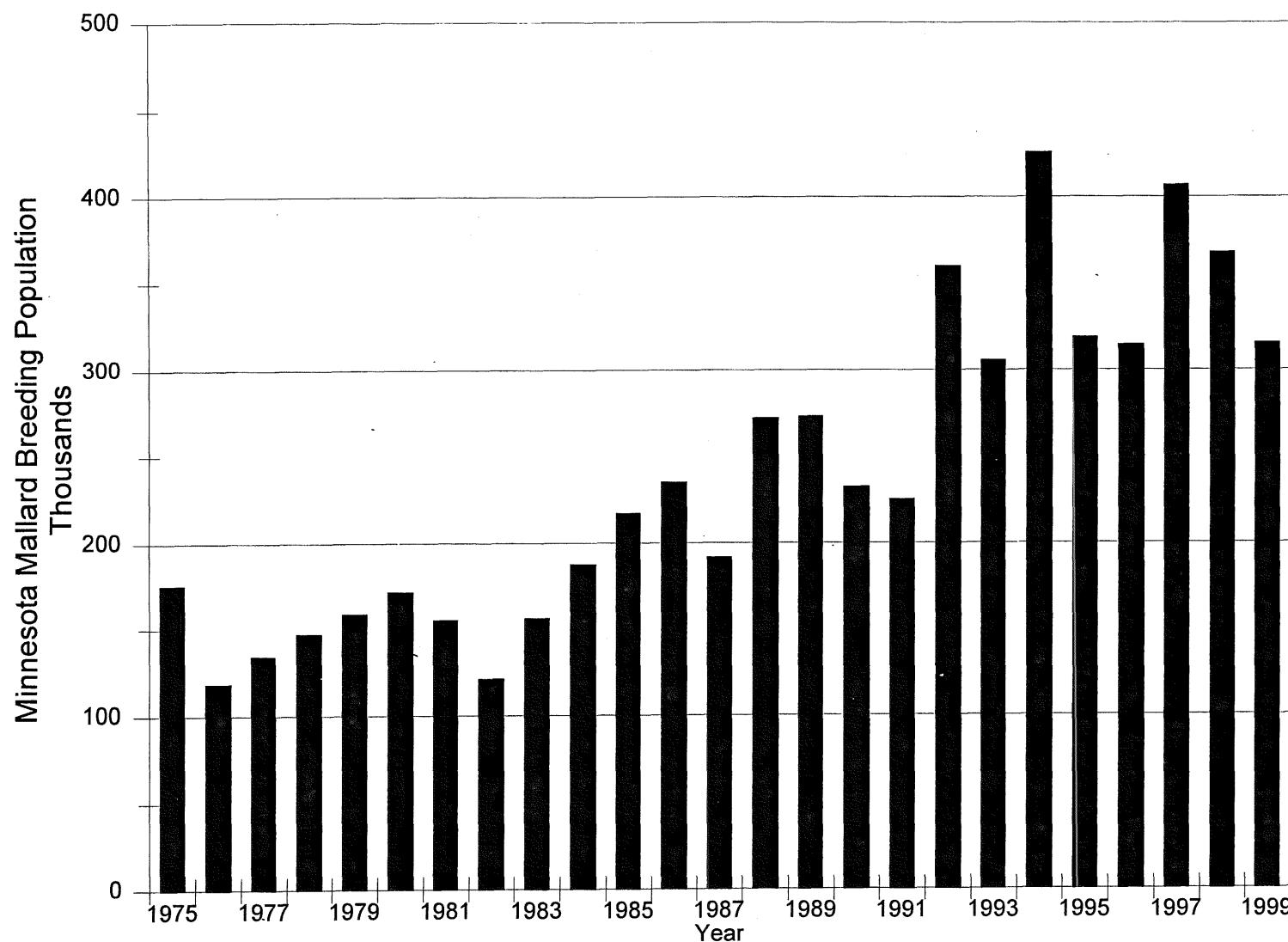


Figure 24. Minnesota mallard breeding populations, 1975-99.

Table 30. Estimates of Minnesota Blue-winged teal breeding populations, 1975-99.

Species	Year	Unadjusted population index	Visibility factor	Adjusted population estimate (thousands)
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
	1995	47,737	4.40	210
	1996	57,196	5.05	289
	1997	45,496	5.57	253
	1998	47,788	3.66	175
	1999	36,106	4.53	163

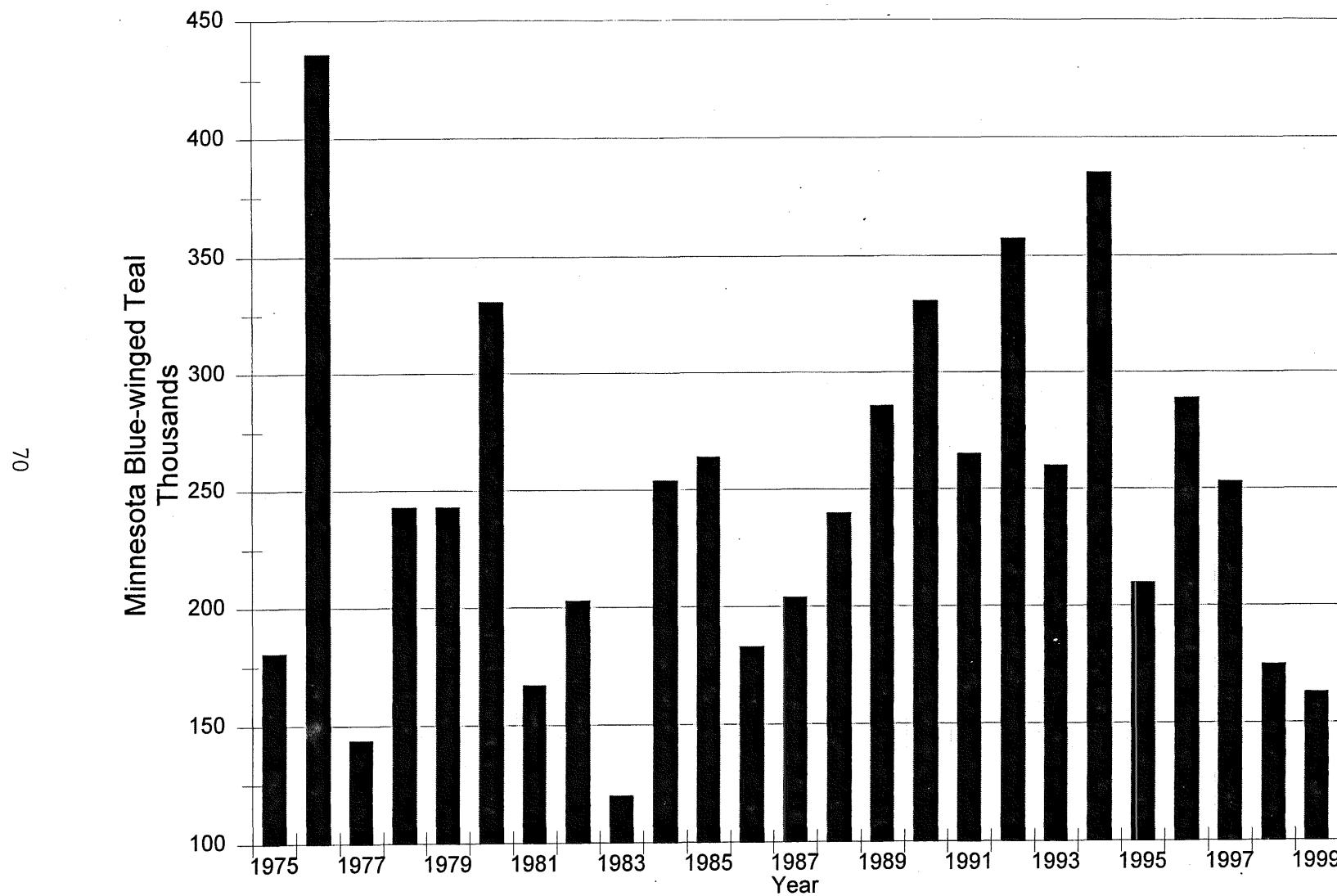


Figure 25. Minnesota blue-winged teal breeding populations, 1975-99.

Table 31. Canada goose population indices (in thousands) of the eastern prairie flock, 1969-99 (taken from: U.S. Fish and Wildlife Service/Canadian Wildlife Service, 1999. Waterfowl population status, 1999. July 1999. 33pp).

Year	Population <sup>a,b</sup>
1969	107,000
1970	121,000
1971	142,000
1972	151,000
1973	135,000
1974	162,000
1975	234,000
1976	200,000
1977	228,000
1978	132,000
1979	172,000
1980	160,000
1981	162,000
1982	221,000
1983	169,000
1984	195,000
1985	248,000
1986	247,000
1987	257,000
1988	278,000
1989	297,000
1990	295,000
1991	261,000
1992	206,000
1993	332,000
1994	284,000
1995	259,000
1996	256,000
1997	160,000
1998	270,000

<sup>a</sup> Surveys conducted in Spring.

<sup>b</sup> Indirect or preliminary estimate.

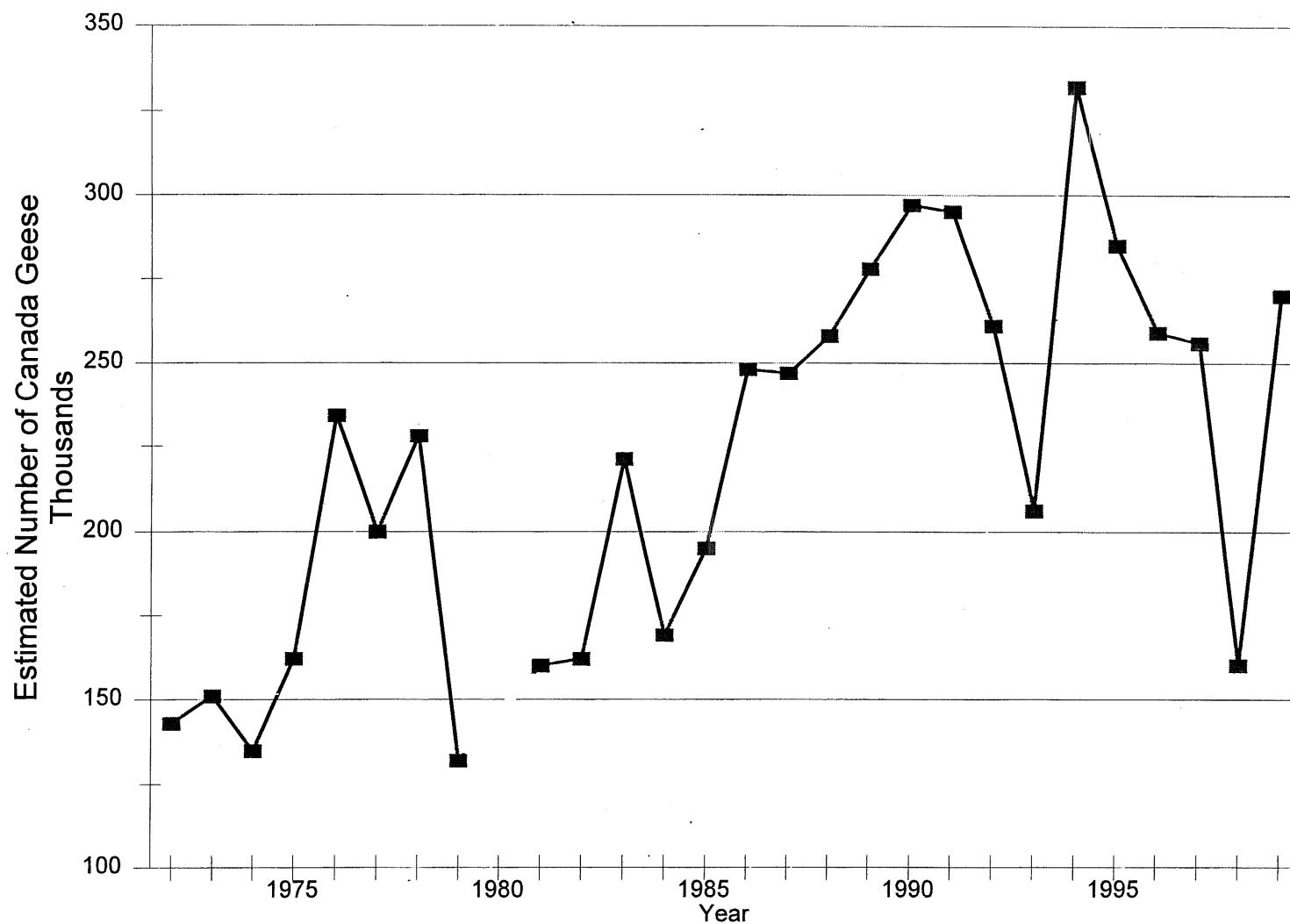


Figure 26. Breeding ground survey estimates of the Eastern Prairie Population of Canada geese, 1972-99. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service reports 1999. Waterfowl population status, 1999. July 1999. 33pp). Surveys conducted in spring. Indirect or preliminary estimates. Data not available for 1980.

Table 32. Numbers of Canada geese represented by singles (singles x 2 x 1.4), pairs (pairs x 2 x 1.4) and groups (not corrected for visibility), (from: 1999 EPP Breeding population survey. Humburg, Dale D., Missouri Dept. of Conservation; Paul Telander, Minnesota DNR; and Robert Foster, U.S. Fish and Wildlife Service.) Estimates are for an EPP breeding range extending to 99° West.

Year	SINGLES		PAIRS		GROUPS		TOTAL	
	No.	95% CI	No.	95% CI	No.	95% CI	No.	95% CI
1972	51,200	9,800	63,100	11,600	32,800	11,400	147,100	19,000
1973	52,900	9,100	76,800	15,200	22,100	7,400	151,800	19,200
1974	40,900	7,700	66,500	13,600	28,100	8,400	135,500	17,700
1975	71,600	12,700	66,500	11,800	26,300	10,800	164,400	20,400
1976	78,500	17,300	109,200	20,800	49,600	15,300	237,300	31,100
1977	56,300	12,300	78,500	17,200	68,700	21,400	203,500	22,200
1978	35,800	9,100	97,200	15,900	93,000	28,300	226,000	33,700
1979	39,200	8,600	52,900	13,700	47,300	36,400	139,400	39,800
1980	No survey conducted in 1980							
1981	47,800	9,700	49,500	11,500	70,400	40,300	167,700	43,000
1982	61,400	11,700	59,700	11,300	47,700	24,200	168,800	29,200
1983	40,900	8,800	76,800	12,700	109,500	56,600	227,200	58,700
1984	68,200	11,500	69,900	13,100	39,300	20,300	177,400	26,800
1985	51,200	12,900	69,900	12,100	77,700	25,900	198,800	31,400
1986	73,300	13,000	85,300	15,400	92,600	28,400	251,200	34,800
1987	61,400	12,700	121,100	20,300	65,100	17,700	247,600	29,800
1988	78,500	14,000	95,500	15,400	90,600	29,800	264,600	36,400
1989	75,100	12,700	83,600	15,200	121,300	40,600	280,000	45,200
1990	90,100	15,500	124,500	18,600	89,600	21,400	304,200	31,900
1991	95,500	17,200	141,600	22,000	71,000	31,300	308,100	42,000
1992	90,400	15,600	126,200	21,400	53,100	14,400	269,700	30,200
1993	95,500	14,700	88,700	16,500	28,300	13,500	212,500	25,900
1994	92,100	15,700	88,700	16,600	156,400	66,400	337,300	70,200
1995	66,500	12,100	116,000	18,900	108,100	46,600	290,600	51,800
1996	73,300	12,200	112,600	20,800	86,000	40,900	271,900	47,500
1997	71,700	13,000	95,600	15,900	90,100	30,100	257,500	36,400
1998	70,000	14,000	58,800	13,200	31,600	13,200	161,400	23,300
1999	85,400	14,200	101,000	18,500	84,100	analysis incomplete	270,500	29,100

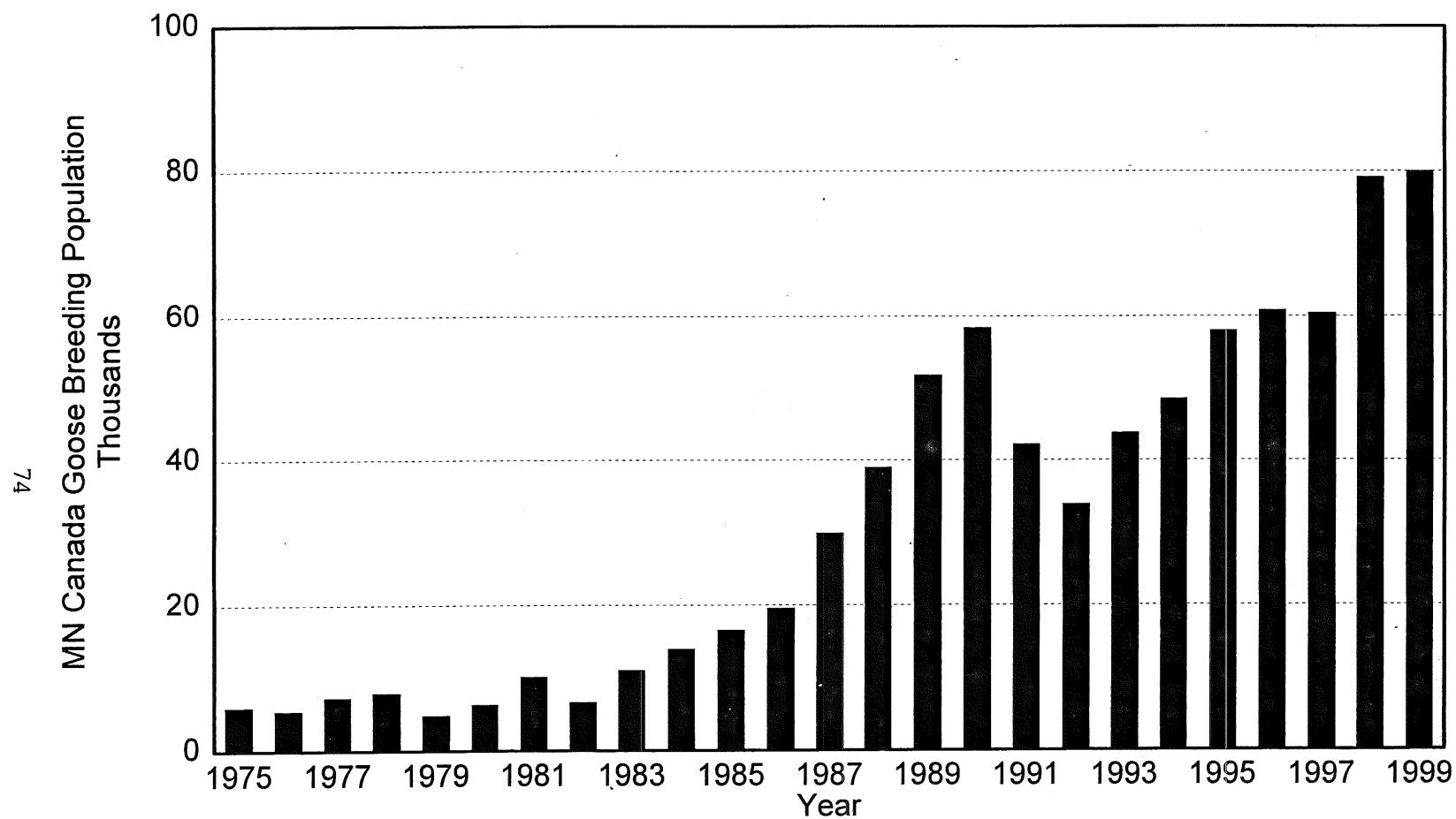


Figure 27. Minnesota Canada goose breeding population, 1975-99 (from: Lawrence, J.S. 1999. 1999 waterfowl breeding population survey for Minnesota. Minnesota Department of Natural Resources and U.S. Fish and Wildlife Service. Unpublished report. 14pp.)

Table 33. Estimated number of May ponds (adjusted for visibility) in Prairie Canada (portions of Alberta, Saskatchewan and Manitoba) 1961-99 and north-central U.S. (North Dakota, South Dakota and Montana) 1974-99. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service, 1999. Waterfowl population status, 1999. July 1999. 33pp).

Year	Ponds (thousands)	
	Prairie Canada	North Central U.S. <sup>a</sup>
1961	1,977	--
1962	2,369	--
1963	2,482	--
1964	3,371	--
1965	4,379	--
1966	4,555	--
1967	4,691	--
1968	1,986	--
1969	3,548	--
1970	4,875	--
1971	4,053	--
1972	4,009	--
1973	2,950	--
1974	6,390	1,841
1975	5,320	1,911
1976	4,599	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	2,473	1,766
1985	4,283	1,327
1986	4,025	1,735
1987	2,524	1,348
1988	2,110	791
1989	1,693	1,290
1990	2,817	691
1991	2,494	706
1992	2,784	825
1993	2,261	1,351
1994	3,769	2,216
1995	3,893	2,443
1996	5,003	2,480
1997	5,061	2,397
1998	2,522	2,065
1999	3,862	2,842
Average	3,450	1,518
1999	3,862	2,842
% Change in 1999 from:		
1998	+ 35	+ 27
Long term Average	+ 11	+ 47

<sup>a</sup> No comparable survey data available for the north-central U.S. during 1961-73.

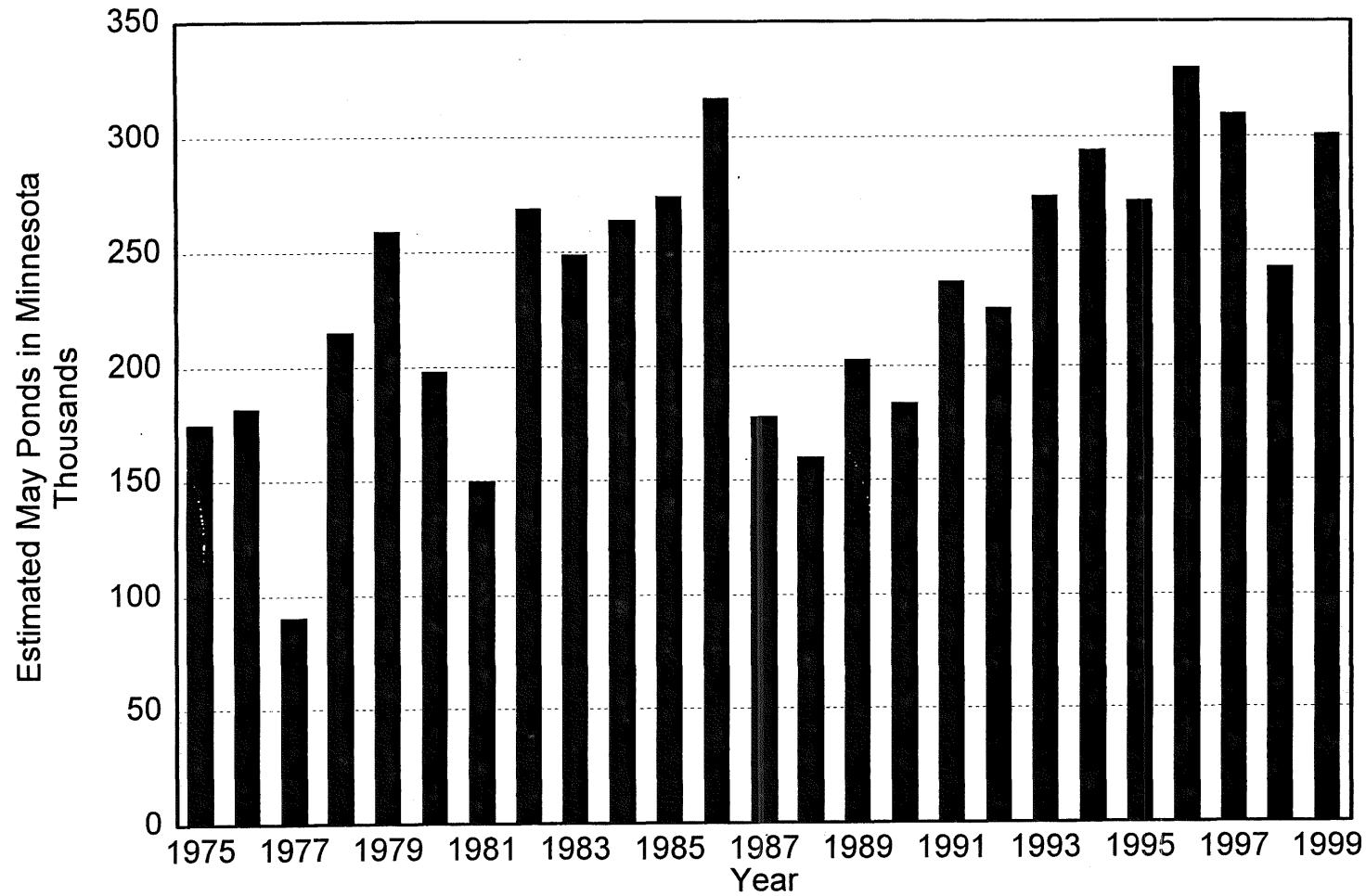


Figure 28. Estimated number of May ponds for Minnesota, 1975-99

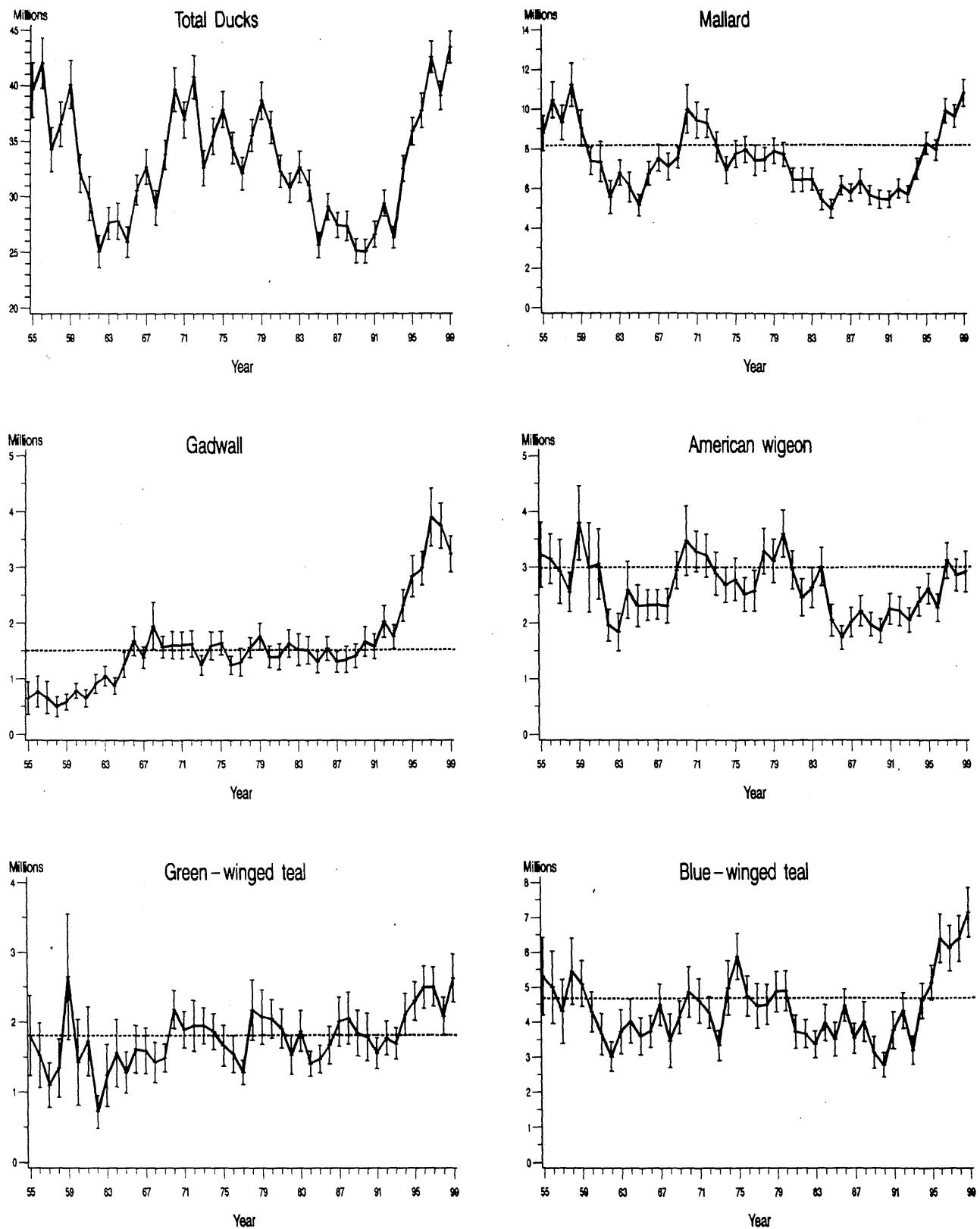


Figure 29. Estimates of North American breeding populations of selected ducks and number of water areas in May in Prairie Canada and Northcentral U.S. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service 1999. Waterfowl population status, 1999 July 1999. 33 pp.).

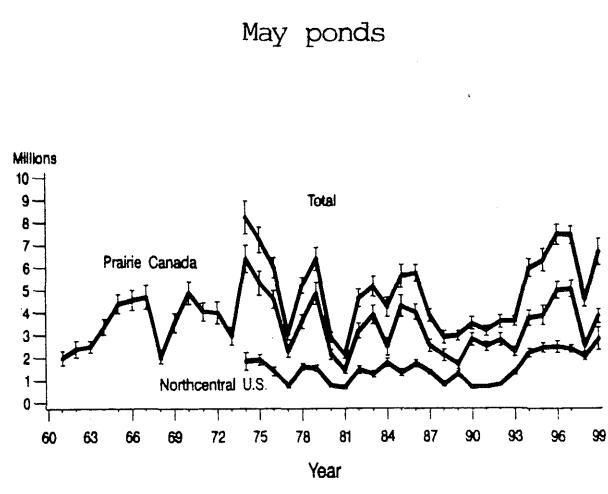
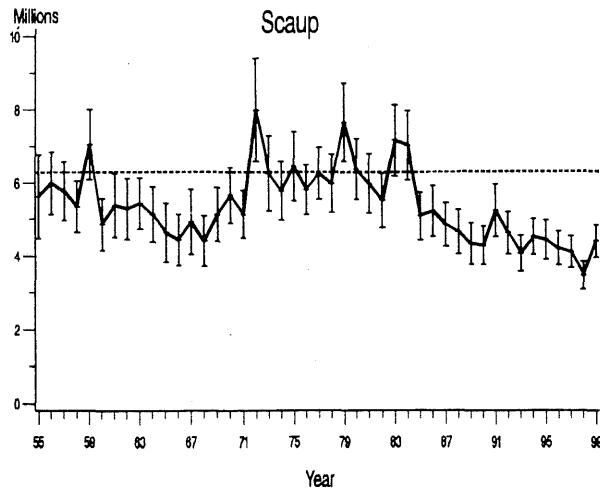
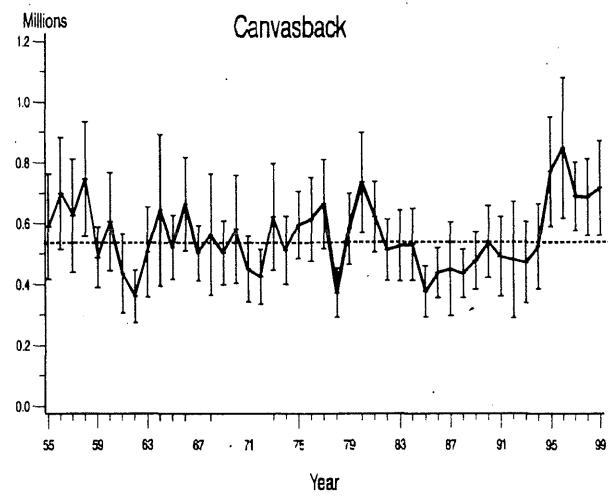
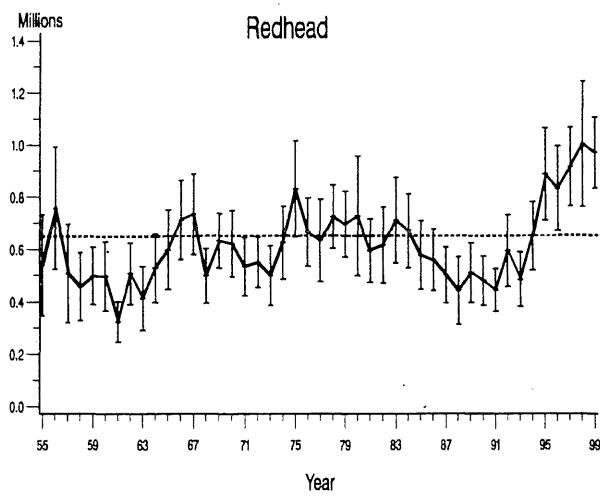
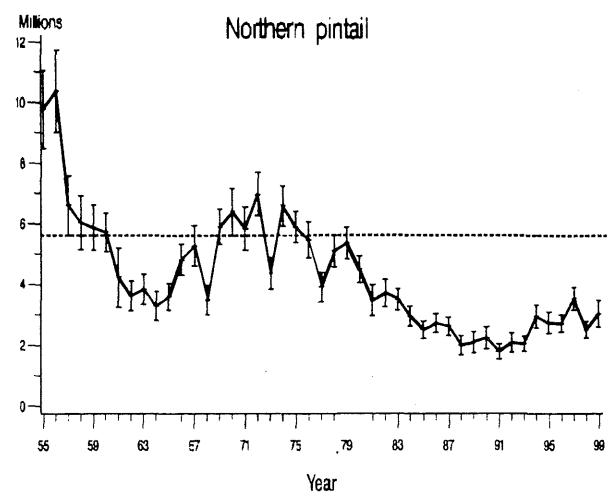
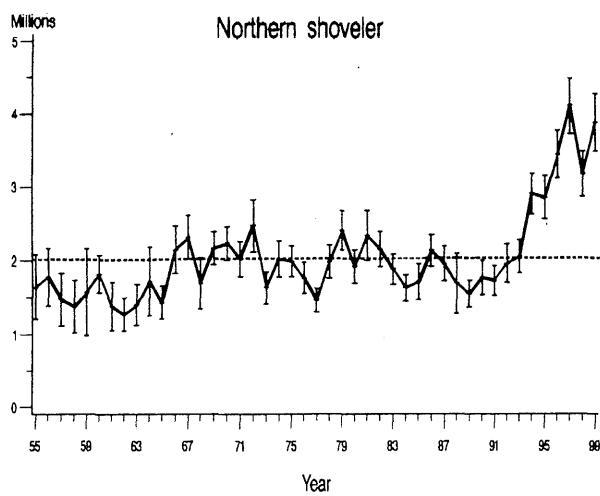


Figure 29. (continued)

Table 34. North American breeding population estimates for 10 species of ducks. 1955-1999. (from: U.S. Fish and Wildlife Service/ Canadian Wildlife Service, 1999. Waterfowl Population status, 1999. July 1999. 33 pp.). In thousands. All duck indexes adjusted for visibility bias.

	Mallard		Gadwall		American Widgeon		Green-winged Teal		Blue-winged Teal		Northern Shoveler		Northern Pintail		Redhead		Canvasback		Scaup	
Year	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE
1955	8777.3	457.1	651.5	149.5	3216.8	297.8	1807.2	291.5	5305.2	567.6	1642.8	218.7	9775.1	656.1	539.9	98.9	589.3	87.8	5620.1	582.1
1956	10452.7	461.8	772.6	142.4	3145.0	227.8	1525.3	236.2	4997.6	527.6	1781.4	196.4	10372.8	694.4	757.3	119.3	698.5	93.3	5994.1	434.0
1957	9296.9	443.5	666.8	148.2	2919.8	291.5	1102.9	161.2	4299.5	467.3	1476.1	181.8	6606.9	493.4	509.1	95.7	626.1	94.7	5766.9	411.7
1958	11234.2	555.6	502.0	89.6	2551.7	177.9	1347.4	212.2	5456.6	483.7	1383.8	185.1	5037.9	447.9	457.1	66.2	746.8	96.1	5350.4	355.1
1959	9024.3	466.6	590.0	72.7	3787.7	339.2	2653.4	459.3	5099.3	332.7	1577.6	301.1	5872.7	371.6	498.8	55.5	488.7	50.6	7037.6	492.3
1960	7371.7	354.1	784.1	68.4	2987.6	407.0	1426.9	311.0	4293.0	294.3	1824.5	130.1	5722.2	323.2	497.8	67.0	605.7	82.4	4868.6	362.5
1961	7330.0	510.5	654.8	77.5	3048.3	319.9	1729.3	251.5	3655.3	398.7	1383.0	166.5	4218.2	496.2	323.3	38.8	435.3	65.7	5380.0	442.2
1962	5535.9	426.9	905.1	87.0	1958.7	145.4	722.9	117.6	3011.1	209.8	1269.0	113.9	3623.5	243.1	507.5	60.0	360.2	43.8	5286.1	426.4
1963	6748.8	326.8	1055.3	89.5	1830.8	169.9	1242.3	226.9	3723.6	323.0	1398.4	143.8	3846.0	255.6	413.4	61.9	506.2	74.9	5438.4	357.9
1964	6063.9	385.3	873.4	73.7	2589.6	259.7	1561.3	244.7	4020.6	320.4	1718.3	240.3	3291.2	239.4	528.1	67.3	643.6	126.9	5131.8	386.1
1965	5131.7	274.8	1260.3	114.8	2301.1	189.4	1282.0	151.0	3594.5	270.4	1423.7	114.1	2591.9	221.9	593.3	77.7	522.1	52.8	4640.0	411.2
1966	6731.9	311.4	1680.4	132.4	2318.4	139.2	1617.3	173.6	3733.2	233.6	2147.0	163.9	4811.9	265.6	713.1	77.6	663.1	78.0	4439.2	356.2
1967	7509.5	338.2	1384.6	97.8	2325.5	136.2	1593.7	165.7	4491.5	305.7	2314.7	154.6	5277.7	341.9	735.7	79.0	502.6	45.4	4927.7	456.1
1968	7089.2	340.8	1949.0	213.9	2298.6	156.1	1430.9	146.6	3462.5	389.1	1684.5	176.8	3489.4	244.6	499.4	53.6	563.7	101.3	4412.7	351.8
1969	7531.6	280.2	1573.4	100.2	2941.4	168.6	1491.0	103.5	4138.6	239.5	2156.8	117.2	5903.9	296.2	633.2	53.6	503.5	53.7	5139.8	378.5
1970	9985.9	617.2	1608.1	123.5	3469.9	318.5	2182.5	137.7	4861.8	372.3	2230.4	117.4	6392.0	396.7	622.3	64.3	580.1	90.4	5662.5	391.4
1971	9416.4	459.5	1605.6	123.0	3272.9	186.2	1889.3	132.9	4610.2	322.8	2011.4	122.7	5847.2	368.1	534.4	57.0	450.7	55.2	5143.3	333.8
1972	9265.5	363.9	1622.9	120.1	3200.1	194.1	1948.2	185.8	4278.5	230.5	2466.5	182.8	6979.0	364.5	550.9	49.4	425.9	46.0	7997.0	718.0
1973	8079.2	377.5	1245.6	90.3	2877.9	197.4	1949.2	131.9	3332.5	220.3	1619.0	112.2	4356.2	267.0	500.8	57.7	620.5	89.1	6257.4	523.1
1974	6880.2	351.8	1592.4	128.2	2672.0	159.3	1864.5	131.2	4976.2	394.6	2011.3	129.9	6598.2	345.8	626.3	70.8	512.8	56.8	5780.5	409.8
1975	7726.9	344.1	1643.9	109.0	2778.3	192.0	1664.8	148.1	5885.4	337.4	1980.8	106.7	5900.4	267.3	831.9	93.5	595.1	56.1	6460.0	486.0
1976	7933.6	337.4	1244.8	85.7	2505.2	152.7	1547.5	134.0	4744.7	294.5	1748.1	106.9	5475.6	299.2	665.9	66.3	614.4	70.1	5818.7	348.7
1977	7397.1	381.8	1299.0	126.4	2575.1	185.9	1285.8	87.9	4462.8	328.4	1451.8	82.1	3926.1	246.8	634.0	79.9	664.0	74.9	6260.2	362.8
1978	7425.0	307.0	1558.0	92.2	3282.4	208.0	2174.2	219.1	4498.6	293.3	1975.3	115.6	5108.2	267.8	724.6	62.2	373.2	41.5	5984.4	403.0
1979	7883.4	327.0	1757.9	121.0	3106.5	198.2	2071.7	198.5	4875.9	297.6	2406.5	135.6	5376.1	274.4	697.5	63.8	582.0	59.8	7657.9	548.6
1980	7706.5	307.2	1392.9	98.8	3595.5	213.2	2049.9	140.7	4895.1	295.6	1908.2	119.9	4508.1	228.6	728.4	116.7	734.6	83.8	6381.7	421.2
1981	6409.7	308.4	1395.4	120.0	2946.0	173.0	1910.5	141.7	3720.6	242.1	2333.6	177.4	3479.5	260.5	594.9	62.0	620.8	59.1	5990.9	414.2
1982	6408.5	302.2	1633.8	126.2	2458.7	167.3	1535.7	140.2	3657.6	203.7	2147.6	121.7	3708.8	226.6	616.9	74.2	513.3	50.9	5532.0	380.9
1983	6456.0	286.9	1519.2	144.3	2636.2	181.4	1875.0	148.0	3366.5	197.2	1875.7	105.3	3510.6	178.1	711.9	83.3	526.6	58.9	7173.8	494.9
1984	5415.3	258.4	1515.0	125.0	3002.2	174.2	1408.2	91.5	3979.3	267.6	1618.2	91.9	2964.8	166.8	671.3	72.0	530.1	60.1	7024.3	484.7
1985	4960.9	234.7	1303.0	98.2	2050.7	143.7	1475.4	100.3	3502.4	246.3	1702.1	125.7	2515.5	143.0	578.2	67.1	375.9	42.9	5098.0	333.1
1986	6124.2	241.6	1547.1	107.5	1736.5	109.9	1674.9	136.1	4478.8	237.1	2128.2	112.0	2739.7	152.1	559.6	60.5	438.3	41.5	5235.3	355.5
1987	5789.9	217.9	1305.6	97.1	2012.5	134.3	2006.2	180.4	3528.7	220.2	1950.2	118.4	2628.3	159.4	502.4	54.9	450.1	77.9	4862.7	303.8
1988	6369.3	310.3	1349.9	121.1	2211.1	139.1	2060.8	188.3	4011.1	290.4	1680.9	210.4	2005.5	164.0	441.9	66.2	435.0	40.2	4671.4	309.5
1989	5645.4	244.1	1414.6	106.6	1972.9	106.0	1841.7	166.4	3125.3	229.8	1538.3	95.9	2111.9	181.3	510.7	58.5	477.4	48.4	4342.1	291.3
1990	5452.1	238.6	1672.1	135.8	1860.1	108.3	1789.5	172.7	2776.4	178.7	1759.3	118.6	2256.6	183.3	480.9	48.2	539.3	60.3	4293.1	264.9
1991	5444.6	205.6	1583.7	111.8	2254.0	139.5	1557.8	111.3	3763.7	270.8	1716.2	104.6	1803.4	131.3	445.6	42.1	491.2	66.4	5254.9	364.9
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	66.7	525.6	71.1	4529.0	253.6
1995	8269.4	287.5	2835.7	187.5	2614.5	136.3	2300.6	140.3	5140.0	253.3	2854.9	150.3	2757.9	177.6	888.5	90.6	770.6	92.2	4446.4	277.6
1996	7941.3	262.9	2984.0	152.5	2271.7	125.4	2499.5	153.4	6407.4	353.9	3449.0	165.7	2735.9	147.5	834.2	83.1	848.5	118.3	4217.4	234.5
1997	9939.7	308.5	3897.2	264.9	3117.6	161.6	2506.6	142.5	6124.3	330.7	4120.4	194.0	3558.0	194.2	918.3	77.2	688.8	57.2	4112.3	224.2
1998	9640.4	301.6	3742.2	205.6	2857.7	145.3	2087.3	138.9	6398.8	332.3	3183.2	156.5	2520.6	136.8	1005.1	122.9	685.9	63.8	3471.9	191.2
1999	10805.7	344.5	3235.5	163.8	2920.1	185.5	2631.0	174.6	7149.5	364.5	3889.5	202.1	3057.9	230.5	973.4	69.5	716.0	79.1	4411.7	227.9
1955-98 Avg.	7,374		1,538		2,641		1,756		4,337		1,999		4,303		610		556		5,405	
% change in 1999 from:															-3	4		27		
1998	12		-14		2		26		12		22		21		-41	37	22		-23	
1955-98 Avg.	32		52		10		33		39		49		-41		37		22			

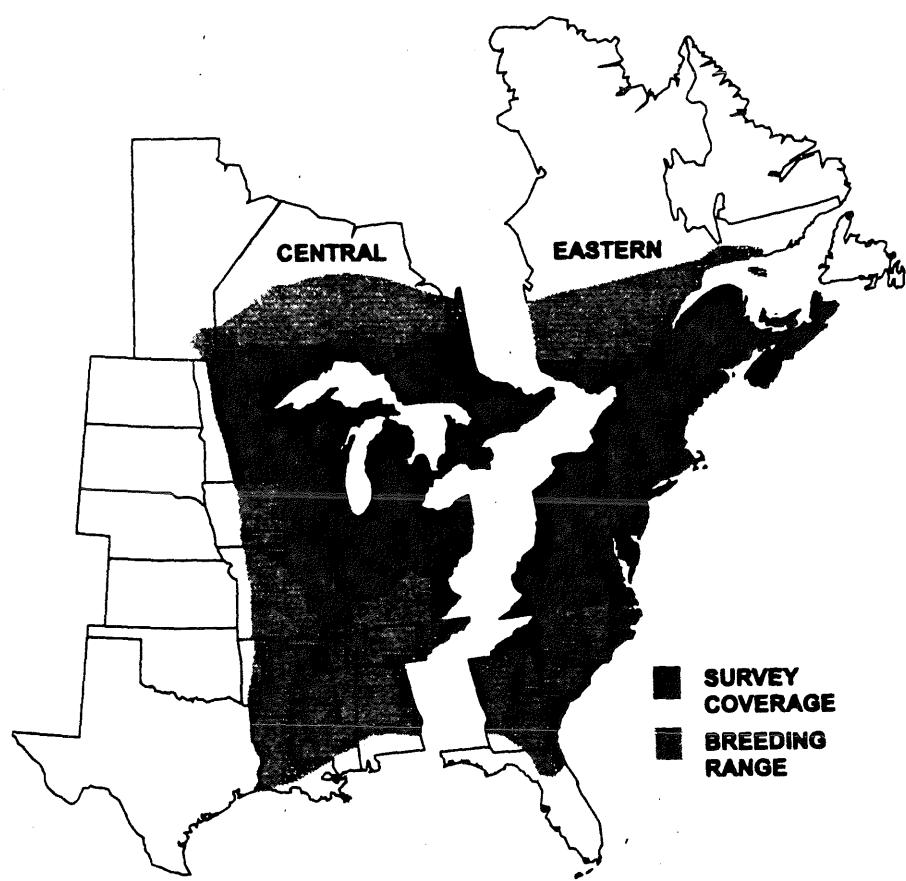


Figure 30. Woodcock breeding range, singing ground survey coverage, and woodcock management regions (from: Bruggink, John G., 1999. American woodcock harvest and breeding population status, 1999. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp.)

Table 35. Trends (% change per year<sup>a</sup>) in number of American woodcock heard in singing-ground survey as determined by the estimating equations technique(Link and Sauer, 1994) (from: Bruggink, John G., 1999. American woodcock harvest and breeding population status, 1999. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

Management Unit/State	2 year N <sup>b</sup>	(1998-99) % Change	Routes Run <sup>c</sup>	10 year N	(1989-99) % Change	31 year N	(1968-99) % Change
CENTRAL	156	- 13.4**** <sup>d</sup>	344	444	- 3.7***	599	- 1.6***
IL			3	11	9.3	23	17.1
IN	5	- 17.4	16	8	- 3.1	38	- 5.7
MB <sup>e</sup>	7	26.7	23	15	- 4.1	15	- 4.1
MI	46	- 27.6***	92	122	- 2.9***	140	- 1.4***
MN	37	2.7	67	75	- 4.0***	97	- 1.2**
OH	12	- 36.1**	27	30	- 4.2	53	- 5.7**
ON	15	- 16.2	47	108	- 4.1***	135	- 1.4***
WI	34	5.5	69	75	- 5.3***	98	- 1.9***

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

<sup>b</sup> Total number of routes surveyed in 1999 for which data were received by 1 June.

<sup>c</sup> Number of comparable routes with at least 2 non-zero counts.

<sup>d</sup> 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  $N < 10$ .

<sup>e</sup> Manitoba began participating in the Singing-ground survey in 1990.

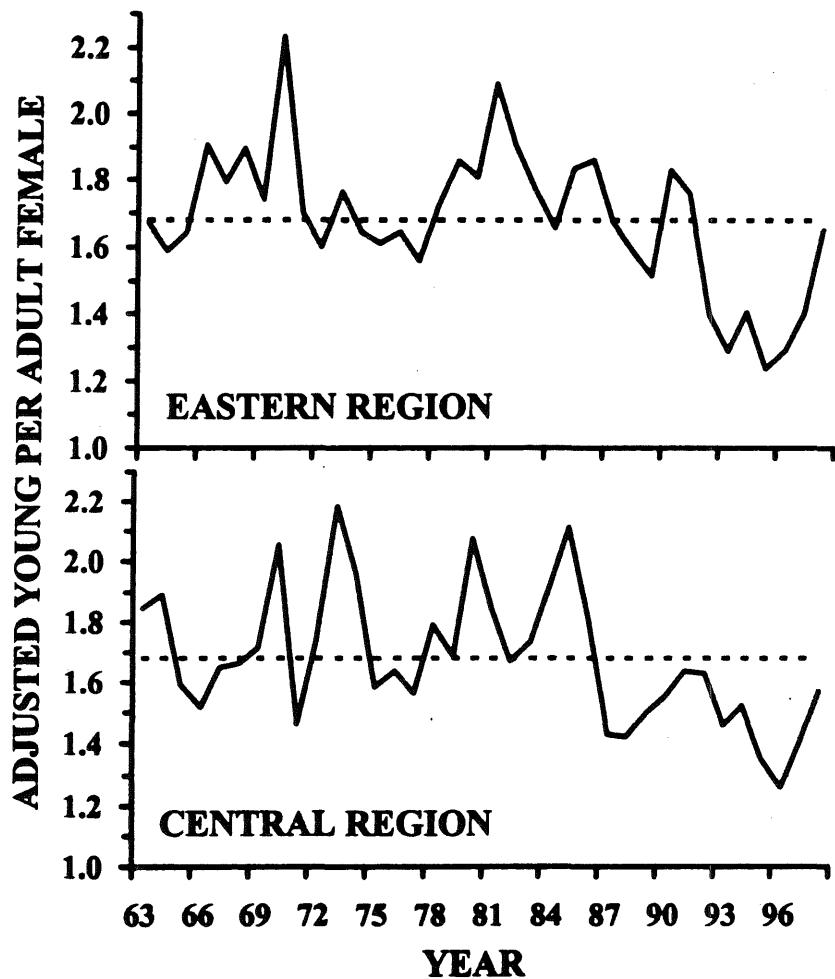


Figure 31. Adjusted index of American woodcock recruitment, 1963-98. Dashed line is the index based on all 1963-97 average. (from: Bruggink, John G., 1999. American woodcock harvest and breeding population status, 1999. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

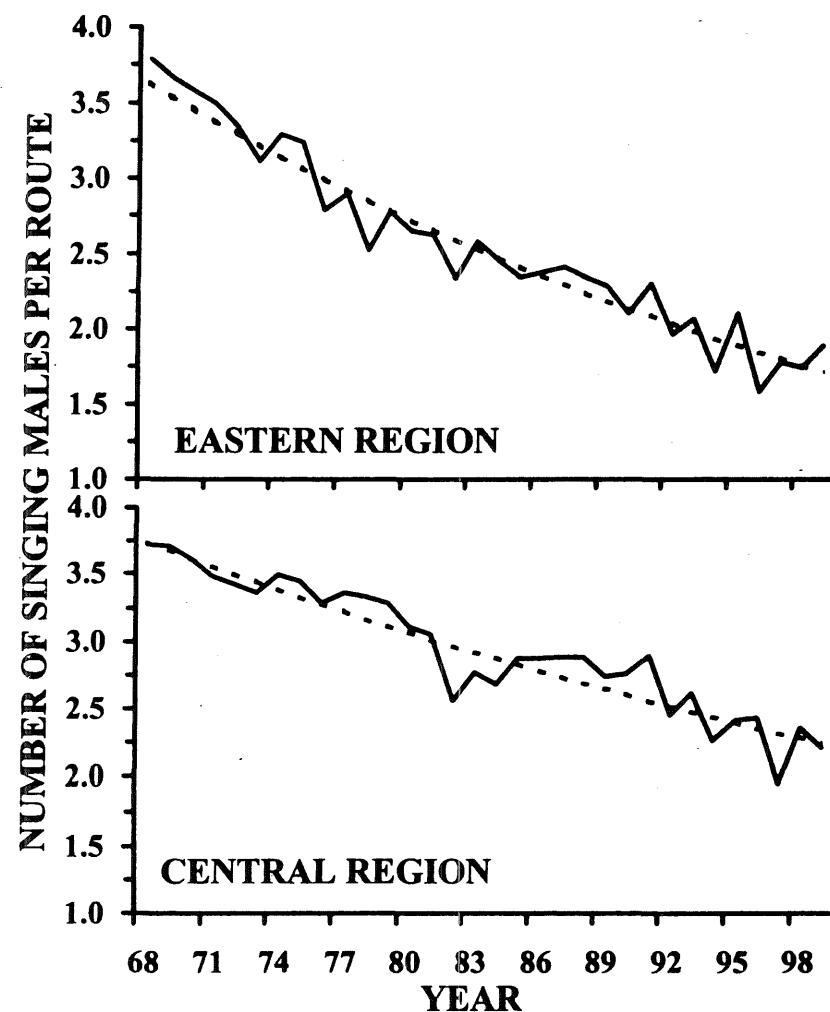


Figure 32. American woodcock singing ground survey long term trends and annual indices, 1968-99. (from: Bruggink, John G., 1999. American woodcock harvest and breeding population status, 1999. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp)

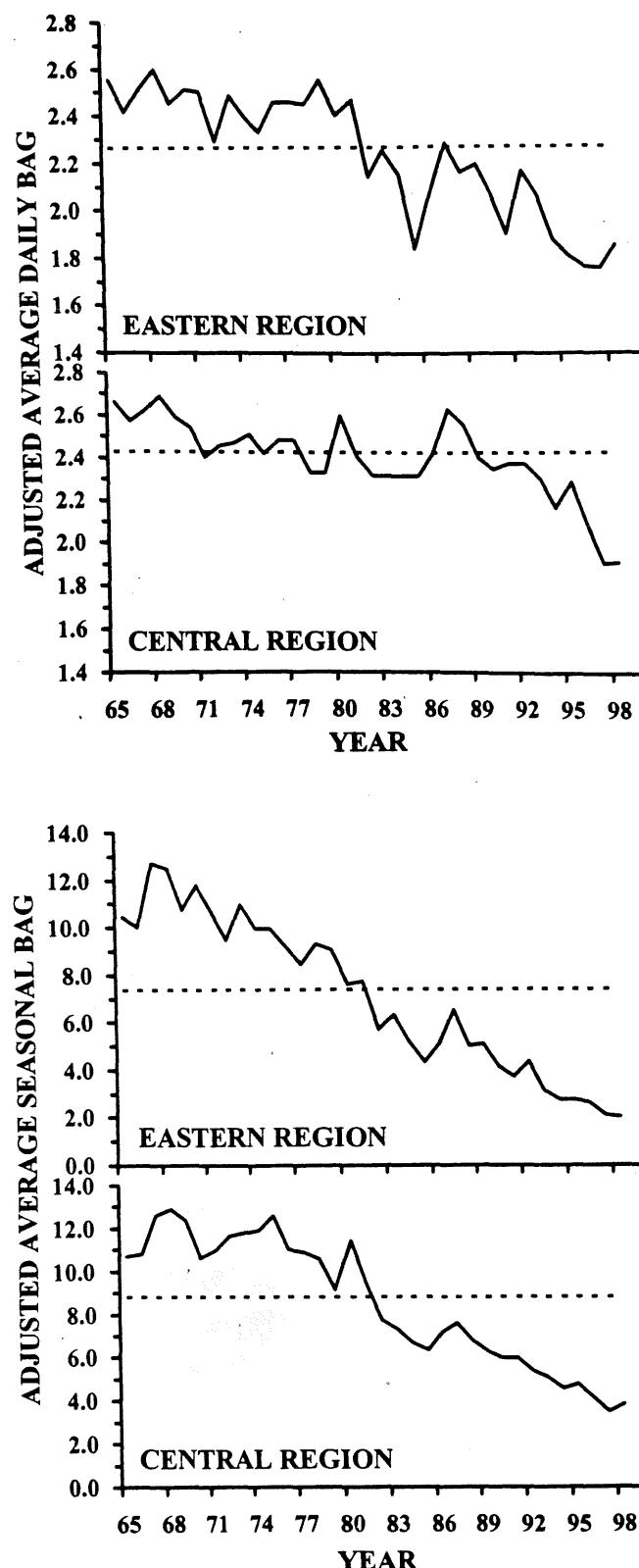


Figure 33. Adjusted indices of daily and seasonal hunting success of American woodcock, 1965-98, Base year is 1969.

Dashed line is 1965-97 average. (from: Bruggink, John G., 1999. American woodcock harvest and breeding population status, 1999. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp).

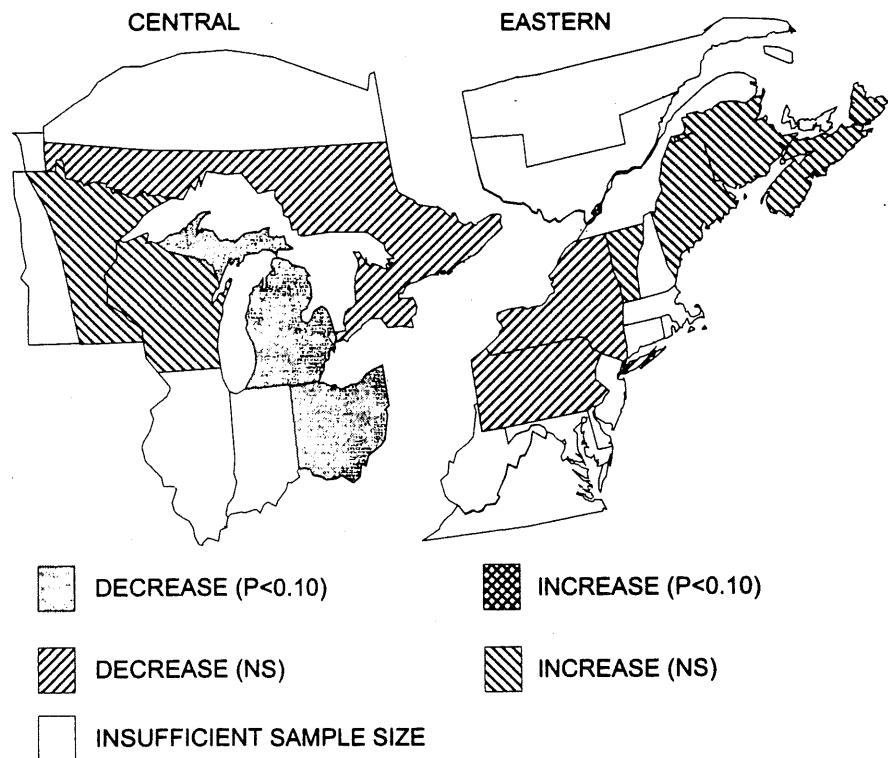


Figure 34. Short-term trends in number of American woodcock heard on the Singing-ground Survey; 1998-99. (from: Bruggink, John G., 1999. American woodcock harvest and breeding population status, 1999. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp.)

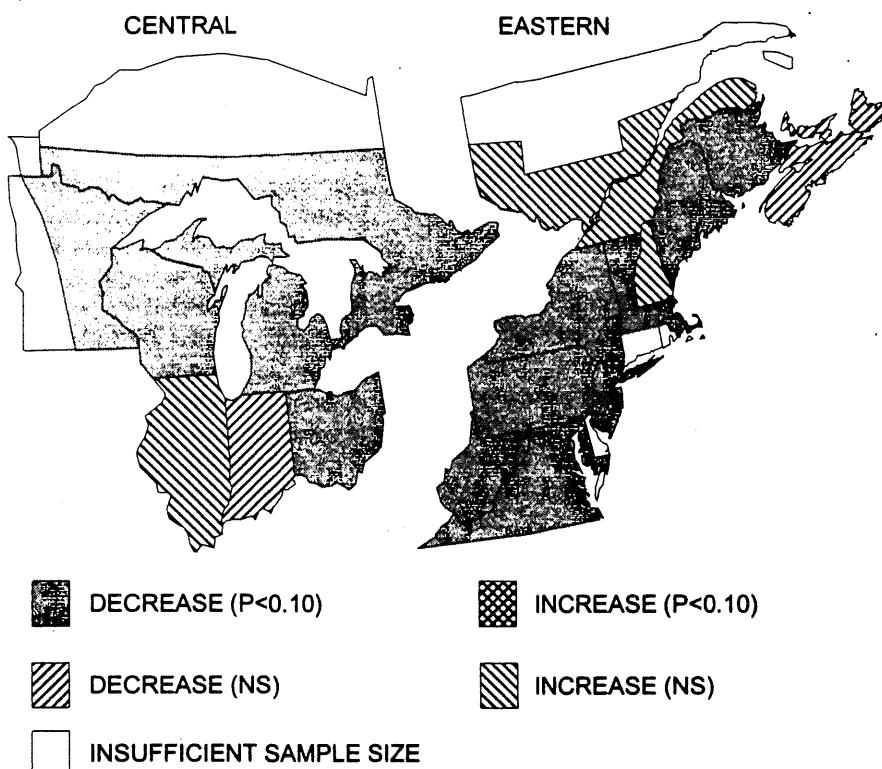


Figure 35. Long-term trends in number of American woodcock heard on the Singing-ground Survey; 1968-99 (from: Bruggink, John G., 1999. American woodcock harvest and breeding population status, 1999. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 14pp.)

**A HISTORY OF MINNESOTA WATERFOWL REGULATIONS,  
1915-1999**

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

PROPERTY OF THE STATE OF MINNESOTA



Table 36. Minnesota Waterfowl Hunting Regulations 1915-1999

DUCK SEASON															Mergansers											
Dates					Shooting Hours					Bag Limits					Species Restrictions					Coot						
Year	Open	Day	Close	Length	Opener	Start	End	Last Day	Aqua	Ducks	Poss.	Bonus	MAL	Mal F	BLK	PIN	WDK	CAN	RED	RUD	BUF	SCAUP	Daily Bag	Inc. no more hooded	Daily Bag	
1915	07-Sep	Tues	01-Dec	86		sunrise	sunset		10+15duck	15	45						closed									
1916	07-Sep	Thur	01-Dec	86		sunrise	sunset		10+15duck	15	45						closed									
1917	16-Sep	Sun	01-Dec	77		sunrise	sunset		10+15duck	15	45						closed									
1918	07-Sep	Sat	01-Dec	86		sunrise	sunset		10+15duck	15	45						closed									
1919	16-Sep	Tues	31-Dec	107		sunrise	sunset			15	15	45					closed								15	
1920	16-Sep	Thur	31-Dec	107		sunrise	sunset			15	15	45					closed								15	
1921	16-Sep	Fri	31-Dec	107		sunrise	sunset			15	15	45					closed								15	
1922	16-Sep	Sat	31-Dec	107		sunrise	sunset			15	15	45					closed								15	
1923	16-Sep	Sun	31-Dec	107		1/2 hr before	sunset			15	15	45					closed								15	
1924	16-Sep	Tues	31-Dec	107		1/2 hr before	sunset			15	15	45					closed								15	
1925	16-Sep	Wed	31-Dec	107		1/2 hr before	sunset			12	36					closed								12		
1926	16-Sep	Thur	31-Dec	107		1/2 hr before	sunset			12	36					closed								12		
1927	16-Sep	Fri	31-Dec	107		1/2 hr before	sunset			12	36					closed								12		
1928	16-Sep	Sun	31-Dec	107		1/2 hr before	sunset			12	36					closed								12		
1929	16-Sep	Mon	31-Dec	107		1/2 hr before	sunset			12	36					closed								12		
1930	16-Sep	Tues	31-Dec	107		1/2 hr before	sunset			12	30					closed								12		
1931	01-Oct	Thur	31-Dec	92	noon	1/2 hr before	sunset			12	30					closed	10	10	closed	closed					12	
1932	01-Oct	Sat	30-Nov	61	noon	1/2 hr before	sunset			12	30					closed	8	8	closed	closed					12	
1933	01-Oct	Sun	30-Nov	61	noon	1/2 hr before	sunset			12	24					closed	5	5	closed	closed					12	
1934	03-Oct	Wed	11-Nov	40	noon	sunrise	sunset			12	24					closed			closed	closed					10	
1935	21-Oct	Mon	19-Nov	30	noon	7 am	4 pm			10	10					closed	closed	closed	closed	closed					10	
1936	10-Oct	Sat	08-Nov	30	noon	7 am	4 pm			10	10					closed	closed	closed	closed	closed					12	
1937	09-Oct	Sat	07-Nov	30		7 am	4 pm			10	10					closed	3	3							12	
1938	01-Oct	Sat	14-Nov	45		7 am	4 pm			10	20					closed	3	3							15	
1939	01-Oct	Sun	14-Nov	45		7 am	4 pm			10	20					closed	3	3							15	
1940	01-Oct	Tues	29-Nov	60		sunrise	4 pm			10	20					closed			3						25	
1941	01-Oct	Wed	29-Nov	60		sunrise	4 pm			10	20					closed									25	
1942	26-Sep	Sat	04-Dec	70		sunrise	sunset			10	20					1									25	
1943	25-Sep	Sat	03-Dec	70		1/2 hr before	sunset			10	20					1									25	
1944	20-Sep	Wed	08-Dec	80		1/2 hr before	sunset			10	20					1									25	
1945	20-Sep	Thur	08-Dec	80		sunrise	sunset			10	20					1									25	
1946	05-Oct	Sat	18-Nov	45		1/2 hr before	1/2 hr before			7	14					1									25	
1947	07-Oct	Tues	05-Nov	30	noon	SUNRISE	1 hr before			4	8					1									15	
1948	08-Oct	Fri	06-Nov	30	noon	1/2 hr before	1 hr before			4	8					1									10	
1949	07-Oct	Fri	15-Nov	40	noon	1/2 hr before	1 hr before			4	8					1									10	
1950	06-Oct	Fri	09-Nov	35	noon	1/2 hr before	1 hr before			4	8					1									10	
1951	05-Oct	Fri	18-Nov	45	noon	1/2 hr before	1 hr before			4	8					1									10	
1952	01-Oct	Wed	24-Nov	55	noon	1/2 hr before	1 hr before			4	8					closed									10	
1953	03-Oct	Sat	26-Nov	55	noon	1/2 hr before	SUNSET			4	8					closed									10	
1954	02-Oct	Sat	25-Nov	55	noon	1/2 hr before	SUNSET			4	8					closed									10	
1955	08-Oct	Sat	16-Dec	70	noon	1/2 hr before	1/2 hr before			4	8					closed									10	
1956	06-Oct	Sat	29-Nov	55	noon	1/2 hr before	1/2 hr before			5	10					closed									10	
1957	05-Oct	Sat	13-Dec	70	noon	1/2 hr before	SUNSET			4	8					closed	2	2							10	
1958	04-Oct	Sat	12-Dec	70	noon	1/2 hr before	SUNSET			4	8					1	or 1	or 1							3	
1959	07-Oct	Wed	25-Nov	50	noon	sunrise	sunset			3	6					1	closed	closed							6	
1960	08-Oct	Sat	16-Nov	40	noon	1/2 hr before	sunset			4	8					1	closed	closed							6	
1961	14-Oct	Sat	12-Nov	30	noon	sunrise	sunset			2	4					1	closed	closed							6/6	
1962	13-Oct	Sat	06-Nov	25	noon	sunrise	sunset			2	4	2/4 ls	1	or 1		2	closed	closed							2	
1963	05-Oct	Sat	08-Nov	35	noon	sunrise	sunset			3	6		2	or 2		2	closed	closed							8/16	
1964	03-Oct	Sat	11-Nov	40	noon	sunrise	sunset			4	8		2/4			2/2	2/2	or 2/2							10/20	
1965	09-Oct	Sat	17-Nov	40	noon	sunrise	sunset			4	8	early teal	1/2			1/2	2/2	2/2	or 2/2							10/20

Table 36. (Continued)

DUCK SEASON																											
Shooting Hours						Bag Limits													Mergansers								
Year	Dates					Opener	Start	End	Last Day 4 P.M.	Aqua Fowl	Ducks			Species Restrictions													
	Open	Day	Close	Length							Daily	Poss.	Bonus	MAL	Mal F	BLK	PIN	WDK	CAN	RED	RUD	BUF	SCAUP				
1966	08-Oct	Sat	21-Nov	45	noon	1/2 hr before	sunset				4	8	2/4 m,ls	2/4			2/4	2/2					5/10	1/2	10/20		
1967	07-Oct	Sat	15-Nov	40	noon	1/2 hr before	sunset				4	8		2/4			1/2	1/1					5/10	1/2	10/20		
1968	05-Oct	Sat	13-Oct	9	noon	1/2 hr before	sunset				3	6		1/2		2/2	2/4	1/1	or 1/1				5/10	1/2	10/20		
1969	04-Oct	Sat	12-Nov	40	noon	sunrise	sunset				4	8	2/4 bt,ls	1/2			2/4	1/1	or 1/1				5/10	1/2	10/20		
1970	03-Oct	Sat	16-Nov	45	noon	1/2 hr before	sunset				4	8	2/4 bt,ls				2/4	1/1	or 1/1				5/10	1/2	15/30		
1971	02-Oct	Sat	20-Nov	50	noon	1/2 hr before	sunset				4	8	2/4 bt,ls				2/4	1/1	or 1/1				5/10	1/2	15/30		
1972	01-Oct	Sat	19-Nov	50	noon	1/2 hr before	sunset				4	8	2/4 bt,ls				2/4	closed	closed				5/10	1/2	15/30		
1973	01-Oct	Mon	10-Oct	10	noon	1/2 hr before	4 pm				4	8			1/2		2/4	closed	closed				5/10	1/2	15/30		
	20-Oct	Sat	18-Nov	30																							
1974	02-Oct	Wed	15-Nov	45	noon	1/2 hr before	4 pm				4	8		2/4		or 2/2	2/4	1/1	or 1/1				5/10	1/2	15/30		
1975	01-Oct	Wed	19-Nov	50	noon	1/2 hr before	4 pm				4	8		2/4		or 2/2	2/4	1/1	or 1/1				4/8	1/2	15/30		
1976	02-Oct	Sat	20-Nov	50	noon	1/2 hr before	4 pm				5	10		3/6	1/2	inc 2/4	2/4	1/1	or 1/1				5/10	1/2	15/30		
	23-Oct	Sat	11-Dec	50	NORTHERN 40 COUNTIES DELAYED DUE TO FIRE DANGER																						
1977	01-Oct	Sat	14-Nov	45	noon	1/2 hr before	sunset	29-Oct			5	10		2/4		or 2/4	2/4	1/1	or 1/1				5/10	1/2	15/30		
1978	01-Oct	Sun	19-Nov	50	9 am	1/2 hr before	sunset	20-Oct			5	10		2/4		or 2/4	2/4	1/1	or 1/1				5/10	1/2	15/30		
1979	29-Sep	Sat	17-Nov	50	noon	1/2 hr before	sunset	19-Oct			5	10		3/6	2/2	1/2	2/4	1/1	or 1/1				5/10	1/2	15/30		
1980	04-Oct	Sat	22-Nov	50	noon	1/2 hr before	sunset	17-Oct			5	10		3/6	2/2	1/2	2/4	1/2	1/2				5/10	1/2	15/30		
1981	03-Oct	Sat	21-Nov	50	noon	1/2 hr before	sunset	16-Oct			5	10		3/6	2/2	1/2	2/4	1/2	1/2				5/10	1/2	15/30		
1982	02-Oct	Sat	20-Nov	50	noon	1/2 hr before	sunset	22-Oct			5	10		3/6	2/2	1/2	2/4	1/2	1/2				5/10	1/2	15/30		
1983	01-Oct	Sat	19-Nov	50	noon	1/2 hr before	sunset	21-Oct			5	10		3/6	2/2	1/2	2/4	1/2	1/2				5/10	1/2	15/30		
1984	29-Sep	Sat	17-Nov	50	noon	1/2 hr before	sunset	19-Oct			5	10		3/6	2/2	1/2	2/4	1/2	1/2				5/10	1/2	15/30		
1985	05-Oct	Sat	13-Nov	40	noon	1/2 hr before	sunset	18-Oct			4	8		2/4	1/2	1/2	2/4	1/2	1/2				5/10	1/2	15/30		
1986	04-Oct	Sat	12-Nov	40	noon	1/2 hr before	sunset	17-Oct			4	8		2/4	1/2	1/2	2/4	closed	1/2				5/10	1/2	15/30		
1987	03-Oct	Sat	11-Nov	40	noon	1/2 hr before	sunset	16-Oct			4	8		2/4	1/2	1/2	2/4	closed	1/2				5/10	1/2	15/30		
1988	08-Oct	Sat	06-Nov	30	noon	sunrise	sunset	21-Oct			3	6		2/4	1/2	1/2	2/4	closed	1/2				5/10	1/2	15/30		
1989	07-Oct	Sat	05-Nov	30	noon	sunrise	sunset	20-Oct			3	6		2/4	1/2	1/2	2/4	closed	1/2				5/10	1/2	15/30		
1990	06-Oct	Sat	04-Nov	30	noon	sunrise	sunset	19-Oct			3	6		2/4	1/2	1/2	2/4	closed	1/2				5/10	1/2	15/30		
1991	05-Oct	Sat	13-Oct	30	noon	1/2 hr before	sunset	18-Oct			3	6		2/4	1/2	1/2	2/4	closed	1/2				5/10	1/2	15/30		
	17-Oct	Thur	03-Nov																								
	08-Nov	Fri	10-Nov																								
1992	03-Oct	Sat	11-Oct	30	noon	1/2 hr before	sunset	16-Oct			3	6		2/4	1/2	1/2	2/4	closed	1/2				5/10	1/2	15/30		
	15-Oct	Thur	01-Nov																								
	06-Nov	Fri	08-Nov																								
1993	02-Oct	Sat	10-Oct	30	noon	1/2 hr before	sunset	22-Oct			3	6		2/4	1/2	1/2	2/4	closed	1/2				5/10	1/2	15/30		
	14-Oct	Thur	31-Oct																								
	05-Nov	Fri	07-Nov																								
1994	01-Oct	Sat	09-Nov	40	noon	1/2 hr before	sunset	21-Oct			3	6		2/4	1/2	1/2	2/4	1/2	1/2				5/10	1/2	15/30		
1995	30-Sep	Sat	18-Nov	50	noon	1/2 hr before	sunset	20-Oct			5	10		4/8	1/2	1/2	2/4	1/2	1/2				5/10	1/2	15/30		
1996	28-Sep	Sat	16-Nov	50	noon	1/2 hr before	sunset	18-Oct			5	10		4/8	1/2	1/2	2/4	1/2	2/4				5/10	1/2	15/30		
1997	04-Oct	Sat	02-Dec	60	noon	1/2 hr before	sunset	11-Oct			6	12		4/8	2/4	1/2	3/6	2/4	1/2	2/4				5/10	1/2	15/30	
1998	03-Oct	Sat	01-Dec	60	noon	1/2 hr before	sunset	10-Oct			6	12		4/8	2/4	1/2	1/2	2/4	1/2	2/4				5/10	1/2	15/30	
1999	02-Oct	Sat	30-Nov	60	noon	1/2 hr before	sunset	09-Oct			6	12		4/8	2/4	1/2	1/2	2/4	1/2	2/4				3/6	5/10	1/2	15/30

Table 36. (Continued)

Goose Season																Southeast Zone				West & Northwest Zone				WC or LQP Zone				Lac qui Parle			
Statewide Regulations (excluding special zones)										Southeast Zone				West & Northwest Zone				WC or LQP Zone				Lac qui Parle									
Year	Overall			Snow & Blue Goose			Bag Limit / Poss.			Open	Close	Days	Cago Bag	Open	Close	Days	Cago Bag	Open	Close	Days	Cago Bag	Quota	Harvest Index	Date Quota Reached	Days						
	Open	Close	Days	Open	Close	Aggr.	Canada	W-F																							
1915	07-Sep	01-Dec	86				10/30																								
1916	07-Sep	01-Dec	86				10/30																								
1917	16-Sep	01-Dec	77				5/30																								
1918	07-Sep	01-Dec	86				5/5																								
1919	16-Sep	31-Dec	107				5/5																								
1920	16-Sep	31-Dec	107				5/5																								
1921	16-Sep	31-Dec	107				5/5																								
1922	16-Sep	31-Dec	107				5/5																								
1923	16-Sep	31-Dec	107				5/5																								
1924	16-Sep	31-Dec	107				5/5																								
1925	16-Sep	31-Dec	107				5/5																								
1926	16-Sep	31-Dec	107				5/5																								
1927	16-Sep	31-Dec	107				5/5																								
1928	16-Sep	31-Dec	107				5/5																								
1929	16-Sep	31-Dec	107				5/5																								
1930	16-Sep	31-Dec	107				4/5																								
1931	01-Oct	31-Dec	92				4/5																								
1932	01-Oct	30-Nov	61				4/5																								
1933	01-Oct	30-Nov	61				4/5																								
1934	03-Oct	11-Nov	40				4/5																								
1935	21-Oct	19-Nov	30				4/4																								
1936	10-Oct	08-Nov	30				4/4																								
1937	05-Oct	07-Nov	34				4/5																								
1938	01-Oct	14-Nov	45				4/5																								
1939	01-Oct	14-Nov	45				4/8																								
1940	01-Oct	29-Nov	60				3/6																								
1941	01-Oct	29-Nov	60				3/6																								
1942	26-Sep	04-Dec	70				6/6	2	2																						
1943	25-Sep	03-Dec	70				6/6	2	2																						
1944	20-Sep	08-Dec	80				6/12	2	2																						
1945	20-Sep	08-Dec	80				6/12	2	2																						
1946	05-Oct	18-Nov	45				4/4	2	2																						
1947	07-Oct	05-Nov	30				4/4	1	or 1																						
1948	08-Oct	06-Nov	30				4/4	2	or 2																						
1949	07-Oct	06-Nov	31				4/4	2	or 2																						
1950	06-Oct	09-Nov	35				4/4	2	or 2																						
1951	05-Oct	18-Nov	45				5/5	2	or 2																						
1952	01-Oct	24-Nov	55				5/5	2	or 2																						
1953	03-Oct	26-Nov	55				5/5	2	or 2																						
1954	02-Oct	25-Nov	55				5/5	2	or 2																						
1955	08-Oct	16-Dec	70				5/5	2	or 2																						
1956	06-Oct	29-Nov	55				5/5	2	or 2																						
1957	05-Oct	13-Dec	70				5/5	2	or 2																						

Table 36. (Continued)

Goose Season																												
Statewide Regulations (excluding special zones)									Southeast Zone			West & Northwest Zone			WC or LQP Zone			Lac qui Parle										
Year	Overall			Snow & Blue Goose		Bag Limit / Poss.			Open	Close	Days	Cago Bag	Open	Close	Days	Cago Bag	Open	Close	Days	Cago Bag	Quota	Harvest Index	Date Quota Reached	Days				
	Open	Close	Days	Open	Close	Aggr.	Canada	W-F																				
1958	04-Oct	12-Dec	70			5/5	2	or 2																				
1959	07-Oct	15-Dec	70			5/5	2	or 2																				
1960	08-Oct	16-Dec	70			5/5	2	or 2																				
1961	01-Oct	29-Nov	60			5/5	2	or 2																				
1962	06-Oct	04-Dec	60			5/5	2	or 2																				
1963	05-Oct	13-Dec	70			5/5	2	or 2																				
1964	03-Oct	11-Dec	70			5/5	2	or 2																				
1965	02-Oct	10-Dec	70			5/5	2	or 2																				
1966	01-Oct	09-Dec	70			5/5	2	or 2																				
1967	30-Sep	08-Dec	70			5/5	2	or 2																				
1968	28-Sep	06-Dec	70			5/5	2	or 2																				
1969	04-Oct	12-Dec	70			5/5	2	or 2																				
1970	03-Oct	16-Nov	45			5/5	1	or 2																				
1971	02-Oct	10-Oct	9			5/5	1	or 2	02-Oct	10-Dec	70	1																
1972	01-Oct	12-Oct	12	01-Oct	09-Dec	5/5	1/1	or 2/2	01-Oct	09-Dec	70	1																
1973	01-Oct	21-Oct	21	01-Oct	18-Nov	5/5	1/1	or 2/2	01-Oct	09-Dec	70	1																
1974	02-Oct	31-Oct	30	02-Oct	15-Nov	5/5	1/2	or 2/2	02-Oct	10-Dec	70	1																
1975	01-Oct	14-Nov	45			5/5	1/2	or 2/2	01-Oct	04-Dec	65	1								4000								
1976	02-Oct	15-Nov	45	23-Oct	06-Dec	5/5	1/2	or 2/2	02-Oct	10-Dec	70	1								8000	7813	not reached	45					
1977	01-Oct	14-Nov	45			5/5	1/2	or 2/2	01-Oct	09-Dec	70	1								5000	5799	02-Nov	33					
1978	01-Oct	14-Nov	45			5/5	2/4	or 2/2	01-Oct	09-Dec	70	2/4								1/4	7000	6238	not reached	45				
1979	29-Sep	17-Nov	50			5/5	2/4	or 2/2	29-Sep	07-Dec	70	2/4								1/4	7000	4988	not reached	50				
1980	04-Oct	22-Nov	50			5/10	2/4	2/4	04-Oct	12-Dec	70	2/4								1/4	5500	5700	22-Nov	50				
1981	03-Oct	21-Nov	50			5/10	2/4	2/4	03-Oct	11-Dec	70	2/4								1/4	5500	5560	09-Nov	37				
1982	02-Oct	20-Nov	50			5/10	2/4	2/4	02-Oct	10-Dec	70	2/4								1/4	5500	5479	not reached	50				
1983	01-Oct	19-Nov	50			5/10	1/2	2/4	01-Oct	09-Dec	70	2/4								01-Oct	19-Nov	50	1/2	4500	2392	not reached	50	
1984	29-Sep	17-Nov	50			5/10	1/2	2/4	29-Sep	07-Dec	70	2/4								29-Sep	17-Nov	50	1/2	4500	4628	06-Nov	39	
1985	28-Sep	16-Nov	50			5/10	1/2	2/4	28-Sep	06-Dec	70	2/4								28-Sep	16-Nov	50	1/2	4500	4592	07-Nov	41	
1986	04-Oct	22-Nov	50			5/10	1/2	2/4	04-Oct	12-Dec	70	2/4								04-Oct	22-Nov	50	1/2	4500	4598	09-Nov	37	
1987	03-Oct	11-Nov	40			5/10	1/2	2/4	03-Oct	11-Dec	70	2/4								03-Oct	01-Nov	30	1/2	4000	3910	not reached	30	
1988	01-Oct	09-Nov	40			5/10	1/2	2/4	01-Oct	09-Dec	70	2/4								08-Oct	06-Nov	30	1/2	4000	4959	23-Oct	16	
1989	30-Sep	08-Nov	40	30-Sep	16-Dec	7/14	1/2	2/4	30-Sep	08-Dec	70	2/4								30-Sep	29-Oct	30	1/2	4000	4303	19-Oct	20	
1990	29-Sep	17-Nov	50	29-Sep	17-Dec	7/14	2/4	2/4	29-Sep	07-Dec	70	2/4								29-Sep	07-Nov	40	1/2	6000	4832	not reached	40	
1991	28-Sep	16-Nov	50	28-Sep	16-Dec	7/14	2/4	2/4	28-Sep	06-Dec	70	2/4								28-Sep	06-Nov	40	1/2	6000	4799	not reached	40	
1992	03-Oct	21-Nov	50	03-Oct	21-Dec	7/14	2/4	2/4	03-Oct	11-Dec	70	2/4								03-Oct	11-Nov	40	1/2	6000	3558	not reached	40	
1993	02-Oct	20-Nov	50	02-Oct	20-Dec	7/14	2/4	2/4	02-Oct	10-Dec	70	2/4	02-Oct	10-Nov	40	1/2	02-Oct	10-Oct	9	1/2	1750							
																			16-Oct	05-Nov	21		4000	3832	not reached	30		
1994	01-Oct	19-Nov	50	01-Oct	19-Dec	7/14	2/4	2/4	01-Oct	09-Dec	70	2/4	01-Oct	09-Nov	40	1/2	01-Oct	09-Oct	9	1/2	1750							
																			15-Oct	04-Nov	21		4000	2876	not reached	30		
1995	30-Sep	18-Nov	50	30-Sep	18-Dec	7/14	2/4	2/4	30-Sep	08-Dec	70	2/4	30-Sep	08-Nov	40	1/2	30-Sep	08-Oct	9	1/2	7000	12513	not reached	30				

Table 36. (Continued)

Year	Goose Season																								
	White Geese					Canada Geese																			
	Remainder of State				Northeast Zone				West Zone & Northwest Zones				WC and LQP Zone				Lac qui Parle Harvest Index								
Year	Open	Close	Days	Bag/ Poss.	Open	Close	Days	Bag	Open	Close	Days	Bag	Zone	Open	Close	Days	Bag	Index	Harvest	Date close	Days				
1996	28-Sep	16-Dec	80	7/14	28-Sep	06-Dec	70	2/4	est. in 1998				Both	28-Sep	06-Nov	40	1/2	05-Oct	13-Oct	9	1/2	7000 for the first 9 days 16000	9768	not reached	30
																		17-Oct	06-Nov	21					
1997	04-Oct	22-Dec	80	10/20	04-Oct	12-Dec	70	2/4					Both	04-Oct	12-Nov	40	1/2	11-Oct	09-Nov	30	1/2	16000	7716	not reached	30
1998	03-Oct	21-Dec	80	10/20	03-Oct	01-Nov	30	1/2	03-Oct	11-Dec	70	2/4	NW	03-Oct	22-Oct	20	1/2	15-Oct	03-Nov	20	1/2	10000	7188	not reached	20
																		W	03-Oct	27-Oct	25	1/2			
1999	02-Oct	20-Dec	80	10/20	02-Oct	10-Dec	70	2/4	incorporated into remainder of state				Both	02-Oct	10-Nov	40	1/2	09-Oct	07-Nov	30	1/2	16000			

Table 36. (Continued)

Year	Other Regulations
pre- 1915	No possession past 5 days after close of season.
1915	Ducks separated from other aquatic fowl limits, only use shotgun discharged from shoulder, law prohibited hunting aquatic fowl on open water. No possession past 5 days after season. Only geese could be taken by rifle. Poss = 50.
1916	No change from 1915.
1917	The 1915 law was amended so that wounded aquatic fowl could be pursued and killed on open water.
1918	Migratory Bird Treaty Act became law July 3, giving primary responsibility for the management of waterfowl to the fed. government. In Nov. the fed. government issued first annual pamphlet on waterfowl regulations for the country.
1919	Dates set by fed. reg. Gun limit to ten gauge to take waterfowl. Aid of a dog and decoys allowed. Limit inc. ducks, coots, rails, gallinules, snipe, yellowlegs.
1920	No change.
1921	No change.
1922	No change.
1923	Season limit of 135 ducks.
1924	No change.
1925	Not over 12 game birds (inc. waterfowl) were allowed in one day. Possession limit: 36 aquatic fowl. Season limit: 120 ducks. State law limited to 6 the number of decoys which could be used at any one blind.
1926	No change.
1927	No change.
1928	No change.
1929	Congress passed the Migratory Bird Conservation Act.
1930	Season limit for ducks 120.
1931	No change.
1932	Daily limit not >12 in aggregate of MAL, PIN, WIG, MERG, COOT, and >10 in aggregate of SCP, GWT, BWT, Cin. Teal, CAN, RED, RNK, SHOV and GAD. Season limit of 120 ducks.
1933	Daily limit 15 mig. game birds of which not more than 12 can be a mixed bag of ducks and coots, and not > 8 in aggregate of SCP, GWT, BWT, Cin. Teal, CAN, RED, RNK, SHOV, OR GAD. season limit 120 ducks.
1934	No hunting on Mon. and Thur. of each week. Fed. duck stamp required. Not >5 CAN, RHD, SCP, RED, BWT, Cin. teal, SHOV, GAD.
1935	Daily and possession limit of 10 is for all migratory game birds and includes 4 geese. Baiting and the use of live decoys were outlawed in 1935. Not over 15 game birds of all kinds may be taken by in any one day.
1936	Daily and possession limit not over 10 migratory birds in aggregate of all kinds, of which not more than 4 can be geese. Not over 15 birds of all kinds may be taken in any one day.
1937	Daily limit of mig. birds 15 in aggregate of all kinds of which not more than 10 shall be ducks; 4 geese; 12 Coots; 12 Jacksnipe; 12 Rails and Gallinules.
1938	Season limit of 120 ducks. Daily limit-15 mig. game birds.
1939	Daily limit-15 mig. game birds.
1940	Daily limit-15 mig. game birds.
1941	Same as 1940 except no restrictions on Ruddy Duck and Canvasback.
1942	Only 3 of any one or 3 combined of RED and BUF. Four Blue Geese allowed in addition to the 2 geese of regular daily bag. Daily and possession limit of Blue Geese only is 6.
1943	Only 3 of any one or 3 combined of RED and BUF. Four Blue Geese allowed in addition to the 2 geese of regular daily bag. Daily and possession limit of Blue Geese only is 6.
1944	Daily duck limit 15 provided 5 are MAL, PIN, WIG (poss. limit 30). Daily snow/blue goose limit of 4 is in addition to 2 other goose limit.
1945	Daily snow/blue goose limit of 4 in addition to 2 other goose limit. 1st year Merg limit different than duck.
1946	Two snow/blue geese in addition to 2 of some other kind.
1947	White-Fronted goose bags combined with Canada Goose bag.
1948	Management by Flyways was commenced in 1948.
1949	No change.
1950	No change.
1951	No change.
1952	No change.
1953	No change.
1954	Mergs included in duck bag.
1955	No change.

Table 36. (Continued)

Year	Other Regulations
1956	No change.
1957	Red-breasted and Common Merganser, 5 daily and, 10 possession which must be included in limit with other ducks. Goose limit may include 2 Canada, 2 W-F, or 1 of each.
1958	Mergs no longer included in duck bag.
1959	No change.
1960	No change.
1961	Shooting hours noon for both duck (14 Oct) and goose (1 Oct) openers.
1962	Shooting hours begin at noon on both duck (13 Oct) and goose (6 Oct) openers. Bonus scaup from Oct. 20 to Nov. 6, inclusive.
1963	No change.
1964	Shooting hours for geese sunrise to noon in Olmstead, Nobles, Cottonwood, Jackson and Murray counties. No goose hunting permitted in these areas Oct. 3. 2 Redheads or Canvasbacks or 1 of each.
1965	Teal: 11-13 SEP. Geese hours: sunrise to noon (noon to sunset on opening) in above mentioned counties and portions of Big Stone, Murray, and Nobles. 1st time Home included in mer limit. Coot season 9-Oct-17 Nov.
1966	Geese hours 1/2 hour before to noon (closed Oct. 8) in counties noted in 1965 comment. Bonus Rndu & Scaup from 1-21 Nov.
1967	Shooting hours 1/2 hour before sunrise to noon for geese in Cottonwood, Jackson, Traverse and portions of Murray and Nobles counties. Coots combined with Moorhens ( <i>gallinules</i> ).
1968	Shooting hours 1/2 hour before sunrise to noon for geese in Cottonwood, Jackson, and Traverse counties and portions of Murray and Nobles counties. Coot season 26-Oct to 12-Nov.
1969	Shooting hours 1/2 hour before sunrise to noon for geese in Jackson, Traverse, and portions of Cottonwood, Murray and Nobles counties. BONUS DUCKS: 2 BWT (4-12 Oct), 2 SCP (1-12 Nov).
1970	Shooting hours 1/2 hour before sunrise to noon for geese in Jackson and Traverse counties. BONUS DUCKS: 2 BWT (3-11 Oct), 2 SCP (31 Oct-16 Nov).
1971	Shooting hours 1/2 hour before sunrise to noon for geese in Jackson and Traverse counties. BONUS DUCKS: 2 BWT (2-10 Oct), 2 SCP (1-20 Nov).
1972	BONUS DUCKS: 2 BWT (1-19 Oct), 2 SCP (1-19 Nov).
1973	First hen MAL restriction, Season for all geese in SE Zone extends until 9 Dec.
1974	Closed areas for CAN and RED in effect.
1975	Closed areas for CAN and RED in effect.
1976	Closed areas for CAN and RED in effect.
1977	NORTHERN SEASON CHANGED DUE TO FIRE DANGER: in northern 2/3 of state (40 cos.) began 23 Oct, duck end 11 Dec, goose end 6 Dec., LQP quota inc. to 8,000.
1978	Closed areas for CAN and RED in effect. Steel shot required on WPA, NWR, & WMA.
1979	Closed areas for CAN and RED in effect.
1980	Closed areas for CAN and RED in effect. White-fronted goose bag separated from Canada goose bag.
1981	Closed areas for CAN and RED in effect.
1982	Closed areas for CAN and RED in effect.
1983	Closed SE area for CANV in effect.
1984	Closed SE area for CANV in effect.
1985	Closed SE area for CANV in effect. Noon shooting hours on both goose and duck opener. Pintail restrictions initiated.
1986	CANV season closed statewide
1987	STEEL SHOT REQUIRED STATEWIDE. Special Canada goose hunts: 1-10 Sep in TCGZ (no hunting within 100 yards of surface water); 18-27 Dec in TCGZ and OCGZ.
1988	WCGZ established. Special Canada goose hunts: 1-10 Sep in TCGZ, 16-25 Dec in TCGZ and OCGZ.
1989	Special Canada Goose Hunts: 1-10 Sep in TCGZ, FFGZ, and SWBGZ; 15-24 Dec in TCGZ and OCGZ.
1990	Special Canada Goose Hunts: 1-10 Sep in TCGZ, FFGZ, and SWBGZ; 15-24 Dec in TCGZ and OCGZ; West Central (inc. LQP) Goose Permit required.
1991	Special Canada Goose Hunts: 1-10 Sep in TCGZ, FFGZ, and SWBGZ; 14-23 Dec in TCGZ and OCGZ.
1992	Special Canada Goose Hunts: 1-10 Sep in TCGZ, FFGZ, and SWBGZ; 15-24 Dec in TCGZ and OCGZ.
1993	Waterfowl must be transported with wing and head; orange requirement dropped for waterfowl hunters; NW & W Goose Zones added; SCGH: 4-13 Sep in TC, FF, & SW; 15-24 Dec in TC & OC, 11-20 Dec in FFGZ.
1994	Canvasback season opened except for Heron Lk complex & Lk Christina. SCGH: 3-12 Sep in TC, FF, & SW; 15-24 Dec in TC & OC, 10-19 Dec in FFGZ.
1995	Lake Christina open to Canv hunting; Bismuth-Tin shot approved; WC goose permit dropped. SCGH: 2-11 Sep in TC, FF, & SW; 15-24 Dec in TC & OC, 9-18 Dec in FFGZ. LQP harvest index adjusted.
1996	Youth waterfowl hunting day 21 Sep. (youth 15 & under accompanied by adult, ducks, mergansers, coots, & moorhens), Special Canada goose hunt 7-15 Sep. statewide except N.W., bag limit 5 Metro, 4 SW, & 2 in remainder Late CG Dec 14-23 in TCGZ, FFGZ, OCGZ, 2 daily bag. White goose (Snow/Blue & Ross) limits separated from other geese. WF & brant seasons same as CG, 2 each/day, W zone boundary changed. SE goose zone dropped.
1997	Youth waterfowl hunting day 20 Sep. Special canada goose hunt 6-15 Sep. statewide except NW, bag limit 5 in Metro & SW, 2 in remainder Late CG Dec 13-22 in TCGZ, FF/AGZ, OCGZ, bag limit 2. 4 P.M. shooting hour period reduced to first 8 days by legislature.; Heron Lake complex open to canvasback hunting; Geese may be transported with wing only instead of head and wing.
1998	Youth waterfowl hunting day 19 Sep. (1 goose added to bag); Special canada goose hunt 5-15 Sep. statewide except NW, Bag limt 5 except 2 E of I-35 & S. of TCGZ. Over water hunting in W goose zone (inc. WC & LQP) beginning 2nd Saturday of Sept. season; Late CG Dec 12-21 in TCGZ, FF/AGZ, OCGZ, bag limit 2. Reductions in regular goose season due to EPP status, New NE Goose Zone
1999	Youth waterfowl hunting day 18 Sep inc. 1 CGoose except 5 CG in W Zone (inc LQP and WCGZ); Sept. canada goose hunt extended, 4-22 Sep. statewide except NW; first NW season = Sept. 4-15, bag limit 2 CG; Late CG season expanded statewide except LQP and WC, daily bag limit 5 except new SE Zone limit 2. NE Goose Zone dropped. WF & brant season lengthened to 80 days, brant limit 1. Scaup restrictions initiated.



HUNTING HARVEST STATISTICS  
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## MINNESOTA HUNTING

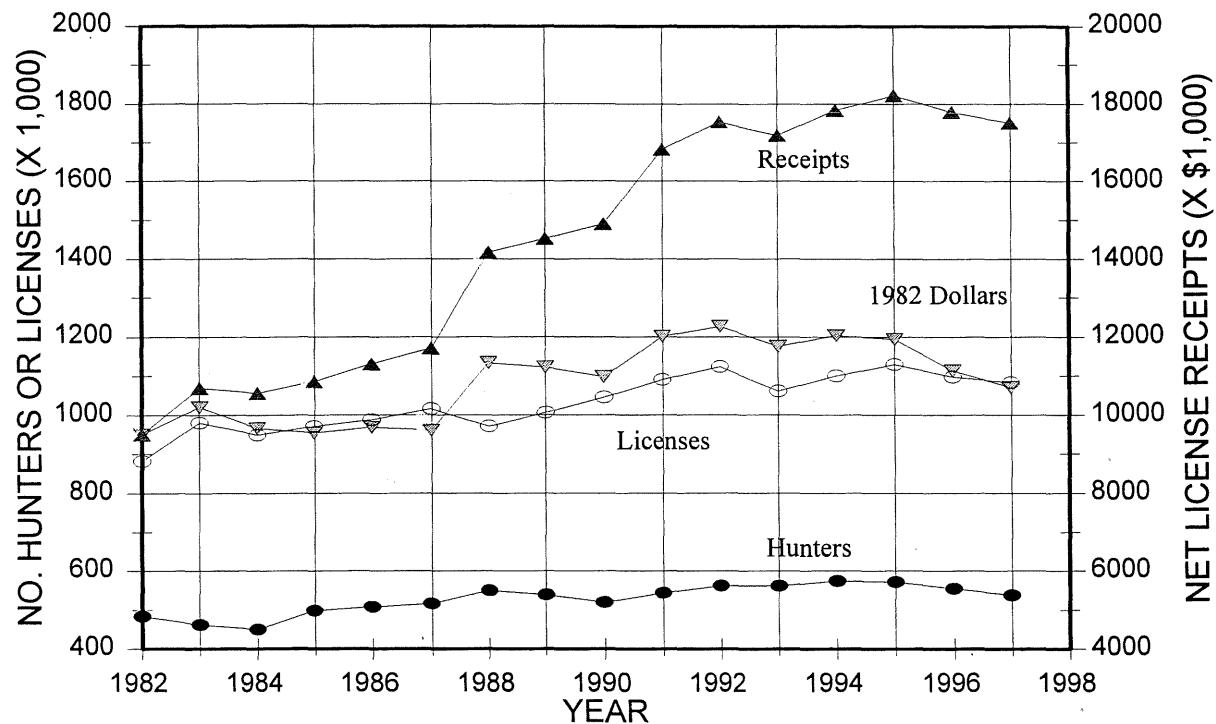


Figure 36. Minnesota hunting trends, 1982-97.

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 chain-weighted price indexes of state and local government purchases. Sources: *Survey of Current Business*, January/February 1996, August 1996, and July 1998, U.S. Dept. of Commerce.

Table 37. Small game hunter response to mail surveys, 1979-80 through 1998-99.

Year	Number mailed	Number not delivered	<u>Delivered questionnaires completed and returned</u>	
			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 <sup>a</sup>	10,893	735	7,790	76.7
1990-91 <sup>a</sup>	5,000	394	3,467	75.3
1991-92 <sup>a</sup>	5,050	387	3,541	75.9
1992-93 <sup>a</sup>	5,000	288	3,625	76.9
1993-94 <sup>a</sup>	5,011	282	3,320	70.2
1994-95 <sup>a</sup>	5,000	387	3,353	72.7
1995-96 <sup>a</sup>	5,000	321	3,293	70.4
1996-97 <sup>a</sup>	5,000	170	3,334	69.0
1997-98 <sup>a</sup>	5,000	198	3,234	67.3
1998-99 <sup>a</sup>	5,000	200	3,153	65.7

<sup>a</sup> Includes resident and non-resident licensees, and excludes duplicate licenses.

Table 38. Use of small game hunter licenses, 1986-87 through 1998-99.

	Returns from mail survey	Projections from license sales
1986-87 Hunted	3,006 ( 83.0%)	217,504
Did not hunt	<u>617</u> ( 17.0%)	<u>44,549</u>
	3,623 (100.0%)	262,053
1987-88 Hunted	3,554 ( 84.8%)	242,875
Did not hunt	<u>635</u> ( 15.2%)	<u>43,395</u>
	4,189 (100.0%)	286,270
1988-89 Hunted	9,391 ( 82.2%)	234,833
Did not hunt	<u>2,040</u> ( 17.8%)	<u>50,852</u>
	11,431 (100.0%)	285,685
*1989-90 Hunted	6,924 ( 88.9%)	272,307
Did not hunt	<u>866</u> ( 11.1%)	<u>34,000</u>
	7,790 (100.0%)	306,307
1990-91 Hunted	2,798 ( 88.5%)	275,327
Did not hunt	<u>363</u> ( 11.5%)	<u>35,777</u>
	3,161 (100.0%)	311,104
1991-92 Hunted	3,004 ( 85.3%)	270,972
Did not hunt	<u>519</u> ( 14.7%)	<u>46,697</u>
	3,523 (100.0%)	317,669
1992-93 Hunted	3,008 ( 83.9%)	249,973
Did not hunt	<u>576</u> ( 16.1%)	<u>47,968</u>
	3,584 (100.0%)	297,941
1993-94 Hunted	2,787 ( 84.0%)	232,365
Did not hunt	<u>533</u> ( 16.0%)	<u>44,260</u>
	3,320 (100.0%)	276,625
1994-95 Hunted	2,826 ( 84.6%)	244,654
Did not hunt	<u>516</u> ( 15.4%)	<u>44,535</u>
	3,342 (100.0%)	289,189
1995-96 Hunted	2,714 ( 84.6%)	252,775
Did not hunt	<u>494</u> ( 15.4%)	<u>46,014</u>
	3,208 (100.0%)	298,789
1996-97 Hunted	2,631 ( 79.6%)	237,476
Did not hunt	<u>674</u> ( 20.4%)	<u>60,861</u>
	3,305 (100.0%)	298,337
1997-98 Hunted	2,604 ( 80.7%)	246,285
Did not hunt	<u>622</u> ( 19.3%)	<u>58,901</u>
	3,226 (100.0%)	305,186
1998-99 Hunted	2,612 ( 82.8%)	265,215
Did not hunt	<u>541</u> ( 17.2%)	<u>55,093</u>
	3,153 (100.0%)	320,308

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

Table 39. Estimated number of hunters (thousands) for various species, 1982-83 through 1998-99.

	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	1994-95	1995-96	1996-97	1997-98	1998-99	
Ducks	134	117	134	122	132	114	77	84	88	100	107	109	118	119	114	122	117	
Canada goose	52	41	51	55	58	56	47	50	56	56	61	62	70	73	75	79	77	
Other geese	11	10	9	9	7	9	5	7	6	6	6	9	7	10	6	5	6	
American coot	11	12	9	11	11	8	3	4	5	5	5	6	7	9	6	7	5	
Common snipe	4	6	5	5	5	6	4	5	5	4	3	2	2	2	2	2	2	
Rails/gallinules	1	2	1	1	1	1	1	1	<1	<1	<1	1	1	1	<1	<1	<1	
Crow*								9	13	12	11	10	12	15	13	11	11	
American woodcock	20	16	17	19	21	27	26	30	30	27	21	17	21	21	18	17	19	
Ring-necked pheasant	125	86	65	72	62	86	84	90	105	122	105	88	92	96	88	80	88	
Ruffed grouse	115	78	87	94	107	132	139	163	163	146	124	102	107	116	118	127	142	
Spruce grouse	13	9	12	12	12	16	15	20	19	16	13	11	12	14	11	11	11	
Sharp-tailed grouse	14	9	9	10	9	10	12	14	14	14	10	8	7	8	7	8	8	
Gray partridge	21	15	20	17	23	25	23	24	31	27	17	15	14	12	11	8	10	
Gray squirrel	53	38	39	38	41	40	37	36	41	36	32	32	35	35	33	27	30	
Fox squirrel	39	28	26	29	29	26	26	23	29	23	22	23	24	23	20	16	18	
Eastern cottontail	36	29	22	22	24	26	27	24	32	31	24	21	21	23	19	14	19	
White-tailed jackrabbit	11	7	6	6	4	5	5	6	7	6	5	4	4	5	4	3	3	
Snowshoe hare	15	9	7	7	8	10	9	10	15	12	8	5	6	5	4	4	7	
Raccoon (Sept 98-Feb99)	13	11	12	10	11	13	9	7	10	10	9	9	10	10	10	9	9	
Raccoon <sup>†</sup> (March98- Aug98)													3	5	4	3	4	
Red fox (Sept98-Feb99)	12	11	11	12	11	13	13	9	16	22	19	16	15	15	11	9	9	
Red fox <sup>†</sup> (March98- Aug98)													3	4	3	2	3	
Gray fox	3	2	3	2	2	3	3	2	3	4	3	3	2	3	n.a.	2	2	
Coyote	3	3	3	5	4	5	6	4	9	13	14	14	11	15	13	10	11	
Badger	1	1	1	1	1	1	1	<1	1	<1	1	1	1	<1	1	1	<1	

\* Crow season added in 1989.

† Raccoon and red fox season changed to year round beginning May 1994.

Table 40. Estimated take per hunter, for respondents reporting that they hunted a particular species, 1982-83 through 1998-99.

	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	1994-95	1995-96	1996-97	1997-98	1998-99	
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	8.1	9.7	9.6	9.9	9.5	
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	2.4	2.5	3.2	2.9	2.8	
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	0.8	0.9	1.4	2.3	1.0	
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	3.2	3.1	3.8	4.1	4.7	
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	1.3	1.6	2.8	2.6	2.9	
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	1.3	2.3	1.0	0.7	0.5	
Crow*								5.9	5.5	7.6	6.2	5.0	9.4	8.5	7.3	6.6	9.3	
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	3.5	3.9	3.2	3.4	3.3	
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	3.5	4.2	3.9	3.1	3.5	
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	3.5	3.9	4.5	5.2	6.7	
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	1.9	1.8	1.4	2.3	2.4	
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	1.2	1.3	1.2	1.7	2.6	
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	1.8	2.2	2.2	1.9	2.5	
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	5.4	4.9	4.9	4.9	5.0	
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	4.2	4.6	3.8	4.4	3.3	
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	3.6	4.3	3.4	4.5	4.6	
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	1.5	1.5	2.6	1.6	2.5	
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	3.2	2.0	2.3	2.0	3.5	
Raccoon <sup>†</sup> (Sept 97-Feb 98)	6.3	8.0	9.4	9.4	10.9	13.1	11.4	7.6	9.6	7.5	8.6	8.9	15.9	14.7	21.3	13.8	16.6	
Raccoon (March 97-Aug 97)														8.0	11.3	24.4	5.1	5.8
Red fox <sup>†</sup> (Sept 97-Feb 98)	1.5	2.0	2.3	4.2	1.5	2.5	3.3	2.1	3.4	3.6	3.3	3.6	2.8	3.1	3.0	1.4	1.3	
Red fox (March 97-Aug 97)														1.4	1.5	1.3	0.8	1.2
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	0.6	1.0	n.a.	1.3	0.9	
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	1.1	1.8	2.3	1.6	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	1.4	1.4	2.1	0.9	4.3	

\* Crow season added in 1989. † Raccoon and red fox season changed to year round beginning May, 1994.

Table 41. Mean Harvest for successful hunters and hunter success rates (%), 1989-90 through 1998-99.

	Mean harvest for successful hunters and (hunter success rate (%))									
	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Ducks	7.6 (85.8)	7.9 (88.8)	8.7 (89.7)	9.1 (89.0)	8.7 (87.3)	9.2 (88.5)	11.0 (88.2)	10.7 (90.2)	11.1 (88.4)	10.8 (87.8)
Canada geese	2.8 (75.0)	3.2 (71.6)	3.6 (72.2)	3.4 (72.7)	3.4 (74.3)	3.3 (71.9)	3.4 (72.2)	4.3 (75.1)	4.1 (71.2)	4.0 (70.9)
Other geese	2.2 (53.7)	3.1 (37.9)	2.2 (47.8)	2.5 (33.3)	2.1 (50.0)	2.3 (32.1)	2.4 (39.0)	2.6 (52.2)	4.8 (47.2)	2.3 (44.6)
American coot	3.6 (69.3)	4.9 (73.1)	3.8 (70.9)	6.0 (77.6)	3.8 (71.6)	4.1 (77.5)	4.4 (69.4)	5.1 (75.0)	4.6 (89.2)	6.0 (78.8)
Common snipe	2.9 (85.0)	3.3 (90.7)	3.9 (93.8)	3.5 (83.3)	2.9 (65.2)	2.2 (61.9)	2.5 (65.2)	3.2 (89.5)	3.1 (83.3)	3.5 (83.3)
Rails/gallinules	7.2 (58.8)	2.5 (40.0)	7.6 (100.0)	2.5 (66.7)	2.4 (62.5)	2.2 (60.0)	4.7 (50.0)	2.0 (50.0)	2.0 (33.3)	1.0 (50.0)
Crow*	6.8 (87.1)	6.3 (87.3)	9.1 (83.3)	7.0 (88.8)	5.7 (87.1)	10.5 (89.4)	9.0 (93.9)	7.9 (91.8)	7.1 (93.2)	10.6 (87.6)
American woodcock	4.3 (90.6)	4.4 (87.9)	4.1 (85.0)	5.8 (80.5)	5.4 (73.9)	4.7 (74.5)	5.0 (76.8)	4.3 (73.5)	4.6 (73.5)	3.7 (87.3)
Ring-necked pheasant	4.7 (76.6)	5.9 (78.6)	5.8 (79.2)	5.4 (73.1)	5.3 (70.6)	5.0 (68.9)	5.7 (73.6)	5.4 (71.2)	4.5 (68.6)	5.0 (70.9)
Ruffed grouse	8.5 (87.4)	8.3 (85.1)	8.2 (80.3)	6.0 (72.8)	4.3 (64.7)	4.9 (70.9)	5.3 (74.0)	6.0 (75.4)	6.6 (77.9)	8.0 (82.9)
Spruce grouse	3.4 (78.7)	3.6 (66.2)	3.0 (68.3)	2.8 (59.1)	2.4 (48.4)	3.3 (56.6)	3.2 (57.0)	2.4 (59.1)	3.4 (67.8)	3.4 (68.8)
Sharp-tailed grouse	3.6 (69.4)	3.8 (62.6)	3.7 (64.5)	3.3 (60.2)	3.0 (46.7)	3.5 (34.5)	2.7 (47.1)	3.1 (39.7)	3.5 (48.2)	4.4 (60.2)
Gray partridge	4.6 (80.0)	4.7 (78.2)	4.9 (78.0)	4.0 (71.5)	4.0 (59.7)	3.2 (54.8)	3.4 (62.9)	3.3 (66.7)	3.3 (57.5)	3.8 (64.2)
Gray squirrel	6.1 (89.8)	6.3 (91.6)	5.7 (86.1)	5.5 (83.8)	6.4 (86.9)	6.2 (87.1)	5.6 (87.9)	5.8 (84.3)	5.8 (84.0)	5.8 (86.9)
Fox squirrel	5.6 (90.2)	5.7 (89.6)	5.5 (84.7)	4.9 (85.3)	5.1 (88.5)	5.1 (82.6)	5.5 (83.8)	4.7 (80.1)	5.3 (82.9)	3.9 (82.7)
Eastern cottontail	4.5 (84.6)	5.0 (87.1)	4.9 (83.7)	3.9 (78.0)	4.5 (79.9)	4.5 (79.1)	5.2 (83.5)	4.3 (79.9)	5.7 (80.0)	5.6 (83.1)
White-tailed jackrabbit	3.0 (72.7)	2.0 (65.8)	2.4 (70.3)	3.0 (71.0)	3.9 (62.8)	2.4 (61.5)	2.5 (59.3)	4.0 (65.1)	2.5 (65.5)	3.2 (78.6)
Snowshoe hare	5.6 (86.3)	5.2 (88.6)	6.9 (85.7)	4.8 (65.6)	4.4 (73.8)	5.4 (59.7)	3.4 (59.3)	3.7 (60.4)	2.8 (70.5)	4.7 (75.4)
Raccoon (Sept 98 - Feb 99)	8.2 (93.6)	10.4 (92.6)	8.4 (89.2)	9.3 (91.7)	9.3 (95.3)	16.3 (97.5)	16.0 (92.0)	22.5 (94.4)	14.8 (92.6)	18.1 (91.8)
Raccoon <sup>†</sup> (Mar 98-Aug 98)						9.1 (88.6)	12.2 (92.5)	29.6 (82.2)	6.3 (80.0)	6.2 (92.5)
Red fox (Sept 98 - Feb 99)	3.0 (71.9)	5.0 (68.0)	4.9 (73.6)	5.6 (58.9)	5.4 (67.5)	4.4 (64.7)	4.8 (64.5)	5.3 (57.1)	2.4 (59.8)	2.6 (52.7)
Red fox <sup>†</sup> (Mar 98-Aug 98)						3.0 (46.9)	2.3 (65.1)	2.4 (51.6)	1.6 (52.2)	1.8 (65.4)
Gray fox	2.3 (68.2)	3.3 (44.4)	2.4 (40.0)	3.1 (41.5)	3.1 (26.7)	2.5 (23.1)	1.8 (58.1)	n.a.	2.0 (62.5)	1.6 (53.3)
Coyote	2.4 (69.5)	2.6 (62.1)	3.7 (56.6)	3.1 (50.0)	2.3 (57.1)	2.4 (48.1)	2.9 (61.1)	4.1 (55.9)	2.8 (57.0)	2.9 (45.0)
Badger	1.6 (83.3)	1.9 (77.8)	2.2 (100.0)	1.2 (71.4)	1.0 (71.4)	1.7 (85.7)	1.8 (80.0)	2.1 (100.0)	1.0 (85.7)	6.5 (66.7)

\* Crow season added in 1989.

† Raccoon and red fox season changed to year round beginning May, 1994.

Table 42. Statewide small game hunting license sales and estimated hunter harvest, 1986-87 through 1998-99.

	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Small game license sales <sup>a</sup>	262,053	286,270	285,685	306,307	311,104	317,669	297,941	276,625	289,189	298,425	298,337	305,186	320,308
Federal duck stamp sales	139,391	125,831	92,772	97,939	103,971	110,197	108,332	110,738	149,428	132,546	132,738	138,331	134,098
State duck stamp sales	146,747	120,235	89,228	97,659	102,151	104,051	104,064	104,839	116,346	122,092	122,634	126,009	126,488
Pheasant stamp sales	81,027	102,944	100,478	108,124	122,260	133,384	117,934	94,443	104,621	105,093	95,866	85,093	99,664
Estimated harvest <sup>b</sup> (thousands)													
Ducks <sup>c</sup>	1,172	928	531	544	619	784	864	824	955	1,162	1,098	1,206	1,119
Canada geese <sup>c</sup>	101	106	114	103	128	144	150	156	166	180	241	230	218
Other geese <sup>c</sup>	3	11	5	9	7	6	5	9	6	9	8	11	6
American coot <sup>c</sup>	59	29	9	10	17	13	23	15	22	28	23	29	25
Common snipe	21	19	13	12	14	16	9	4	2	3	5	4	5
Rails/gallinules	1	5	1	3	<1	3	<1	1	1	1	<1	<1	<1
Crow				54	70	94	69	51	114	130	96	74	106
American woodcock	87	113	104	118	116	94	100	68	74	82	58	58	63
Ring-necked pheasant	159	277	332	325	483	565	411	332	319	398	341	248	309
Ruffed grouse	442	817	917	1,218	1,153	963	543	288	371	457	533	654	946
Spruce grouse	20	36	39	55	46	34	21	12	23	25	16	25	27
Sharp-tailed grouse	13	24	29	36	33	33	20	11	9	10	8	13	22
Gray partridge	54	69	95	86	115	102	49	35	26	26	24	16	24
Gray squirrel	235	222	217	194	234	174	147	178	187	169	158	131	149
Fox squirrel	145	122	134	113	115	109	92	105	99	105	75	68	57
Eastern cottontail	102	102	118	92	139	128	73	75	77	100	65	65	89
White-tailed jack rabbit	14	12	10	12	9	10	11	9	7	7	10	4	7
Snowshoe hare	25	26	32	48	69	70	24	16	19	11	10	8	25
Raccoon (Sept 98-Feb 99)	122	170	102	52	93	74	77	79	163	155	207	124	143
Raccoon <sup>d</sup> (May 98- Aug 98)									24	55	99	17	2
Red fox (Sept 98- Feb 99)	15	33	43	19	54	78	63	63	42	48	33	13	13
Red fox <sup>d</sup> (May 98- Aug 98)									4	6	4	2	3
Gray fox	2	4	2	3	5	4	4	2	1	3	n.a.	3	1
Coyote	7	6	7	6	14	27	21	18	13	26	30	16	14
Badger	2	<1	2	<1	1	1	<1	<1	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.

<sup>a</sup> Duplicate licenses not included.

<sup>b</sup> Estimates based upon response of hunters to questionnaires.

<sup>c</sup> U.S. Fish and Wildlife Service harvest estimates for 1998 are:

Ducks .....	682,883	American coot .....	10,136
Canada geese .....	159,305	Other geese .....	0

<sup>d</sup> Raccoon and red fox seasons changed to year round beginning May, 1994.

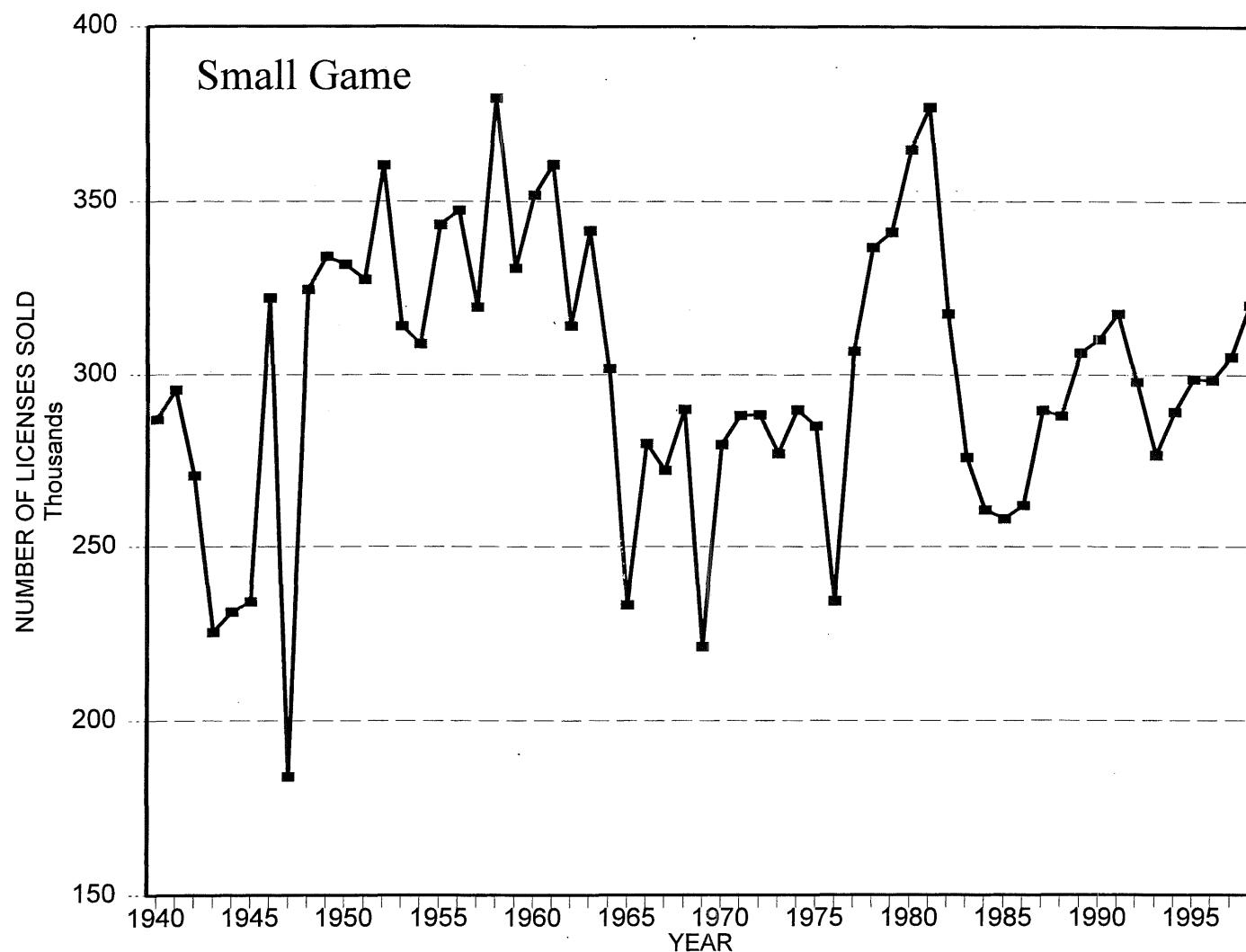


Figure 37. Numbers of Minnesota small game licenses sold, 1940-98.

Table 43. Mail survey results of nonresident small game hunters, 1986-87 through 1998-99.

	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
<b>Nonresident licenses issued *</b>	3,078	3,596	3,462	4,624	4,932	4,852	4,718	3,809	4,435	4,993	5,488	6,361	7,155
<b>Questionnaires:</b>													
Number mailed	406	429	436	553	82	114	170	229	182	205	51	269	200
Number not delivered	42	19	33	52	7	8	8	21	7	14	4	18	17
Number (percent) returned	290 (79)	328 (80)	327 (81)	396 (79)	54 (72)	89 (83)	32 (82)	149 (72)	128 (73)	140 (73)	32 (68)	183 (73)	117 (64)
<b>Estimated nonresidents and (percent) of all nonresidents</b>													
Ducks	1,810 (59)	990 (28)	1,130 (33)	1,521 (33)	1,342 (27)	1,308 (27)	1,751 (37)	1,789 (47)	1,975 (45)	2,354 (47)	1,209 (19)	2,331 (37)	2,874 (40)
Canada goose	850 (28)	515 (14)	700 (20)	866 (19)	1,074 (22)	491 (10)	1,101 (21)	792 (21)	1,005 (23)	1,248 (25)	686 (13)	1,113 (17)	1,468 (20)
Ruffed grouse	1,000 (32)	1,000 (28)	1,960 (57)	2,610 (56)	1,789 (36)	2,017 (42)	1,465 (31)	895 (24)	1,421 (32)	1,534 (31)	2,744 (50)	2,157 (34)	3,608 (50)
Ring-necked pheasant	510 (17)	400 (11)	690 (20)	1,042 (23)	895 (18)	1,743 (36)	894 (19)	741 (20)	832 (19)	820 (16)	515 (9)	731 (11)	612 (8)
Raccoon <sup>b</sup>	85 (3)	80 (2)	42 (1)	59 (1)	0 (0) <sup>c</sup>	55 (1)	0 (0) <sup>c</sup>	26 (1)	0 (0) <sup>c</sup> *	107 (2) *	172 (3)	35 (1)	0 (0) <sup>c</sup>
<b>Estimated nonresident take:</b>													
Ducks	14,600	6,300	8,000	9,901	5,816	11,340	17,442	13,574	15,696	26,713	6,346	15,967	26,663
Canada goose	1,400	900	1,500	1,744	4,205	1,363	3,610	2,122	2,287	4,173	1,544	4,905	4,587
Ruffed grouse	3,800	6,100	12,300	20,739	14,852	18,100	10,758	4,985	7,242	9,415	23,153	16,072	27,886
Ring-necked pheasant	1,100	1,100	2,600	4,424	3,221	6,324	4,110	3,042	4,366	3,638	1,887	2,505	1,712
Raccoon	600	1,200	700	667	0	327	0	26	0	3,638	8,061	70	0

\* Excludes duplicate licenses and nonresident shooting preserve licenses.

<sup>b</sup> 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.

<sup>c</sup> In 1990, 1992, 1994 and 1998 small game hunter survey no non-residents reported hunting/harvesting raccoons. \* Non-resident raccoon hunting license was not required for 1994 and 1995.

<u>Raccoon take per hunter</u>		
Resident	Nonresident	Number of nonresident raccoon licenses
1979	6	404
1980	4	93
1981	7	121
1982	6	95
1983	8	102
1984	9	111
1985	9	108
1986	11	86
1987	13	145
1988	11	73
1989	8	41
1990 <sup>e</sup>	11	20
1991	8	21
1992 <sup>e</sup>	9	20
1993	9	24
1994 <sup>e</sup>	16	*
1995	12	*
1996	23	52
1997	15	58
1998 <sup>e</sup>	18	56

Table 44. Species composition of the Minnesota waterfowl harvest, 1997 and 1998 (from: Martin, E.M. and P.I. Padding. 1999. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1998 hunting season. U.S. Fish and Wildlife Service Adm. Rep., Office of Migratory Bird Management, Laurel, Maryland. July 1999. 34pp.). Note: All 1997 estimates are based on audited final duck stamp sales figures, whereas 1998 estimates are based on unaudited duck stamp sales figures. There was little or no difference between audited and unaudited 1997 figures in most states.

Species	1997		1998		Percent change
	Harvest	Pct of harvest	Harvest	Pct of harvest	
Mallard	231,600	28.12	237,700	34.08	0 <sup>b</sup>
Domestic mallard	300	0.04	1,100	0.16	+ 267
American black duck	400	0.05	500	0.08	+ 25
Black x mallard	200	0.02	300	0.04	+ 50
Gadwall	21,300	2.58	18,600	2.73	- 13
American wigeon	22,700	2.76	15,800	2.32	- 30
Green-winged teal	69,400	8.42	60,800	8.90	- 12
Blue-winged/cinnamon teal	73,300	8.90	51,400	7.53	- 30
Northern shoveler	20,200	2.45	8,600	1.26	- 57
Northern pintail	11,400	1.38	8,200	1.20	- 28
Wood duck	107,500	13.05	117,500	17.20	+ 9
Redhead	26,200	3.18	14,700	2.16	- 44
Canvasback	18,400	2.23	7,200	1.06	- 61
Greater scaup	5,600	0.68	4,100	0.60	- 27
Lesser scaup	56,800	6.90	19,400	2.84	- 66
Ring-necked duck	110,100	13.37	83,400	12.21	- 24
Goldeneyes	10,200	1.24	8,700	1.27	- 15
Bufflehead	23,200	2.82	18,200	2.67	- 22
Ruddy duck	1,400	0.17	2,000	0.30	+ 43
Scoters	400	0.05	300	0.04	- 25
Hooded merganser	12,200	1.48	8,100	1.19	- 34
Other mergansers	200	0.03	1,200	0.17	+ 500
Total Duck Harvest (retrieved kill)	823,647	100.00 <sup>a</sup>	682,883	100.00 <sup>a</sup>	- 17

<sup>a</sup> Sum of all species does not equal total because of rounding error.

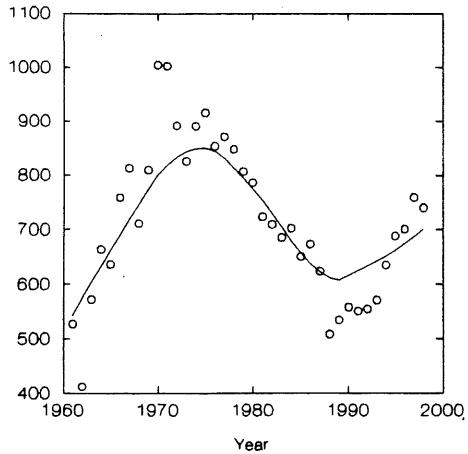
<sup>b</sup> No percentage change.

Table 45. Top 10 states in number of adult waterfowl hunters, 1998, and number of hunter-days and retrieved duck kill, in each (from: Martin, E.M., and P. I. Padding. 1999. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1998 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, Maryland. July 1999. 34pp.). Note: All 1998 estimates are based on unaudited final duck stamp sales figures.

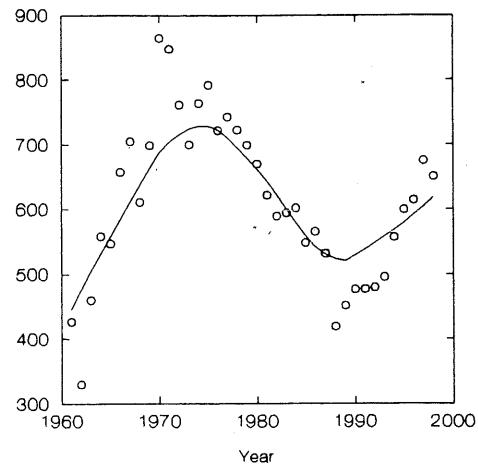
State	Number of active adult waterfowl hunters	Number of hunter-days	Retrieved duck kill	Ducks retrieved per hunter-day
Minnesota	121,801	1,060,258	682,883	0.64
Texas	101,431	1,004,022	1,563,824	1.56
Louisiana	91,278	1,202,512	2,576,475	2.14
Wisconsin	86,401	633,777	323,590	0.51
Michigan	57,790	594,602	349,837	0.59
California	55,270	695,780	1,383,975	1.99
Illinois	52,788	664,721	490,015	0.74
Arkansas	52,376	772,496	1,377,910	1.78
Pennsylvania	41,835	352,944	131,045	0.37
Washington	35,473	383,851	514,121	1.34
Mississippi Flyway	650,451	7,167,136	7,987,327	1.11
United States	1,364,009	14,295,003	16,569,055	1.16

### Mississippi Flyway

**Duck Stamp Sales (1,000's)**



**Active Adult Hunters (1,000's)**



**Adult Hunter Days (1,000's)**

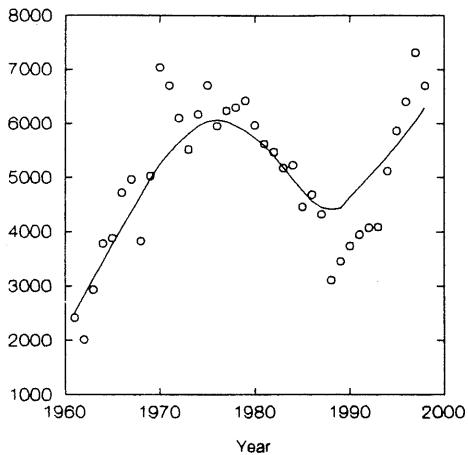
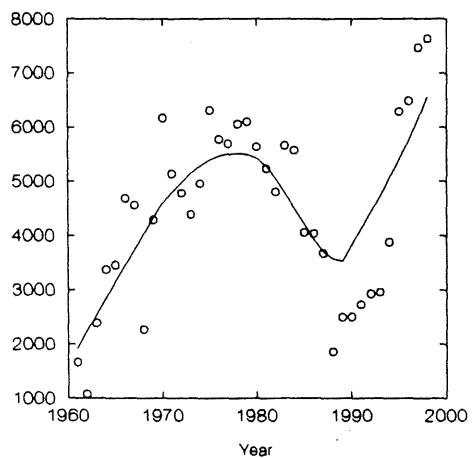


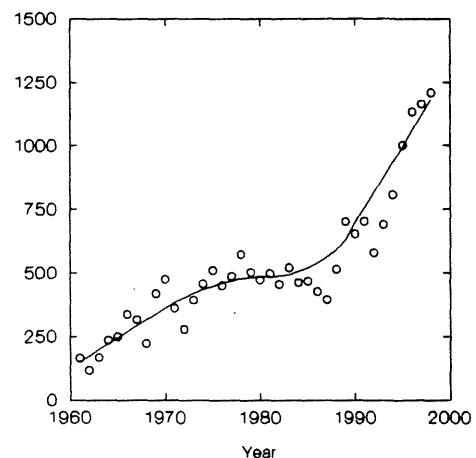
Figure 38. Federal duck stamp sales; Active adult hunters; Adult hunter days, (in 1,000's) for the Mississippi flyway. The 1961 through 1997 data are final, but the 1998 numbers are preliminary pending final duck stamp sales. The curves (locally weighted regression [lowess] lines; Cleveland and Devlin 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. 1999. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1998 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, MD. July 1999. 34pp.).

### Mississippi Flyway

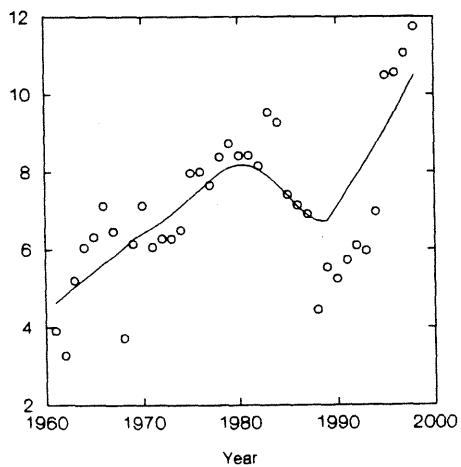
**All Duck Harvest (1,000's)  
by Adult Hunters**



**All Goose Harvest (1,000's)  
by Adult Hunters**



**Seasonal Duck Bag  
Per Adult Hunter**



**Seasonal Goose Bag  
Per Adult Hunter**

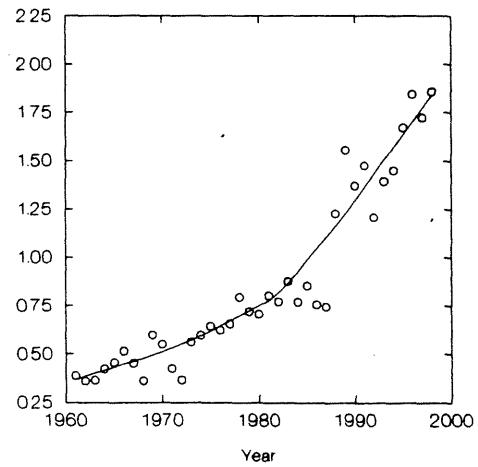


Figure 39. All duck harvest (1,000's) by adult hunters; all goose harvest (1,000's) by adult hunters; seasonal duck bag; and seasonal goose bag per adult hunters in the Mississippi flyway. The 1961 through 1997 data are final, but the 1998 numbers are preliminary pending final duck stamp sales. The curves (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. 1999. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1998 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, MD. July 1999. 34pp.).

Table 46. Ranking of the Six Most Numerically Important Species in Minnesota Regular -Season Duck Harvests During 1961-98.

Year	Rank Position / % of Harvest						Combined % of Total Harvest						
	1	%	2	%	3	%	4	%	5	%	6	%	
1961	Mallard 46.31	L. Scaup 13.57	GW Teal 11.16	Ringneck 7.55	Wigeon 5.56	Wood Duck 4.40							88.55
1962	Mallard 39.50	Ringneck 18.23	L. Scaup 8.03	BW Teal 7.90	Wood Dk 6.61	GW Teal 5.91							86.18
1963	Mallard 39.87	BW Teal 13.59	Wood Dk 12.58	Ringneck 10.72	GW Teal 6.43	Wigeon 4.66							87.85
1964	Mallard 30.53	Ringneck 18.48	BW Teal 9.50	GW Teal 7.91	Wood Dk 7.79	Wigeon 6.62							80.83
1965	Mallard 25.30	Ringneck 23.95	L. Scaup 11.99	Wood Dk 8.16	BW Teal 5.64	Wigeon 5.29							80.33
1966	Mallard 30.25	Ringneck 16.68	Wood Dk 9.44	BW Teal 7.79	L. Scaup 7.73	GW Teal 7.23							79.12
1967	Mallard 33.69	BW Teal 11.82	GW Teal 10.95	Ringneck 10.18	Wood Dk 7.89	L. Scaup 5.82							80.35
1968	Mallard 27.42	Ringneck 14.68	Wood Dk 11.94	GW Teal 11.53	BW Teal 8.13	Wigeon 6.32							80.02
1969	Mallard 20.71	L. Scaup 15.76	Ringneck 12.82	BW Teal 12.40	Wood Dk 10.36	GW Teal 7.18							79.23
1970	Mallard 31.43	Ringneck 11.39	BW Teal 10.63	Wood Dk 10.54	L. Scaup 9.86	GW Teal 7.50							81.35
1971	Mallard 26.32	BW Teal 16.93	Ringneck 13.92	L. Scaup 11.49	Wood Dk 7.19	GW Teal 6.15							82.00
1972	Mallard 36.92	L. Scaup 16.82	Ringneck 9.56	Wood Dk 8.94	BW Teal 7.41	GW Teal 5.69							85.34
1973	Mallard 27.75	BW Teal 15.18	Ringneck 14.63	Wood Dk 10.55	L. Scaup 9.26	GW Teal 7.85							85.22
1974	Mallard 33.12	Wood Dk 14.99	Ringneck 13.26	BW Teal 9.89	L. Scaup 7.72	GW Teal 7.53							86.51
1975	Mallard 28.13	Ringneck 16.07	BW Teal 15.76	Wood Dk 15.46	GW Teal 6.80	L. Scaup 5.37							87.59
1976	Mallard 27.73	Wood Dk 13.78	GW Teal 11.32	Ringneck 10.51	L. Scaup 10.48	BW Teal 8.20							82.02
1977	Mallard 29.04	Ringneck 12.91	Wood Dk 12.87	BW Teal 11.93	GW Teal 10.45	Wigeon 6.77							83.97
1978	Mallard 30.04	Ringneck 13.57	Wood Dk 12.23	BW Teal 11.25	GW Teal 6.86	Wigeon 5.61							79.56
1979	Mallard 31.35	Wood Dk 15.12	BW Teal 14.93	Ringneck 11.25	Wigeon 4.80	GW Teal 4.70							82.15
1980	Mallard 31.79	Ringneck 15.65	Wood Dk 15.49	GW Teal 6.02	L. Scaup 5.84	Wigeon 5.67							80.46
1981	Mallard 31.37	Wood Dk 13.34	L. Scaup 10.67	Ringneck 9.99	BW Teal 8.00	GW Teal 7.14							80.51
1982	Mallard 30.54	Wood Dk 14.76	BW Teal 14.36	Ringneck 8.83	L. Scaup 6.38	GW Teal 5.94							80.81
1983	Mallard 29.22	Wood Dk 17.06	BW Teal 13.28	Ringneck 11.60	GW Teal 6.74	L. Scaup 5.12							83.02
1984	Mallard 29.44	Wood Dk 18.00	BW Teal 11.90	Ringneck 9.95	GW Teal 8.23	L. Scaup 7.34							84.86
1985	Mallard 27.98	Ringneck 18.90	Wood Dk 12.78	L. Scaup 10.94	GW Teal 6.78	BW Teal 4.12							81.50
1986	Mallard 29.73	Wood Dk 17.18	Ringneck 16.52	L. Scaup 9.57	BW Teal 7.67	GW Teal 5.50							86.17
1987	Mallard 31.71	Wood Dk 18.73	Ringneck 14.47	GW Teal 10.28	L. Scaup 4.95	BW Teal 4.34							84.48
1988	Mallard 31.76	Wood Dk 14.56	L. Scaup 14.03	GW Teal 11.55	Ringneck 8.23	BW Teal 3.95							84.08
1989	Mallard 38.62	Wood Dk 15.72	GW Teal 11.48	Ringneck 8.67	L. Scaup 6.08	BW Teal 4.63							85.20
1990	Mallard 29.91	Wood Dk 17.16	Ringneck 11.51	GW Teal 11.23	BW Teal 7.16	L. Scaup 6.79							83.76
1991	Mallard 35.73	Wood Dk 19.47	Ringneck 9.75	GW Teal 6.73	L. Scaup 6.13	Wigeon 4.38							82.19
1992	Mallard 35.30	Wood Dk 17.28	Ringneck 12.95	L. Scaup 7.93	GW Teal 5.92	Wigeon 4.48							83.86
1993	Mallard 30.94	Ringneck 22.18	Wood Dk 18.77	L. Scaup 5.56	GW Teal 3.88	BW Teal 3.10							84.43
1994	Mallard 26.59	Wood Dk 21.51	Ringneck 14.68	L. Scaup 6.57	BW Teal 6.43	GW Teal 6.08							81.86
1995	Mallard 26.76	Wood Dk 20.90	BW Teal 12.45	Ringneck 11.27	L. Scaup 6.89	GW Teal 4.43							82.70
1996	Mallard 31.53	Wood Dk 19.35	BW Teal 14.06	GW Teal 7.03	Ringneck 6.56	L. Scaup 4.72							83.25
1997	Mallard 28.12	Ringneck 13.37	Wood Dk 13.05	BW Teal 8.90	GW Teal 8.42	L. Scaup 6.90							78.76
1998	Mallard 34.08	Wood Dk 17.20	Ringneck 12.21	GW Teal 8.90	BW Teal 7.53	L. Scaup 2.84							82.76
Avg. % of Harvest	31.2	16.5	12.7	9.7	7.2	5.7							83.0
Range	20.71-46.31	11.39-23.95	8.03-18.77	5.56-15.46	3.88-10.48	2.84-8.20							

Among the various rank positions, the species shown below under each position occurred in that position the indicated number of years during the 36-year period.

1	2	3	4	5	6
Mallard-38	Wood Dk-18	Ringneck-12	Ringneck-11	L. Scaup-11	GW Teal-14
	Ringneck-13	BW Teal- 9	GW Teal- 9	GW Teal- 10	Wigeon - 9
	BW Teal- 4	Wood Dk- 9	BW Teal- 7	BW Teal- 8	BW Teal- 6
	L. Scaup- 3	GW Teal- 4	L. Scaup- 6	Wood Dk- 5	L. Scaup- 8
		L. Scaup- 4	Wood Dk- 5	Wigeon - 2	Wood Dk- 1
				Ringneck- 2	

Table 47. ESTIMATES OF REGULAR-SEASON DUCK HARVESTS IN MINNESOTA

YEAR	Mallard		Wood duck		Blue-winged teal		Green-winged teal		Gadwall		American wigeon		Northern pintail		American black duck		Ring-necked duck		Lesser scaup		Canvasback		Redhead		Common goldeneye		Bufflehead		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1961	175,000	46	16,600	4	10,600	3	42,200	11	4,800	1	21,000	6	12,900	3	1,700	0	28,500	8	51,300	14	0	0	0	0	2,100	1	4,400	1	378,000	
1962	113,600	39	19,000	7	22,700	8	17,000	6	3,100	1	9,500	3	6,100	2	2,800	1	52,400	18	23,100	8	0	0	700	0	4,200	1	5,300	2	287,600	
1963	228,300	40	72,000	13	77,800	14	36,800	6	6,100	1	26,700	5	19,400	3	3,900	1	61,400	11	14,500	3	0	0	1,400	0	2,900	1	3,100	1	572,500	
1964	271,000	31	69,100	8	84,300	9	70,200	8	20,900	2	58,700	7	24,000	3	4,800	1	164,000	18	48,400	5	8,500	1	23,900	3	6,000	1	9,200	1	887,600	
1965	162,300	25	52,300	8	176,800	28	35,600	6	8,500	1	34,000	5	8,600	1	6,300	1	153,700	24	76,900	12	9,600	1	25,400	4	7,800	1	12,900	2	641,600	
1966	284,600	30	88,800	9	73,300	8	68,000	7	19,000	2	52,900	6	20,200	2	6,500	1	156,900	17	72,800	8	14,600	2	32,900	3	9,200	1	12,800	1	940,800	
1967	329,600	34	77,100	8	115,600	12	107,100	11	22,700	2	53,300	5	21,700	2	3,300	0	99,600	10	57,000	6	6,200	1	37,500	4	8,300	1	11,300	1	978,200	
1968	152,100	27	66,200	12	45,100	8	64,000	12	9,900	2	35,000	6	16,300	3	3,500	1	81,400	15	32,600	6	7,200	1	10,100	2	6,700	1	9,600	2	554,700	
1969	223,800	21	112,000	10	134,000	12	77,600	7	20,400	2	52,600	5	17,600	2	2,500	0	138,600	13	170,300	16	7,800	1	50,000	5	19,600	2	24,300	2	1,080,600	
1970	298,900	31	100,200	11	101,100	11	71,300	7	11,100	1	44,100	5	29,200	3	4,900	1	108,300	11	93,700	10	6,300	1	29,200	3	7,600	1	19,000	2	950,800	
1971	278,800	26	76,200	7	179,400	17	65,100	6	21,100	2	38,700	4	18,100	2	5,500	1	147,500	14	121,700	11	9,700	1	38,600	4	12,100	1	14,500	1	1,059,300	
1972	354,900	37	85,900	9	71,300	7	54,700	6	16,400	2	35,700	4	11,200	1	7,400	1	91,900	10	161,700	17	500	0	1,000	0	13,600	1	19,000	2	961,400	
1973	165,000	28	62,700	11	90,300	15	46,700	8	8,100	1	30,200	5	13,900	2	2,800	0	87,000	5	55,100	9	200	0	400	0	6,300	1	9,100	2	594,400	
1974	254,800	33	115,300	15	76,100	10	57,900	8	8,300	1	34,400	4	11,300	1	2,300	0	102,000	13	59,400	8	3,000	0	5,700	1	8,800	1	13,300	2	769,400	
1975	285,300	28	156,900	15	159,900	16	69,000	7	11,800	1	37,000	4	13,800	1	1,100	0	163,000	16	54,500	5	4,500	0	13,600	1	12,300	1	16,400	2	1,014,400	
1976	157,800	28	78,500	14	46,700	8	64,400	11	17,200	3	22,900	4	4,500	1	400	0	59,800	11	59,600	10	10,000	2	13,100	2	6,500	1	9,800	2	569,100	
1977	193,100	29	85,600	13	79,300	12	69,500	10	19,100	3	45,000	7	7,900	1	2,500	0	85,800	13	34,500	5	5,200	1	10,900	2	2,100	0	9,700	1	664,900	
1978	304,100	30	123,800	12	113,900	11	69,500	7	28,100	3	56,800	6	18,700	2	1,000	0	137,400	14	48,300	5	5,300	1	35,000	3	8,600	1	20,700	2	1,012,300	
1979	346,100	31	167,000	15	164,900	15	51,900	5	23,100	2	53,000	5	18,900	2	1,000	0	124,200	11	48,300	4	11,400	1	38,600	3	8,400	1	13,300	1	1,104,100	
1980	258,000	32	125,700	15	43,300	5	48,800	6	23,700	3	46,100	7	18,700	2	2,800	0	127,000	16	47,400	6	6,700	1	24,800	3	9,700	1	10,600	1	811,500	
1981	253,000	31	107,600	13	64,500	8	57,600	7	23,400	3	42,500	5	19,500	2	1,900	0	80,600	10	86,100	11	5,400	1	20,100	2	7,100	1	9,700	1	806,500	
1982	249,500	31	120,600	15	117,300	14	48,500	6	23,700	3	35,900	4	13,600	2	4,100	1	72,100	9	52,100	6	6,800	1	28,300	3	7,600	1	15,500	2	817,000	
1983	259,700	29	151,600	17	118,000	13	59,900	7	15,900	2	37,400	4	19,200	2	1,900	0	103,100	12	45,500	5	9,700	1	28,500	3	2,400	0	6,800	1	888,600	
1984	303,400	29	185,400	18	122,600	12	84,800	8	21,800	2	30,100	3	23,900	2	1,800	0	102,500	10	75,600	7	7,200	1	26,300	3	8,600	1	11,200	1	1,030,500	
1985	184,900	28	84,400	13	27,200	4	44,800	7	13,100	2	20,000	3	8,600	1	2,000	0	124,900	19	72,300	11	10,200	2	16,900	3	6,000	1	23,500	4	660,900	
1986	230,300	30	133,100	17	59,400	8	42,600	5	11,000	1	30,100	4	4,400	1	500	0	128,000	17	74,100	10	0	0	19,900	3	5,400	1	14,800	2	774,600	
1987	181,000	32	106,900	19	24,800	4	58,700	10	8,900	2	22,600	4	4,200	1	600	0	82,600	14	28,300	5	0	0	18,300	3	5,800	1	13,600	2	570,900	
1988	76,900	32	35,300	15	9,600	4	28,000	12	2,600	1	7,500	3	6,600	3	700	0	19,900	8	34,000	14	0	0	3,100	1	3,800	2	8,500	4	242,000	
1989	122,100	39	49,700	16	14,600	5	36,300	11	4,100	1	12,500	4	7,300	2	300	0	27,400	9	19,200	6	300	0	3,500	1	4,300	1	8,800	3	316,300	
1990	109,500	30	62,800	17	26,200	7	41,100	11	10,200	3	13,200	4	6,100	2	500	0	42,200	12	24,900	7	0	0	5,000	1	5,600	2	8,700	2	366,200	
1991	173,200	36	94,400	19	20,400	4	32,600	7	17,000	4	21,300	4	5,200	1	700	0	47,300	10	29,700	6	0	0	11,300	2	4,300	1	10,900	2	484,800	
1992	184,200	35	90,200	17	20,000	4	30,900	6	16,000	3	23,400	4	8,100	2	700	0	67,600	13	41,400	8	100	0	7,500	1	5,900	1	14,400	3	522,000	
1993	150,100	31	91,000	19	15,000	3	18,800	4	6,600	1	13,300	3	5,600	1	1,100	0	107,600	22	27,000	6	100	0	11,600	2	10,500	2	14,000	3	485,100	
1994	160,600	27	129,900	22	38,800	6	36,700	6	9,100	2	20,100	3	8,100	1	800	0	88,600	15	39,700	7	11,100	2	18,700	3	5,600	1	15,300	3	603,800	
1995	203,900	27	159,200	21	94,840	12	33,700	4	7,200	1	17,500	2	7,700	1	500	0	85,900	11	52,500	7	18,000	2	19,600	3	18,100	2	16,700	2	761,800	
1996	243,400	32	149,400	19	108,600	14	54,300	7	8,000	1	15,800	2	10,100	1	1,100	0	50,600	7	36,400	5	12,900	2	22,200	3	14,500	2	15,900	2	772,100	
1997	231,600	28	107,500	13	73,300	9	69,400	8	21,300	3	22,700	3	11,400	1	400	0	110,200	13	56,800	7	18,400	2	26,200	3	10,200	1	23,200	3	823,700	
1998*	232,700	34	117,500	17	51,400	8	60,700	9	18,700	3	15,800	2	8,200	1	500	0	83,400	12	19,400	3	7,200	1	14,700	2	8,700	1	18,200	3	682,900	
% change	0	9	(30)	(13)	(12)	(30)	(28)	(25)	(24)	(66)	(44)	(46)	(44)	(45)	(22)	(17)														

AVERAGES:

61-65

Table 48. ESTIMATES OF REGULAR-SEASON ALL-DUCK HARVESTS IN THE MISSISSIPPI FLYWAY

YEAR	MN	%	WI	MI	IA	IL	IN	OH	MO	KY	AR	TN	LA	MS	AL	MFTOTAL		
1961	378,000	22	310,600	124,900	139,400	204,600	25,200	50,700	124,600	23,400	68,700	47,700	211,000	22,700	15,000	1,746,522		
1962	287,600	25	210,600	102,000	45,100	82,100	13,800	40,700	26,100	6,700	53,200	14,900	194,600	29,200	22,600	1,129,225		
1963	572,500	23	294,100	134,500	139,200	183,500	16,700	65,700	60,400	13,300	138,400	69,900	665,400	86,500	65,400	2,505,523		
1964	887,600	25	417,100	205,100	182,100	193,200	36,800	62,700	105,700	27,400	306,400	96,300	893,600	69,200	53,700	3,536,925		
1965	641,600	19	472,800	217,600	174,600	189,000	29,300	90,700	110,700	21,500	213,500	57,400	958,200	70,100	64,600	3,311,619		
1966	940,800	20	582,100	306,700	270,200	345,900	42,500	103,000	149,400	27,800	373,600	113,600	1,279,700	106,200	79,700	4,721,220		
1967	978,200	22	545,200	363,100	229,400	353,200	45,900	125,700	228,400	35,500	371,100	98,900	959,400	112,300	60,200	4,506,522		
1968	554,700	23	302,300	199,400	96,300	145,800	40,300	80,900	106,000	15,800	153,400	55,900	520,600	76,200	36,000	2,383,623		
1969	1,080,600	25	557,300	345,900	183,700	243,300	63,800	111,100	200,400	15,300	232,000	55,400	969,900	155,500	63,900	4,278,125		
1970	950,800	15	575,100	378,300	368,700	412,500	80,600	140,200	281,600	57,200	651,400	157,100	1,823,000	222,300	76,700	6,175,515		
1971	1,059,300	20	654,200	313,800	376,200	280,400	111,200	106,400	246,300	40,200	613,400	173,300	1,024,700	155,600	52,000	5,207,020		
1972	961,400	20	558,500	400,900	344,500	356,600	73,600	125,700	197,800	56,900	366,600	138,800	1,044,000	150,400	60,600	4,836,320		
1973	594,400	13	518,400	356,900	211,900	311,600	68,200	112,800	161,200	36,100	492,700	194,000	1,138,200	152,300	72,600	4,421,313		
1974	769,400	15	663,100	425,100	238,000	293,600	85,300	106,600	237,000	46,500	682,200	138,300	1,073,100	239,700	60,600	5,058,515		
1975	1,014,400	16	727,800	373,000	313,600	392,300	100,600	119,700	311,600	75,600	781,000	143,500	1,616,300	313,800	104,500	6,387,716		
1976	569,100	10	656,400	466,000	242,200	309,700	69,600	144,600	203,300	59,400	710,200	97,700	1,789,600	392,900	132,700	5,843,410		
1977	664,900	11	488,500	255,700	280,000	330,500	68,100	101,800	257,900	74,200	839,400	133,100	1,836,400	327,000	136,800	5,794,311		
1978	1,012,300	17	541,800	290,000	351,400	417,300	68,000	95,800	239,800	63,600	689,900	150,000	1,855,600	224,600	115,000	6,115,117		
1979	1,104,100	18	569,000	314,800	441,000	404,400	83,700	110,500	254,000	72,100	631,400	179,100	1,666,500	261,200	105,400	6,197,218		
1980	811,500	14	558,200	292,100	299,900	323,300	82,900	108,000	202,500	43,600	775,000	139,300	1,656,900	299,100	119,800	5,712,114		
1981	806,500	15	438,900	238,800	301,100	374,100	54,500	118,500	232,000	48,000	591,500	114,800	1,508,700	356,400	102,400	5,286,215		
1982	817,000	17	394,300	277,200	348,800	301,900	54,500	97,400	209,900	31,900	438,400	101,200	1,364,700	204,700	73,200	4,715,117		
1983	888,600	16	459,300	288,900	324,200	342,700	80,600	116,100	243,500	36,100	422,400	130,900	1,873,800	274,700	99,000	5,580,816		
1984	1,030,500	19	485,000	354,400	299,500	301,400	69,800	103,800	245,200	33,900	489,900	97,500	1,717,600	227,500	70,100	5,526,119		
1985	660,900	17	353,600	250,300	199,800	255,700	64,900	90,000	190,800	28,600	511,900	71,500	1,076,700	149,100	62,000	3,965,817		
1986	774,600	19	360,100	224,800	217,000	259,900	45,900	85,900	175,900	22,500	428,700	78,300	1,089,900	152,800	66,000	3,982,319		
1987	570,900	16	334,400	216,600	161,100	208,200	50,600	69,400	158,100	32,400	430,100	98,100	1,062,700	137,000	75,500	3,605,116		
1988	242,000	13	176,900	140,300	78,300	136,900	39,900	56,400	76,200	23,000	242,500	81,500	485,700	80,100	58,700	1,918,413		
1989	316,300	12	230,900	198,100	87,800	176,300	45,100	74,900	119,200	32,300	275,400	92,900	737,100	112,400	98,500	2,597,212		
1990	366,200	14	259,300	187,700	105,800	186,200	43,700	76,400	107,500	45,900	333,700	130,900	645,600	78,800	41,900	2,609,614		
1991	484,800	17	299,700	207,800	154,200	229,700	54,500	70,700	116,600	36,400	372,400	98,300	567,700	91,100	51,500	2,835,417		
1992	522,000	18	282,000	204,700	122,800	215,400	43,400	84,900	103,800	28,000	347,800	90,900	666,600	112,600	57,400	2,882,318		
1993	485,100	16	276,900	234,800	100,900	182,400	56,600	88,200	101,600	33,500	460,400	122,700	625,400	131,800	57,200	2,957,516		
1994	603,800	16	330,600	272,800	151,800	220,600	60,400	81,500	137,900	46,000	726,100	111,500	821,700	175,100	61,200	3,801,016		
1995	761,800	12	405,300	354,400	242,300	285,600	89,300	107,600	223,800	72,700	1,007,700	240,400	1,914,700	372,500	113,800	6,191,900		
1996	772,100	12	416,500	309,000	244,700	317,500	83,100	124,300	229,800	121,000	1,183,300	234,500	1,841,200	396,000	138,800	6,411,800		
1997	823,600	11	394,700	409,000	272,000	393,500	88,200	140,300	384,500	115,300	1,416,400	402,900	2,397,700	404,000	172,600	7,814,700		
1998*	682,900	9	323,600	349,800	281,300	490,000	95,900	148,600	482,300	161,200	1,377,900	415,900	2,576,500	414,300	187,200	7,987,400		
% change			(17)	(19)	(18)	(14)	3	25	9	6	25	40	(3)	3	7	3	8	2

AVERAGES:

61-65	553,460	23	341,040	156,820	136,080	170,480	24,360	62,100	85,500	18,460	156,040	57,240	584,560	55,540	44,260	2,445,963
66-70	901,020	20	512,400	318,680	229,660	300,140	54,620	112,180	193,160	30,320	356,300	96,180	1,110,520	134,500	63,300	4,413,001
71-75	879,780	17	624,400	373,940	296,840	326,900	87,780	114,240	230,780	51,060	587,180	157,580	1,179,260	202,360	70,060	5,182,177
76-80	832,380	14	562,780	323,720	322,900	357,040	74,460	112,140	231,500	62,580	729,180	139,840	1,761,000	300,960	121,940	5,932,434
81-85	840,700	17	426,220	281,920	294,680	315,160	64,860	105,160	224,280	35,700	490,820	103,180	1,508,300	242,480	81,340	5,014,817
86-90	454,000	15	272,320	193,500	130,000	193,500	45,040	72,600	127,380	31,220	342,080	96,340	804,200	112,220	68,120	2,942,535
91-95	571,500	22	318,900	254,900	154,400	226,740	60,840	86,580	136,740	43,320	582,880	132,760	919,220	176,620	68,220	2,568,595
96-98	759,533	10	378,267	355,933	266,000	400,333	89,067	137,733	365,533	132,500	1,325,867	351,100	2,271,800	404,767	166,200	7,404,633

\* - PRELIMINARY

YEAR	MN	WI	MI	IA	IL	IN	OH	MO	KY	AR	TN	LA	MS	AL	MFTOTAL
1961	175,000	151,700	46,500	88,500	128,800	13,200	17,700	81,700	17,500	62,600	32,700	35,500	11,600	3,800	866,800
1962	113,600	77,500	32,600	21,300	40,200	5,100	9,000	13,800	3,600	41,200	7,300	54,100	13,400	4,800	437,500
1963	228,300	97,800	40,500	43,000	101,500	8,100	18,800	29,400	8,300	93,900	30,300	177,100	36,400	13,000	926,400
1964	271,000	150,800	48,500	76,600	113,900	15,600	17,300	59,400	18,800	234,100	61,500	209,400	32,800	11,100	1,320,800
1965	162,300	106,000	43,400	79,800	89,600	11,300	20,700	49,600	14,200	137,700	27,700	146,400	18,600	11,800	919,100
1966	284,600	186,600	72,900	121,300	179,700	19,000	30,500	82,000	17,600	257,400	61,700	272,900	45,400	18,400	1,650,000
1967	329,600	175,900	99,700	124,900	208,600	20,800	40,500	124,500	22,400	270,800	50,100	205,100	44,800	14,700	1,732,400
1968	152,100	94,200	64,500	40,400	83,000	13,600	18,500	55,000	8,300	121,400	31,300	101,900	38,800	7,900	830,900
1969	223,800	157,100	99,500	89,900	140,200	21,700	33,800	124,700	9,600	183,200	31,900	230,900	67,000	18,300	1,431,600
1970	298,900	190,200	111,400	139,200	239,800	33,200	42,200	149,300	35,100	541,100	91,600	498,100	139,400	20,000	2,529,500
1971	278,800	225,200	84,500	160,900	166,700	58,700	34,200	161,900	27,800	514,400	105,400	240,000	90,300	14,900	2,163,700
1972	354,900	190,400	122,400	171,800	219,300	32,100	38,200	130,100	39,500	283,100	82,100	191,600	79,700	14,900	1,950,100
1973	165,000	187,000	154,900	99,900	168,600	35,600	46,500	108,100	21,200	349,900	127,100	125,900	82,100	16,100	1,687,900
1974	254,800	300,300	171,000	106,100	172,200	37,400	37,300	164,800	30,000	530,600	85,000	194,100	146,800	14,600	2,245,000
1975	285,300	244,200	154,000	117,400	199,900	40,300	47,000	170,400	38,400	588,700	93,300	294,300	224,400	20,500	2,518,100
1976	157,800	222,500	192,300	87,500	166,000	34,500	56,600	127,900	37,200	529,300	57,900	469,500	230,100	40,300	2,409,400
1977	193,100	177,000	107,000	138,700	175,700	37,900	43,800	143,500	46,100	582,800	80,100	321,700	186,500	36,300	2,270,200
1978	304,100	185,000	139,000	125,600	207,600	28,200	36,900	120,700	34,500	480,000	89,300	360,000	116,200	29,900	2,257,000
1979	346,100	199,600	138,600	183,300	192,000	34,800	42,100	146,800	44,300	435,500	113,200	301,800	135,600	32,400	2,346,100
1980	258,000	197,200	126,300	118,100	168,400	36,800	44,900	123,500	20,000	588,200	68,400	392,500	170,100	35,100	2,347,500
1981	253,000	168,400	112,300	130,200	174,600	28,900	44,200	119,500	26,600	386,600	66,700	332,800	186,500	31,700	2,062,000
1982	249,500	135,200	145,200	164,900	139,900	32,900	41,300	112,900	20,300	285,700	60,500	252,700	118,900	21,700	1,781,600
1983	259,700	136,500	131,000	115,200	176,900	38,100	44,500	151,500	23,800	294,600	86,300	352,000	175,100	32,700	2,017,900
1984	303,400	144,300	153,500	96,300	151,300	28,500	42,900	113,900	19,000	322,000	45,900	256,500	102,700	15,900	1,796,100
1985	184,900	113,500	102,200	62,000	136,000	26,900	33,800	91,600	17,600	397,800	45,300	227,900	79,100	14,300	1,532,900
1986	230,300	141,500	93,300	88,900	140,600	23,400	31,800	97,400	16,800	331,300	54,000	208,700	74,900	17,200	1,550,100
1987	181,000	124,200	112,100	64,800	111,600	22,400	31,500	90,500	20,300	309,800	59,000	236,900	70,000	24,700	1,458,800
1988	76,900	77,700	78,600	41,600	96,000	20,300	25,900	48,800	15,600	181,700	48,500	98,800	40,500	17,200	868,100
1989	122,100	98,600	96,000	32,200	114,900	23,700	34,200	68,700	19,400	173,900	55,800	168,100	55,900	31,000	1,094,500
1990	109,500	110,400	98,200	41,300	106,400	22,700	36,100	62,600	29,300	224,100	73,900	127,200	37,900	11,400	1,091,000
1991	173,200	117,400	101,000	63,100	107,000	27,700	31,600	56,800	22,100	270,000	61,800	99,800	44,900	13,200	1,189,600
1992	184,200	131,400	103,700	64,900	129,300	23,200	42,600	55,600	17,000	240,800	52,200	126,300	64,400	14,800	1,250,400
1993	150,100	128,600	113,200	52,700	108,500	34,700	44,100	72,700	21,900	329,500	73,900	121,000	71,800	15,500	1,338,200
1994	160,600	131,900	110,200	49,100	112,000	42,800	38,700	73,700	32,300	472,200	59,900	123,100	101,400	16,900	1,524,800
1995	203,900	142,900	152,500	86,100	170,800	49,100	47,600	124,000	45,900	587,100	144,400	339,500	227,900	25,400	2,347,100
1996	243,400	179,600	134,500	90,600	179,900	48,600	68,600	113,300	61,600	752,800	151,300	241,600	190,200	37,900	2,493,900
1997	231,600	143,800	195,200	71,200	185,700	47,900	71,400	166,500	44,000	863,900	215,700	320,400	238,700	56,000	2,852,000
1998*	232,700	104,300	152,700	98,100	227,900	52,400	61,900	161,400	93,400	723,200	234,700	317,400	228,400	65,000	2,753,500
% change	0	(27)	(22)	38	23	9	(13)	(3)	112	(16)	9	(1)	(4)	16	(3)

AVERAGES:															
61-65	190,040	116,760	42,300	61,840	94,800	10,660	16,700	46,780	12,480	113,900	31,900	124,500	22,560	8,900	894,120
66-70	257,800	160,800	89,600	103,140	170,260	21,660	33,100	107,100	18,600	274,780	53,320	261,780	67,080	15,860	1,634,880
71-75	267,760	229,420	137,360	131,220	185,340	40,820	40,640	147,060	31,380	453,340	98,580	209,180	124,660	16,200	2,112,960
76-80	251,820	196,260	140,640	130,640	181,940	34,440	44,860	132,480	36,420	523,160	81,780	369,100	167,700	34,800	2,326,040
81-85	250,100	139,580	128,840	113,720	155,740	31,060	41,340	117,880	21,460	337,340	60,940	284,380	132,460	23,260	1,838,100
86-90	143,960	110,480	95,640	53,760	113,900	22,500	31,900	73,600	20,280	244,160	58,240	167,940	55,840	20,300	1,212,500
91-95	174,400	130,440	116,120	63,180	125,520	35,500	40,920	76,560	27,840	379,920	78,440	161,940	102,080	17,160	1,530,020
96-98	235,900	142,567	160,800	86,633	197,833	49,633	67,300	147,067	66,333	779,967	200,567	293,133	219,100	52,967	2,699,800

\* - PRELIMINARY

Table 50. ESTIMATES OF ALL-SEASON LESSER SCAUP HARVESTS IN THE MISSISSIPPI FLYWAY

YEAR	MN	WI	MI	IA	IL	IN	OH	MO	KY	AR	TN	LA	MS	AL	MF TOTAL
1961	51,300	12,000	8,400	5,500	10,500	600	1,500	5,400	400	100	600	59,400	3,900	1,900	161,500
1962	23,100	6,100	6,900	800	500	100	1,000	300	TR	0	100	10,000	0	400	49,300
1963	14,500	5,300	6,600	2,600	3,100	200	1,500	3,100	400	700	100	127,600	1,400	2,800	169,900
1964	48,400	23,400	23,500	3,200	6,800	500	3,300	8,400	700	1,500	800	100,600	2,700	3,000	226,800
1965	76,900	27,200	15,600	10,200	13,200	1,100	4,700	11,500	600	1,700	900	178,600	6,200	4,600	353,000
1966	72,800	49,900	31,500	10,600	11,800	1,100	7,400	9,700	1,000	2,900	1,400	80,200	3,300	3,400	287,000
1967	57,000	48,000	41,000	4,700	14,500	2,000	8,500	17,100	300	800	1,200	47,900	10,100	2,900	256,000
1968	32,600	16,600	16,700	2,000	6,500	500	2,900	10,100	TR	0	100	6,800	1,200	100	96,100
1969	170,300	30,100	47,200	7,600	7,500	5,200	5,600	4,800	0	900	400	14,500	3,400	2,600	300,100
1970	93,700	32,200	33,400	7,800	11,400	1,500	7,300	7,300	1,000	1,100	1,900	49,200	2,300	1,100	251,200
1971	121,700	28,600	29,300	17,300	11,800	1,200	3,400	11,600	500	0	3,800	61,100	3,400	3,900	297,600
1972	161,700	37,100	39,600	16,100	11,400	800	3,600	8,000	1,000	7,500	1,900	36,400	1,200	800	327,100
1973	55,100	17,900	36,000	5,000	7,900	800	4,200	4,700	500	10,900	2,900	265,100	11,000	12,100	434,100
1974	59,400	26,000	46,000	5,000	15,100	900	5,100	8,700	400	9,800	3,500	137,700	8,400	4,800	330,800
1975	54,500	27,100	30,300	7,700	17,900	1,600	4,600	20,000	1,100	4,300	800	74,900	3,500	2,100	250,400
1976	59,600	33,200	33,300	8,000	24,100	2,800	6,300	12,000	600	13,900	100	119,400	4,200	9,200	326,700
1977	34,500	19,800	16,200	4,200	17,000	2,500	3,900	11,700	2,500	28,700	2,900	187,700	20,400	12,400	364,400
1978	48,300	10,400	9,600	5,700	19,700	1,000	2,100	12,600	100	5,400	1,000	55,400	2,700	3,300	177,300
1979	48,300	17,500	12,500	7,300	17,900	4,700	3,600	6,900	800	3,600	800	.19,100	1,200	400	144,600
1980	47,400	32,000	11,700	7,900	10,800	5,000	3,300	6,000	1,300	2,700	1,200	23,500	0	1,500	154,300
1981	86,100	55,000	14,900	6,000	21,200	1,900	4,400	7,800	900	2,300	1,400	101,000	9,500	12,800	325,200
1982	52,100	25,000	12,900	5,900	21,900	600	3,900	4,100	700	12,400	1,400	91,900	1,800	6,400	241,000
1983	45,500	18,200	11,000	7,300	15,200	1,900	3,000	5,300	100	4,300	3,000	35,700	2,000	2,000	154,500
1984	75,600	46,800	13,000	12,100	16,900	4,000	5,800	18,600	800	17,900	7,300	150,700	2,500	8,800	380,800
1985	72,300	39,500	9,300	5,300	14,300	3,900	4,700	13,100	700	6,000	1,100	119,600	4,300	11,700	305,800
1986	74,100	19,600	9,200	3,900	14,400	1,100	4,400	9,700	0	2,700	0	21,500	100	3,300	164,000
1987	28,300	13,500	5,900	2,900	5,900	800	2,600	8,200	100	5,000	200	22,400	500	800	97,100
1988	34,000	10,900	5,900	1,700	3,200	1,100	1,400	1,600	100	1,300	2,500	16,700	1,400	1,500	83,300
1989	19,200	11,600	9,600	1,600	3,200	400	2,400	4,700	200	2,000	500	11,800	600	1,400	69,200
1990	24,900	10,400	5,000	1,600	4,900	300	2,500	2,200	100	1,800	1,500	3,600	100	TR	58,900
1991	29,700	15,200	5,500	7,200	17,500	1,100	1,400	6,900	100	2,600	1,100	11,600	100	2,600	102,600
1992	41,400	8,900	7,400	3,200	7,100	1,100	1,500	3,000	300	1,200	2,300	49,800	1,200	3,900	132,300
1993	27,000	7,700	10,000	2,100	4,200	700	1,600	2,100	0	1,100	1,000	5,200	0	1,000	63,700
1994	39,700	8,500	12,700	3,300	6,700	300	400	5,800	600	4,400	800	16,500	400	2,000	102,100
1995	52,500	15,500	16,400	5,400	4,700	900	3,400	5,200	0	11,600	800	70,300	700	1,600	189,000
1996	36,400	11,900	9,600	4,300	4,600	1,200	3,700	2,200	6,000	27,500	2,900	169,200	6,600	7,700	293,800
1997	56,800	15,900	15,900	4,100	8,400	1,200	2,600	13,600	7,900	17,800	13,000	197,800	700	4,000	359,700
1998*	19,400	5,400	9,600	4,200	19,900	0	4,300	5,500	2,600	30,300	2,300	207,700	4,300	3,400	318,700
% change	(66)	(66)	(40)	2	137	(100)	65	(60)	(67)	70	(82)	5	514	(15)	(11)
AVERAGES:															
61-65	42,840	14,800	12,200	4,460	6,820	500	2,400	5,740	420	800	500	95,240	2,840	2,540	192,100
66-70	85,280	35,360	33,960	6,540	10,340	2,060	6,340	9,800	460	1,140	1,000	39,720	4,060	2,020	238,080
71-75	90,480	27,340	36,240	10,220	12,820	1,060	4,180	10,600	700	6,500	2,580	115,040	5,500	4,740	328,000
76-80	47,620	22,580	16,660	6,620	17,900	3,200	3,840	9,840	1,060	10,860	1,200	81,020	5,700	5,360	233,460
81-85	66,320	36,900	12,220	7,320	17,900	2,460	4,360	9,780	640	8,580	2,840	99,780	4,020	8,340	281,460
86-90	36,100	13,200	7,120	2,340	6,320	740	2,660	5,280	100	2,560	940	15,200	540	1,400	94,500
91-95	38,060	11,160	10,400	4,240	8,040	820	1,660	4,600	200	4,180	1,200	30,680	480	2,220	117,940
96-98	37,533	11,067	11,700	4,200	10,967	800	3,533	7,100	5,500	25,200	6,067	191,567	3,867	5,033	324,067

\* - PRELIMINARY

Table 51. ESTIMATES OF CANADA GOOSE HARVESTS IN THE MISSISSIPPI FLYWAY

YEAR	MN	WI	MI	IA	IL	IN	OH	MO	KY	AR	TN	LA	MS	AL	MF TOTAL
1962	5,200	19,100	9,700	6,600	11,500	2,000	1,100	22,700	1,100	0	1,800	0	400	1,700	82,900
1963	7,300	19,500	14,200	7,200	14,000	800	0	34,300	2,200	0	2,000	300	800	2,400	105,000
1964	7,300	42,900	11,900	4,300	27,500	2,500	2,200	33,600	1,900	0	3,100	300	100	4,300	141,900
1965	12,100	50,000	10,400	6,600	16,400	1,100	4,100	32,500	1,100	0	1,700	0	0	5,300	141,300
1966	20,000	27,900	9,500	7,200	28,000	3,100	3,500	40,300	3,700	0	2,800	800	0	5,400	152,200
1967	18,900	21,300	11,500	12,400	35,400	2,800	5,200	71,900	4,700	100	4,400	0	900	3,200	192,700
1968	10,100	25,300	19,400	10,600	21,200	3,100	6,200	47,200	4,900	0	7,200	700	0	2,200	158,100
1969	25,500	42,800	13,300	15,500	29,400	4,100	4,700	39,800	6,800	0	1,600	1,500	0	4,800	189,800
1970	22,000	28,600	25,100	12,600	37,700	1,600	9,100	33,500	11,200	0	9,500	1,600	0	400	192,900
1971	14,000	52,500	19,600	10,400	34,400	3,200	6,100	37,900	9,600	0	3,800	0	1,900	900	194,300
1972	17,600	35,800	16,400	5,000	33,800	3,000	5,200	41,000	4,400	0	1,900	0	0	1,600	165,700
1973	19,100	60,800	21,000	11,600	28,500	2,100	13,500	40,300	15,200	0	7,200	0	0	900	220,200
1974	31,500	77,000	26,500	7,700	47,100	4,100	9,200	64,400	12,600	0	7,100	0	800	1,000	289,000
1975	56,600	66,400	20,500	13,500	44,900	6,800	11,200	81,800	12,700	2,000	9,500	0	2,000	2,500	330,400
1976	56,100	45,700	27,500	9,300	53,700	3,400	8,500	59,900	15,000	8,700	29,800	0	18,000	5,000	340,600
1977	36,100	89,900	31,800	7,800	76,600	3,700	12,600	65,000	18,800	2,100	8,200	1,500	2,800	700	357,600
1978	53,600	85,700	23,300	11,900	118,700	2,300	10,700	68,300	23,400	4,100	16,500	0	3,900	3,400	425,800
1979	59,400	62,200	33,200	10,000	69,000	3,600	12,900	57,400	9,800	0	5,200	0	0	2,600	325,300
1980	61,800	57,600	32,000	11,700	57,700	9,300	11,500	44,700	17,800	0	7,400	1,700	1,300	1,800	316,300
1981	82,700	39,800	30,400	10,200	51,500	8,100	12,600	45,000	19,200	0	5,800	0	2,300	1,300	308,900
1982	76,600	45,800	52,200	10,200	27,200	5,900	12,600	42,100	6,600	0	6,800	1,000	2,000	1,100	290,100
1983	50,100	33,500	53,600	11,500	38,900	8,100	8,200	34,500	25,800	0	20,800	0	2,200	1,600	288,800
1984	79,700	40,600	56,700	13,300	31,200	5,700	16,700	41,500	11,600	400	12,200	0	500	300	310,400
1985	67,800	44,600	64,600	10,400	38,900	14,100	19,800	36,900	16,100	300	17,800	700	1,400	2,700	336,100
1986	67,200	49,600	61,100	17,200	49,400	12,000	17,200	30,000	17,900	0	11,400	0	0	4,000	337,000
1987	66,000	39,600	61,800	15,100	44,900	10,400	18,800	26,500	17,200	200	16,400	500	0	2,300	319,700
1988	81,800	67,700	70,600	12,100	91,000	16,800	27,500	31,300	20,300	100	17,900	300	1,000	2,600	441,000
1989	75,000	85,300	100,200	20,200	97,400	28,400	34,500	33,300	41,700	1,500	55,100	0	2,100	5,400	580,100
1990	88,800	125,300	71,500	26,600	88,500	14,700	20,800	33,900	11,500	1,900	23,500	2,400	900	100	510,400
1991	99,000	122,400	73,700	29,300	91,300	17,400	36,000	29,900	16,900	2,900	21,900	600	500	1,800	543,600
1992	104,400	63,900	90,000	28,700	77,300	21,500	43,900	27,100	9,000	3,500	12,200	1,400	200	1,200	484,300
1993	108,600	74,900	105,800	17,300	101,300	31,000	51,300	43,100	33,000	3,700	23,300	500	1,400	3,700	598,900
1994	145,800	76,900	150,600	26,100	79,500	31,000	47,000	39,400	15,300	9,500	17,400	2,900	1,600	1,400	644,400
1995	125,300	102,500	148,300	41,400	110,800	47,200	56,600	46,700	33,600	19,800	33,000	2,500	1,300	2,800	771,800
1996	161,900	80,400	140,200	59,500	108,300	34,400	74,100	53,200	30,700	21,500	35,000	3,600	3,800	8,200	814,800
1997	158,600	78,900	183,800	52,200	87,800	52,200	86,200	38,700	25,100	19,900	31,900	6,300	8,100	3,700	833,400
1998*	159,300	45,000	134,700	33,200	72,100	44,300	81,600	24,700	52,400	19,100	31,700	5,000	23,800	11,300	738,200
% change	0	(43)	(27)	(36)	(18)	(15)	(5)	(36)	109	(4)	(1)	(21)	194	205	(11)

AVERAGES:

62-65	7,975	32,875	11,550	6,175	17,350	1,600	1,850	30,775	1,575	0	2,150	150	325	3,425	117,775
66-70	19,300	29,180	15,760	11,660	30,340	2,940	5,740	46,540	6,260	20	5,100	920	180	3,200	177,140
71-75	27,760	58,500	20,800	9,640	37,740	3,840	9,040	53,080	10,900	400	5,900	0	940	1,380	239,920
76-80	53,400	68,220	29,560	10,140	75,140	4,460	11,240	59,060	16,960	2,980	13,420	640	5,200	2,700	353,120
81-85	71,380	40,860	51,500	11,120	37,540	8,380	13,980	40,000	15,860	140	12,680	340	1,680	1,400	306,860
86-90	75,760	73,500	73,040	18,240	74,240	16,460	23,760	31,000	21,720	740	24,860	640	800	2,880	437,640
91-95	116,620	88,120	113,680	28,560	92,040	29,620	46,960	37,240	21,560	7,880	21,560	1,580	1,000	2,180	608,600
96-98	159,933	68,100	152,900	48,300	89,400	43,633	80,633	38,867	36,067	20,167	32,867	4,967	11,900	7,733	795,467

\* - PRELIMINARY

Table 52. ESTIMATES OF ACTIVE ADULT WATERFOWL HUNTERS IN THE MISSISSIPPI FLYWAY

YEAR	MN	WI	MI	IA	IL	IN	OH	MO	KY	AR	TN	LA	MS	AL	MF AVG
1961	74,100	73,400	50,900	33,500	52,400	15,100	20,800	32,400	5,200	14,800	12,600	32,300	5,200	4,100	426,800
1962	66,500	58,600	38,700	24,000	34,100	11,900	16,300	22,300	3,700	8,000	6,600	28,200	5,900	5,000	329,800
1963	98,100	76,000	53,900	29,700	40,100	12,100	19,200	27,100	4,600	14,400	12,400	53,000	10,500	9,100	460,200
1964	116,400	86,600	63,600	30,900	42,700	13,900	20,300	32,400	6,200	30,000	18,900	72,600	12,200	11,500	558,200
1965	110,400	92,400	63,000	34,000	48,100	14,100	22,200	30,900	6,100	19,100	14,400	69,700	11,100	11,200	546,700
1966	139,300	94,600	70,800	41,300	56,100	16,100	26,800	34,800	7,300	29,700	21,100	90,500	15,300	13,500	657,200
1967	145,200	94,700	79,000	44,300	64,300	18,200	26,200	46,100	7,900	33,500	21,700	92,400	16,800	14,400	704,700
1968	128,500	88,900	74,900	37,500	50,700	17,800	25,000	35,300	6,100	24,000	19,400	77,300	14,500	11,300	611,200
1969	130,900	107,100	87,300	47,500	59,000	20,800	30,600	43,500	6,600	29,600	20,200	86,200	17,300	12,400	699,000
1970	156,000	131,000	112,200	56,900	71,300	24,000	36,800	50,000	8,900	49,600	25,000	106,100	22,600	14,200	864,600
1971	161,000	135,500	94,000	58,700	66,800	26,700	37,600	49,400	9,800	47,600	29,300	97,500	23,500	10,100	847,500
1972	138,100	119,000	87,200	50,800	67,200	20,400	32,000	49,800	8,900	41,600	23,600	90,700	19,100	13,200	761,600
1973	110,600	105,800	86,900	48,700	62,700	20,800	31,500	45,700	9,000	38,100	27,200	83,100	19,400	10,500	700,000
1974	132,500	119,800	88,300	51,600	63,500	21,600	33,700	49,800	10,400	45,800	29,500	86,300	21,000	10,300	764,100
1975	147,200	129,700	88,100	49,700	53,600	20,000	34,100	52,400	11,200	51,300	23,600	93,300	26,300	11,700	792,200
1976	108,200	118,300	70,900	45,400	54,600	11,700	34,400	51,600	12,700	47,900	22,700	104,800	25,600	13,300	722,100
1977	135,400	122,300	59,400	46,200	55,100	12,300	32,000	53,100	12,400	46,800	25,600	103,700	25,500	13,400	743,200
1978	138,500	104,000	52,900	47,800	57,200	12,700	31,300	51,600	13,000	47,100	25,000	105,100	22,800	13,500	722,500
1979	143,100	89,300	53,400	44,400	57,700	13,500	32,300	45,100	13,100	43,500	24,000	107,100	22,600	10,200	699,300
1980	139,200	93,600	48,200	41,100	52,200	12,400	30,900	39,300	11,400	42,600	21,000	106,200	21,900	9,700	669,700
1981	126,200	85,000	42,100	35,900	51,100	12,500	30,400	41,200	11,700	35,900	20,700	98,600	20,700	9,500	621,500
1982	122,400	77,600	41,800	34,400	45,900	12,000	24,800	39,500	10,900	34,600	20,500	97,500	17,800	9,400	589,100
1983	121,700	77,800	42,600	34,000	45,400	11,800	23,500	37,700	10,900	32,000	20,300	106,900	19,900	9,500	594,000
1984	126,900	78,300	45,200	35,300	47,400	11,600	24,100	37,900	11,400	34,300	19,600	100,600	19,700	9,600	601,900
1985	116,500	74,600	44,600	27,900	42,600	11,000	23,500	32,500	10,300	34,400	19,200	86,700	15,200	8,900	547,900
1986	122,400	79,400	45,200	27,900	45,500	12,300	22,800	34,000	10,900	33,300	19,000	85,900	16,500	10,000	565,100
1987	111,000	75,200	46,500	25,500	43,900	11,900	21,400	31,000	10,600	30,500	19,000	81,100	13,500	9,100	530,200
1988	73,600	61,900	39,200	17,300	41,200	10,400	20,500	23,300	10,200	24,800	16,900	56,000	11,200	8,500	415,000
1989	81,100	71,300	44,200	16,600	45,900	10,700	21,500	24,500	11,400	23,300	18,500	56,500	12,200	8,800	446,500
1990	88,700	84,000	45,400	20,800	44,300	11,700	21,100	23,100	11,000	27,100	20,100	58,600	11,500	8,200	475,600
1991	95,200	79,600	45,200	21,400	43,800	11,700	21,400	23,200	11,100	30,100	18,400	57,600	10,900	7,800	477,400
1992	96,900	68,200	48,800	22,800	45,600	12,000	24,300	23,200	10,900	29,900	18,400	59,000	11,700	8,100	479,800
1993	99,299	73,249	54,042	21,092	44,220	12,919	26,059	22,453	10,737	33,643	18,671	59,642	11,527	7,754	495,307
1994	122,858	82,066	59,296	24,523	45,536	15,380	24,776	23,344	11,669	39,501	20,612	65,207	13,419	8,572	556,759
1995	119,900	87,400	65,100	30,500	47,100	14,400	24,200	27,500	13,900	44,600	24,300	78,100	16,000	10,200	603,200
1996	121,413	85,790	59,340	26,338	51,990	14,615	27,704	28,653	12,930	48,434	24,637	83,014	18,060	11,306	614,224
1997	131,561	94,431	62,073	30,737	59,900	15,995	30,481	33,965	13,660	52,515	27,697	90,532	19,323	12,359	675,229
1998*	121,840	86,428	57,773	27,445	52,763	17,942	33,930	30,370	16,669	52,362	26,585	91,329	21,725	13,311	650,472
% change	(7)	(8)	(7)	(11)	(12)	12	11	(11)	22	(0)	(4)	1	12	8	(4)

## AVERAGES:

61-65	93,100	77,400	54,020	30,420	43,480	13,420	19,760	29,020	5,160	17,260	12,980	51,160	8,980	8,180	464,340
66-70	139,980	103,260	84,840	45,500	60,280	19,380	29,080	41,940	7,360	33,280	21,480	90,500	17,300	13,160	707,340
71-75	137,880	121,960	88,900	51,900	62,760	21,900	33,780	49,420	9,860	44,880	26,640	90,180	21,860	11,160	773,080
76-80	132,880	105,500	56,960	44,980	55,360	12,520	32,180	48,140	12,520	45,580	23,660	105,380	23,680	12,020	711,360
81-85	122,740	78,660	43,260	33,500	46,480	11,780	25,260	37,760	11,040	34,240	20,060	98,060	18,660	9,380	590,880
86-90	95,360	74,360	44,100	21,620	44,160	11,400	21,460	27,180	10,820	27,800	18,700	67,620	12,980	8,920	486,480
91-95	106,831	78,103	54,488	24,063	45,251	13,280	24,147	23,939	11,661	35,549	20,077	63,910	12,709	8,485	522,493
96-98	124,938	88,883	59,729	28,173	54,884	16,184	30,705	30,996	14,420	51,104	26,306	88,292	19,703	12,325	646,642

\* - PRELIMINARY

Table 53. AVERAGE SEASONAL BAG PER ACTIVE ADULT WATERFOWL HUNTER IN THE MISSISSIPPI FLYWAY

YEAR	MN	WI	MI	IA	IL	IN	OH	MO	KY	AR	TN	LA	MS	AL	MF AVG
1961	4.88	3.97	2.36	3.88	3.75	1.50	2.33	3.78	3.19	4.29	3.68	6.49	3.77	3.51	3.90
1962	4.20	3.24	2.49	2.09	2.32	1.07	2.36	1.20	1.55	6.35	1.83	6.53	5.34	4.27	3.27
1963	5.60	3.61	2.35	4.68	4.34	1.38	3.39	2.30	2.66	8.68	5.76	12.05	7.87	6.12	5.20
1964	7.34	4.52	3.00	6.21	4.20	2.62	3.14	3.30	4.10	9.19	5.56	12.06	5.35	3.83	6.10
1965	6.89	4.97	3.36	5.95	4.22	2.38	4.23	3.96	3.44	10.58	4.90	13.75	6.11	4.94	6.33
1966	6.63	5.52	4.13	7.37	6.57	3.07	3.96	4.39	3.36	11.23	6.75	14.60	6.61	5.49	7.18
1967	6.59	5.12	4.38	6.63	6.07	2.64	5.01	4.74	4.18	9.80	5.64	11.34	6.68	4.14	6.49
1968	4.40	3.13	2.50	2.61	2.93	2.23	3.29	2.89	2.10	5.89	3.45	6.35	4.86	3.17	3.79
1969	7.97	4.87	3.68	5.09	4.39	3.05	3.89	4.44	2.46	8.02	2.83	12.41	8.70	5.21	6.23
1970	5.95	4.19	3.19	5.97	6.09	3.66	4.02	5.70	5.17	11.60	8.16	18.25	10.40	5.56	7.18
1971	6.62	4.40	3.17	6.32	4.54	4.28	2.99	5.25	4.05	11.01	7.96	11.05	6.94	5.19	6.15
1972	6.74	4.37	4.41	6.35	5.35	4.17	3.83	4.02	5.13	8.17	6.64	12.23	7.85	4.60	6.28
1973	5.31	4.58	3.85	3.94	5.13	3.60	3.89	3.95	3.36	11.22	8.01	14.35	7.80	6.71	6.27
1974	5.76	5.18	4.53	4.29	4.37	4.16	3.33	4.92	4.28	11.60	8.52	12.85	10.24	5.31	6.46
1975	6.62	5.24	3.91	5.93	7.56	5.53	4.08	6.49	6.65	12.54	9.61	17.78	11.92	7.92	7.95
1976	5.38	5.14	6.14	4.95	5.96	7.10	4.34	4.16	4.57	13.01	8.54	17.38	13.82	9.36	8.03
1977	4.85	3.69	3.91	5.32	6.50	6.74	3.40	5.15	5.42	15.40	9.81	17.81	11.45	9.98	7.70
1978	7.59	4.72	5.08	6.70	7.33	6.35	3.55	4.92	4.68	12.02	9.93	18.03	9.01	8.24	8.42
1979	7.73	5.61	5.52	9.49	7.15	6.92	3.66	5.87	5.81	11.78	9.87	16.03	11.81	10.11	8.76
1980	6.06	5.35	5.62	6.58	6.44	6.02	3.82	5.47	4.17	14.71	10.01	16.47	13.00	10.92	8.45
1981	6.42	4.66	5.41	7.89	7.49	5.12	4.02	6.40	5.64	13.63	9.70	15.70	13.92	10.66	8.43
1982	6.44	4.88	6.09	9.60	6.66	5.35	4.32	5.89	4.03	10.23	9.11	15.33	8.80	7.64	8.10
1983	7.22	5.49	6.24	8.49	8.00	8.00	5.53	6.61	4.75	11.49	11.71	18.68	11.59	10.45	9.57
1984	8.07	5.92	7.01	7.54	6.76	6.96	4.83	6.84	5.05	13.04	8.06	18.04	9.90	7.77	9.29
1985	5.64	4.30	5.12	6.83	6.65	6.99	4.08	5.67	5.01	13.64	6.74	13.68	8.62	7.71	7.44
1986	6.30	4.03	4.78	7.29	6.23	4.70	3.88	5.28	4.16	10.85	7.22	13.98	8.21	6.88	7.20
1987	4.91	4.25	4.45	6.04	4.80	4.50	3.21	5.27	4.65	13.60	5.88	14.35	9.83	8.38	6.93
1988	3.14	2.73	3.43	4.33	3.18	3.66	2.63	3.12	2.69	9.35	5.08	8.29	6.83	6.56	4.46
1989	3.99	2.97	4.18	4.68	3.82	4.27	3.55	4.57	3.96	10.13	7.24	12.61	7.62	10.40	5.64
1990	4.06	2.73	3.97	4.90	4.39	3.78	3.41	4.70	4.11	11.00	7.52	10.80	6.20	6.21	5.34
1991	5.14	3.21	4.30	6.78	5.33	4.95	3.21	5.47	3.69	10.41	7.48	9.60	7.46	6.25	5.75
1992	5.33	3.64	3.91	5.12	4.96	4.01	3.88	4.72	3.40	10.05	7.44	12.62	8.74	6.74	6.10
1993	4.95	3.26	4.03	4.69	4.31	4.70	3.77	4.89	4.55	11.17	9.84	11.38	10.06	7.29	5.99
1994	5.04	3.58	4.38	5.97	4.99	4.17	3.58	6.40	5.49	15.29	9.13	14.90	11.75	6.39	6.98
1995	6.63	4.28	5.69	8.19	6.31	6.30	4.71	8.81	8.09	19.51	14.89	27.03	20.05	10.61	10.64
1996	6.85	4.63	5.31	7.91	6.90	5.72	4.72	8.89	10.38	20.80	16.46	24.38	17.42	12.50	10.75
1997	6.97	4.28	6.20	8.29	6.96	5.77	4.92	10.42	8.86	23.45	16.45	25.00	18.75	12.17	11.19
1998*	6.57	4.03	5.94	9.93	9.64	5.45	4.92	13.87	11.59	21.86	18.15	25.84	16.65	14.04	11.82
% change	-6	-6	-4	20	39	-6	0	33	31	-7	10	3	-11	15	6

AVERAGES:

61-65	5.78	4.06	2.71	4.56	3.77	1.79	3.09	2.91	2.99	7.82	4.35	10.18	5.69	4.53	4.96
66-70	6.31	4.57	3.58	5.53	5.21	2.93	4.03	4.43	3.45	9.31	5.37	12.59	7.45	4.71	6.17
71-75	6.21	4.75	3.97	5.37	5.39	4.35	3.62	4.93	4.69	10.91	8.15	13.65	8.95	5.95	6.62
76-80	6.32	4.90	5.25	6.61	6.68	6.63	3.75	5.11	4.93	13.38	9.63	17.14	11.82	9.72	8.27
81-85	6.76	5.05	5.97	8.07	7.11	6.48	4.56	6.28	4.89	12.41	9.06	16.28	10.56	8.85	8.57
86-90	4.48	3.34	4.16	5.45	4.48	4.18	3.34	4.59	3.91	10.99	6.59	12.01	7.74	7.69	5.91
91-95	5.42	3.59	4.46	6.15	5.18	4.83	3.83	6.06	5.04	13.29	9.76	15.11	11.61	7.46	7.09
96-98	6.80	4.31	5.82	8.71	7.83	5.65	4.85	11.06	10.28	22.04	17.02	25.07	17.61	12.90	11.25

\* - PRELIMINARY

Table 54. Spring turkey hunting summary, 1978-99.

Year	Area of open hunt zone (mi <sup>2</sup> )	Number of permit applicants	Number of permits available	Odds of drawing a permit <sup>a</sup>	Number of permits given	Number of persons hunting <sup>b</sup>	Registered turkey harvest	% success <sup>c</sup>
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 <sup>d</sup>	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
1995	7,740	20,849	9,975	**	9,550	8,600	2,339	27.0
1996	17,004 <sup>f</sup>	23,757	12,131	**	10,983	9,885	2,841	28.7
1997	20,118	25,958	12,530	**	11,610	10,449	3,302	31.6
1998	21,013	29,727	14,035	**	13,229	11,906	4,361	36.6
1999	25,320	35,957	18,360	**	16,387	14,748	5,132	34.8

<sup>a</sup> Calculated with total permits available to be given, and not adjusting for undersubscribed zones and time periods.<sup>b</sup> 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).<sup>c</sup> Registered turkey harvest divided by number actually hunting, expressed as %.<sup>d</sup> Legislation allows NON-RESIDENT hunters.<sup>e</sup> Computerized preference drawing began Spring 1990. <sup>f</sup> Open hunt zone area now calculated using deer permit zones.

Table 55. Spring Wild Turkey harvest by permit area, 1999.

Permit Area	Number of Permits Issued	Harvest				Hunter Success (%)
		Number of Adults	Number of Juveniles	Percent (%) Juveniles	Total	
223	114	14	12	46.2	26	22.8
225	91	9	10	52.6	19	20.8
226	107	17	4	19.0	21	19.6
227	114	27	11	28.9	38	33.3
228	117	32	12	27.3	44	37.6
235	114	26	5	16.1	31	27.2
236	272	65	40	38.1	105	38.6
337 / 338	418	109	59	35.1	168	40.2
339 / 462	511	148	52	26.0	200	39.1
341 / 342	2,430	496	307	38.2	803	33.0
343 / 347	1,689	406	220	35.1	626	37.1
344	744	132	94	41.6	226	30.4
345 / 348	2,346	355	275	43.6	630	26.9
346	1,711	204	253	55.4	457	26.7
349	2,429	304	329	51.9	633	26.1
411	45	14	7	33.3	21	46.7
415	36	12	7	36.8	19	52.8
417	44	22	2	8.3	24	54.5
418	152	32	25	43.8	57	37.5
419	111	11	8	42.1	19	17.1
422	40	6	7	53.8	13	32.5
431	24	5	3	37.5	8	33.3
433/446/447	33	10	2	16.6	12	36.4
435	254	53	19	26.4	72	28.3
440	231	44	50	53.2	94	40.7
442	646	175	105	37.5	280	43.3
443	352	55	65	54.2	120	34.1
448/449/451	41	13	5	27.8	18	43.9
450	14	2	2	50.0	4	28.6
454 / 455 / 456 / 458	30	7	1	12.5	8	26.7
457	10	3	0	0	3	30.0
459	60	16	10	38.5	26	43.3
461	329	58	37	38.9	95	28.9
463	148	13	18	58.0	31	20.9
464 / 465	241	44	25	36.2	69	28.6
466 / 467	339	82	30	26.8	112	33.0
Total	16,387	3,021	2,111	41.1	5,132	31.3

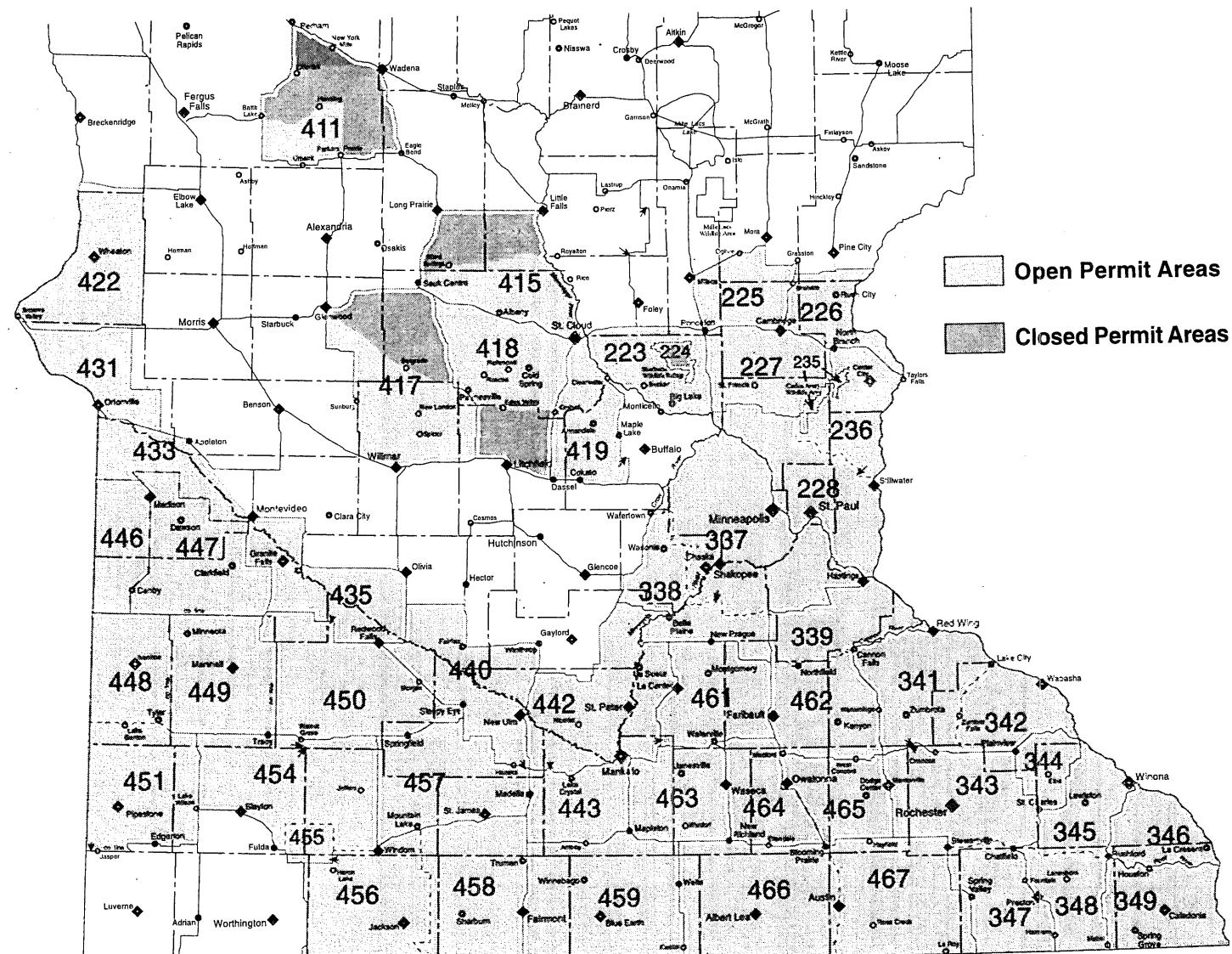


Figure 40. Spring wild turkey hunt permit areas, 1999.

Table 56. Fall turkey hunting summary, 1990-98.

Year	Area of open hunt zone (mi <sup>2</sup> )	Number of permit applicants	Number of permits available	Number of permits issued	Number of persons hunting <sup>a</sup>	Registered turkey harvest	% Success <sup>b</sup>
1990		4,522	1,000	951	856	326	38
1991		2,990	2,200	2,020	1,818	552	30
1992		2,750	2,200	2,028	1,825	588	32
1993		3,162	2,400	2,094	1,885	605	32
1994		3,124	2,500	2,106	1,895	601	32
1995		3,590	2,500	2,125	1,913	648	34
1996	7,241 <sup>f</sup>	4,366	2,500	2,289	2,060	685	33
1997	7,241	4,574	2,580	2,378	2,140	698	33
1998	7,241	4,526	2,710	2,483	2,439	828	34

<sup>a</sup> Number hunting estimated at 90% of permits issued based on survey results.

<sup>b</sup> Registered turkey harvest divided by number actually hunting, expressed as %.

<sup>f</sup> Area of open hunt zone calculated from Deer Permit Zone information of area/miles<sup>2</sup>

Table 57. Fall wild turkey harvest by permit area, 1998.

Permit Area	Female		Male		Total
	Juvenile	Adult	Juvenile	Adult	
339/462	10	4	3	14	31
341/342	71	50	26	40	187
343/347	35	38	18	23	114
344	11	18	5	7	41
345/348	48	46	31	14	149
346	30	45	22	19	116
349	50	61	40	17	168
461	1	1	3	1	6
465	3	0	3	2	8
466/467	2	1	1	2	6
Total	261	274	152	139	826

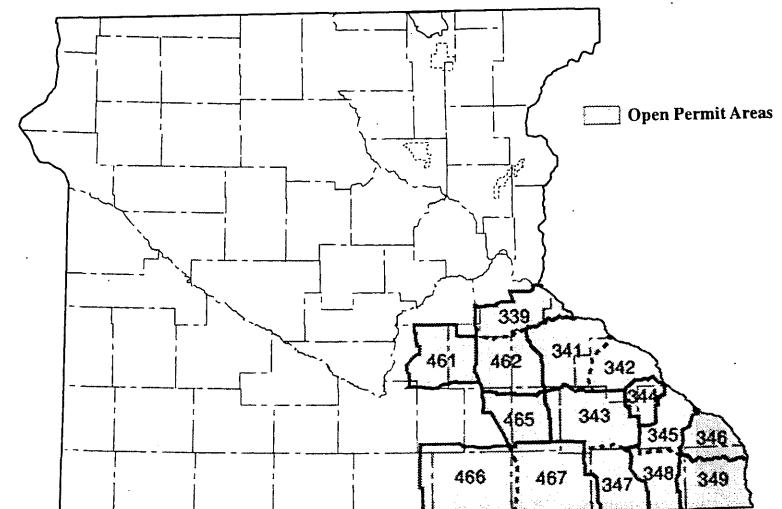


Figure 41. Fall wild turkey hunt zones, 1998

Table 58. Deer hunting license sales, 1957-98<sup>a</sup>.

Year	Firearms License Sales			Archery License Sales			Grand Total
	Resident	Non-resident	Total	Resident	Non-resident	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	416,474	4,983	421,457	66,687	589	67,276	488,733
1986	413,542	4,476	418,018	68,689	547	69,236	487,254
1987	414,426	4,931	419,357	70,195	604	70,799	490,156
1988 <sup>b</sup>	406,733	5,616	412,349	67,182	717	67,899	480,248
1989	405,469	6,141	411,610	66,992	714	67,706	479,316
1990	413,282	6,461	419,743	67,034	742	67,783	427,526
1991	424,576	6,854	431,430	71,168	800	71,968	503,398
1992	448,716	8,033	456,749	71,946	914	72,860	529,609
1993	443,931	8,521	452,452	70,053	1,142	71,195	523,647
1994	452,344	9,227	461,571	71,409	1,156	72,565	534,136
1995	451,164	9,401	460,565	72,477	1,180	72,477	533,042
1996	431,163	8,596	439,759	66,732	1,098	67,830	507,589
1997	369,190	7,830	377,020	63,499	980	64,479	441,499
1998	378,734	8,852	387,586	63,908	1,029	64,937	452,523

<sup>a</sup> Duplicate licenses not included. Leech Lake licenses are included during years they were issued.<sup>b</sup> Bonus licenses not included beginning 1988.

Table 59. Registered deer harvest and hunter success rates, 1974-98.

	Registered Harvest			Percent Success	
	Regular firearms	Archery	Special Muzzleloader season <sup>a</sup>	Regular firearms and special muzzleloader seasons	Archery
1974	64,997	2,176	-	21.8	6.9
1975	63,604	2,265	-	19.3	6.9
1976	28,613	1,167	-	10.8	5.3
1977	45,918	2,609	32	15.9	8.8
1978	47,372	2,608	346	15.4	7.9
1979	44,340	2,577	318	14.2	7.1
1980	68,539	3,641	294	19.8	8.7
1981	93,027	5,535	385	25.1	10.9
1982	93,045	5,566	441	25.1	10.1
1983	132,457	5,977	652	33.6	10.6
1984	132,042	6,390	532	33.0	10.3
1985	138,065	7,575	563	33.4	11.3
1986	129,770	7,610	593	31.2	11.1
1987	135,003	7,535	535	32.4	10.9
1988	138,946	8,262	686	33.6	12.0
1989	129,551	9,307	622	31.4	13.5
1990	166,589	11,106	730	39.4	16.1
1991	206,275	12,964	961	46.9	17.5
1992	229,236	13,004	828	46.1	14.9
1993	188,109	13,722	1,097	40.0	16.1
1994	178,283	13,818	1,725	37.1	16.1
1995	198,193	14,521	2,452	40.1	16.8
1996	139,348	14,338	3,367	29.8	17.1
1997	126,905	13,258	3,164	27.8	16.2
1998	143,396	12,306	3,152	31.4	15.2

<sup>a</sup> No special muzzleloader seasons were held before 1977.

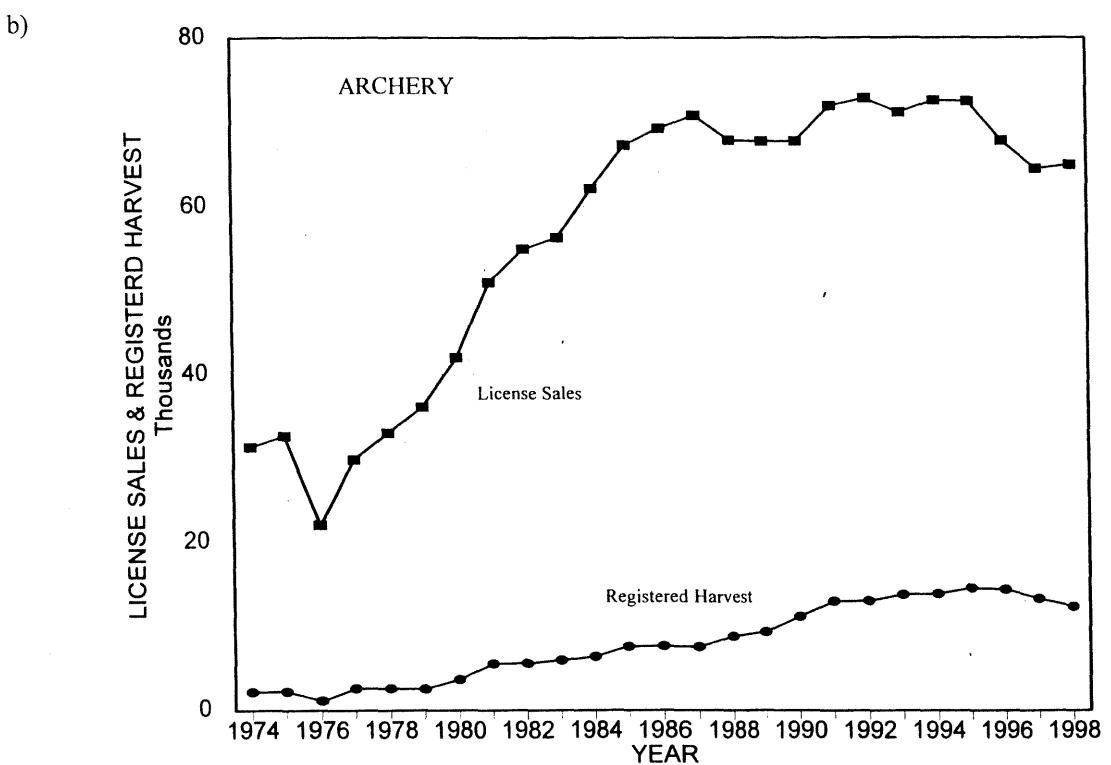
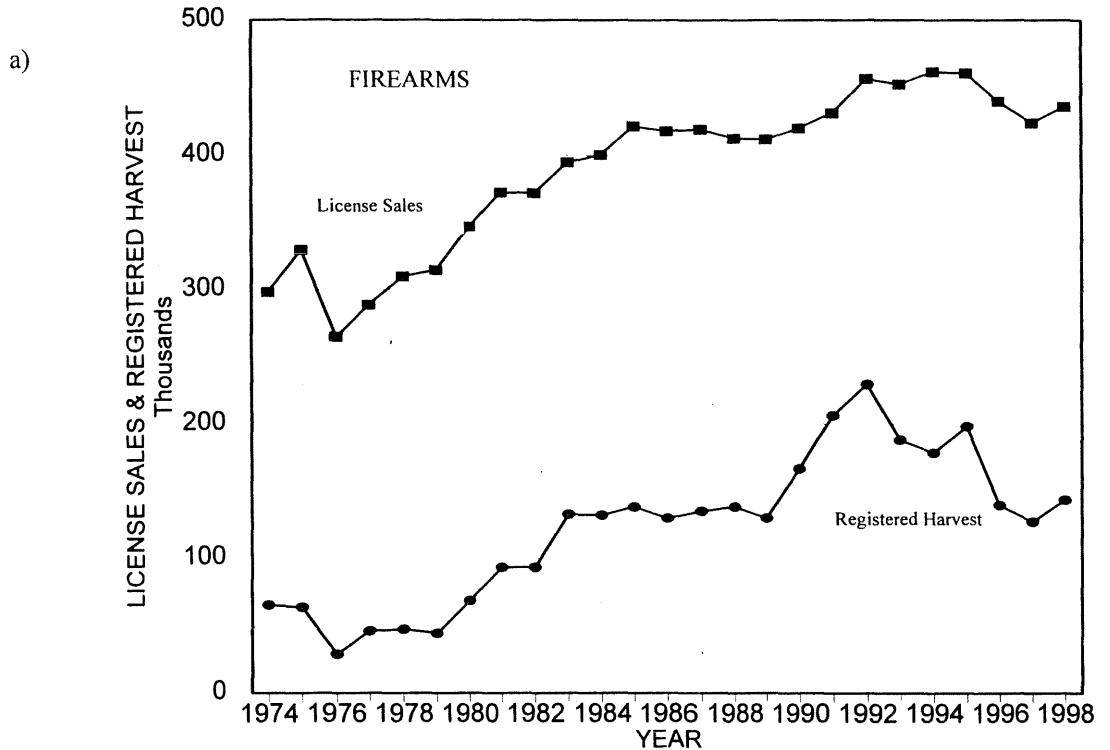


Figure 42. Numbers of Minnesota deer hunting licenses sold and registered harvest by (a) firearm and (b) archery hunters, 1974-98.

Table 60. White-tailed deer harvest by Sub-DMU and permit area, 1998<sup>a</sup>.

Sub-DMU	Permit Area	Antlerless Registered	Bucks Registered	Total Registered Harvest
Red River West	401A(B)	71 ( 98)	137 (144)	208 (242)
	402A(B)	192 (152)	201 (165)	393 (317)
	Total A(B)	263 (250)	338 (309)	601 (559)
Red River East	403 A(B)	104 (146)	142 (165)	246 (311)
	404 A(B)	247 (280)	251 (250)	498 (530)
	405 A(B)	248 (173)	229 (138)	477 (311)
	406 A(B)	205 (269)	213 (160)	418 (429)
	407 A(B)	279 (196)	220 (175)	499 (371)
	408 A(B)	216 (225)	212 (156)	428 (381)
	Total A(B)	1299 (1289)	1267 (1044)	2566 (2333)
Aggasiz	201	0	55	55
	202	62	177	239
	203	0	40	40
	204	394	536	930
	205	386	695	1081
	206	151	380	531
	207	134	268	402
	208	53	164	217
	209	325	364	689
	210	517	524	1041
	Total	2022	3203	5225
Rainy River West	211	0	438	438
	212	0	334	334
	213	0	0	0
	214	0	37	37
	Total	0	809	809
Rainy River Central	104	0	172	172
	105	0	78	78
	106	0	351	351
	110	0	293	293
	Total	0	894	894
Rainy River East	107	0	603	603
	108	0	250	250
	109	0	324	324
	195	0	11	11
	Total	0	1188	1188
Superior West	119	0	528	528
	120	0	494	494
	121	0	220	220
	Total	0	1242	1242
Superior Wilderness	115	0	33	33
	116	0	18	18
	117	0	95	95
	118	0	9	9
	Total	0	155	155
Superior Central	122	0	157	157
	123	0	216	216
	124	0	91	91
	125	0	170	170
	Total	0	634	634

Table 60 (con't.)

Sub-DMU	Permit Area	Antlerless Registered	Bucks Registered	Total Registered Harvest
Grand Portage I.R.	194	0	0	0
Superior East	126	0	132	132
	127	0	70	70
	128	0	168	168
	129	0	57	57
	130	0	23	23
	Total	0	450	450
Itasca North West	167	0	429	429
	168	0	644	644
	169	0	889	889
	Total	0	1962	1962
Itasca North East	175	0	956	956
	176	0	359	359
	177	0	315	315
	178	0	447	447
	179	0	754	754
	Total	0	2831	2831
Itasca South East	180	0	917	917
	181	0	775	775
	182	0	479	479
	183	65	1268	1268
	184	34	497	531
	199	0	85	85
	Total	99	4021	4120
Itasca South West	170	0	1013	1013
	171	0	677	677
	172	112	1296	1408
	173	89	905	994
	174	51	545	596
	Total	252	4436	4688
Leech Lake I.R.	197	0	390	390
	198	0	273	273
	Total	0	663	663
Bemidji	284	75	918	993
	285	54	766	820
	286	90	1253	1343
	287	209	133	342
	Total	428	3070	3498
Mille Lacs West	244	832	1539	2371
	245	130	1600	1730
	251	94	118	212
	Total	1056	3257	4313
Mille Lacs Central	246	1552	2780	4332
	247	896	1494	2390
	248	319	394	713
	249	338	1089	1427
	Total	3105	5757	8862

Table 60 (con't.)

Sub-DMU	Permit Area	Antlerless Registered	Bucks Registered	Total Registered Harvest
Mille Lacs East	152	59	145	204
	154	179	453	632
	155	222	654	876
	156	402	1262	1664
	157	897	1298	2195
	158	915	1471	2386
	159	1171	1761	2932
	Total	3845	7044	10889
White Earth I.R.	297	14	161	175
	298	24	492	516
	Total	38	653	691
Big Woods North	409 A(B)	961 ( 569)	826 (310)	1787 ( 879)
	410 A(B)	1197 (491)	1047 (405)	2244 (896)
	411 A(B)	1430 (824)	1095 (408)	2525 (1232)
	412 A(B)	992 (497)	855 (309)	1847 (806)
	413 A(B)	1024 (658)	731 (466)	1755 (1124)
	414 A(B)	1047 (856)	835 (384)	1882 (1240)
	415 A(B)	701 (529)	429 (291)	1130 (820)
	416 A(B)	452 (525)	379 (277)	831 (802)
	417 A(B)	902 (616)	789 (396)	1691 (1012)
	418 A(B)	561 (432)	488 (242)	1049 (674)
	419 A(B)	208 (307)	199 (241)	407 (548)
	429 A(B)	90 (103)	106 (64)	196 (167)
	Total A(B)	9565 (6407)	7779 (3793)	17344 (10200)
Big Woods Central	221	891	885	1776
	222	1057	767	1824
	223	886	552	1438
	224	173	118	291
	225	1150	673	1823
	226	842	694	1536
Big Woods Metro North	Total	4999	3689	8688
	227	1128	801	1929
	228	317	283	600
	235	33	59	92
	236	819	798	1617
Big Woods Metro South	Total	2297	1941	4238
	337 A(B)	312 (160)	309 (42)	621 (202)
	338 A(B)	2 (271)	197 (75)	199 (346)
	339 A(B)	0 (259)	218 (49)	218 (308)
	Total A(B)	314 (690)	724 (166)	1038 (856)
Big Woods Southeast	341 A(B)	0 (1137)	685 (256)	685 (1393)
	342 A(B)	0 ( 818)	544 (195)	544 (1013)
	343 A(B)	0 ( 779)	592 (187)	592 ( 966)
	344 A(B)	0 ( 645)	427 ( 81)	427 (726)
	345 A(B)	0 ( 816)	466 (185)	466 (1001)
	346 A(B)	63 (1110)	464 (301)	709 (1411)
	347 A(B)	0 ( 771)	502 (178)	502 ( 949)
	348 A(B)	0 (1291)	701 (230)	701 (1521)
	349 A(B)	0 (1398)	914 (311)	914 (1709)
	Total A(B)	63 (8765)	5477 (1924)	5540 (10689)

Table 60 (con't.)

Sub-DMU	Permit Area	Antlerless Registered	Bucks Registered	Total Registered Harvest
Prairie North	420 A(B)	141 (153)	127 (107)	268 (260)
	421 A(B)	192 (140)	186 (120)	378 (260)
	422 A(B)	195 ( 96)	180 ( 98)	375 (194)
	423 A(B)	217 (164)	201 ( 111)	418 (275)
	424 A(B)	258 (389)	312 (224)	570 (613)
	425 A(B)	87 (101)	132 ( 70)	219 (171)
	426 A(B)	108 (115)	193 ( 110)	301 (225)
	427 A(B)	114 ( 88)	152 ( 106)	266 (194)
	428 A(B)	142 (146)	174 ( 118)	316 (264)
	Total A(B)	1454 (1392)	1657 (1064)	3111 (2456)
Prairie River	431 A(B)	158 (278)	154 (134)	312 (412)
	433 A(B)	274 (371)	287 (181)	561 (552)
	435 A(B)	264 (298)	304 (170)	568 (468)
	440 A(B)	320 (122)	335 ( 88)	655 (210)
	442 A(B)	263 (247)	333 (148)	596 (395)
	443 A(B)	225 (187)	238 (116)	463 (303)
Prairie Southwest	Total A(B)	1504 (1503)	1651 (837)	3155 (2340)
	446 A(B)	171 (180)	149 (113)	320 (293)
	447 A(B)	126 (104)	171 (112)	297 (216)
	448 A(B)	94 ( 91)	162 (102)	256 (193)
	449 A(B)	130 (119)	224 (133)	354 (252)
	450 A(B)	120 (104)	111 (60)	231 (164)
	451 A(B)	145 (174)	141 (144)	286 (318)
	452 A(B)	97 (175)	110 (154)	207 (329)
	453 A(B)	104 ( 85)	166 ( 97)	270 (182)
	454 A(B)	168 (157)	323 (168)	491 (325)
	455 A(B)	30 (45)	39 (21)	69 (66)
	456 A(B)	139 (153)	216 (134)	355 (287)
	457 A(B)	120 ( 97)	165 (105)	285 (202)
	458 A(B)	186 (184)	191 (127)	377 (311)
	459 A(B)	227 (280)	336 (183)	563 (463)
Prairie Southeast	Total A(B)	1857 (1948)	2504 (1653)	4361 (3601)
	461 A(B)	356 (434)	331 (139)	687 (573)
	462 A(B)	354 (311)	349 (156)	703 (467)
	463 A(B)	147 ( 92)	179 ( 62)	326 (154)
	464 A(B)	154 (140)	153 ( 89)	307 (229)
	465 A(B)	61 (147)	89 (117)	150 (264)
	466 A(B)	219 (310)	308 (231)	527 (541)
	467 A(B)	124 (266)	190 (209)	314 (475)
Total A(B)		1415 (1700)	1599 (1003)	3014 (2703)
Special Hunt Totals		--	656	233
GRAND TOTALS			60,475	82,921
				143,396

<sup>a</sup> Includes deer tagged with regular, multi-zone buck, management permit and intensive harvest permit licenses.

Table 61. Archery deer harvest by Sub-DMU and permit area, 1991-98.

Sub-DMU	Permit area	1991	1992	1993	1994*	1995*	1996*	1997*	1998*
Red River West	401	88	95	79	97	159	131	103	63
	402	59	105	131	120	94	83	74	71
Red River East	403	46	37	55	76	121	49	46	43
	404	44	49	78	48	91	59	42	56
	405	27	38	27	40	20	18	28	32
	406	28	24	37	34	14	26	29	40
	407	67	140	145	114	98	53	82	27
	408	21	20	62	37	35	13	22	44
Agassiz	201	21	15	17	11	9	6	2	0
	202	18	16	7	16	21	17	6	2
	203	9	9	3	2	2	2	1	0
	204	53	42	29	62	66	49	29	16
	205	72	77	113	151	183	79	58	56
	206	60	56	32	62	84	73	42	14
	207	15	18	11	14	23	13	16	6
	208	21	24	22	33	32	15	6	2
	209	28	44	57	48	44	37	44	49
	210	10	12	37	33	29	17	31	15
Rainy River West	211	76	43	67	96	116	70	18	4
	212	13	6	11	12	22	16	4	7
	213	0	1	0	0	1	1	1	0
	214	4	1	9	11	2	9	6	2
Rainy River Central	104	6	5	6	9	10	1	0	2
	105	5	2	2	1	3	0	0	0
	106	22	20	19	16	19	3	0	2
	110	20	10	19	11	17	4	1	2
Rainy River East	107	24	13	9	18	20	4	2	2
	108	19	10	17	9	9	1	1	4
	109	1	2	2	6	5	0	3	5
	195	0	0	0	0	0	0	0	0
Superior West	119	5	6	5	7	6	0	0	1
	120	12	4	8	8	9	2	9	3
	121	11	3	3	6	2	1	2	2
Superior Wilderness	115	0	1	1	0	0	0	0	1
	116	1	2	1	1	3	0	0	1
	117	2	3	3	4	5	0	0	0
	118	0	1	0	0	0	0	0	0
Superior Central	122	14	8	9	10	12	4	1	1
	123	2	2	1	3	5	0	1	0
	124	5	5	4	6	2	2	2	1
	125	25	27	13	17	3	4	7	7
Grand Portage I.R.	194	0	0	0	0	0	0	0	0
Superior East	126	28	14	16	9	20	7	3	2
	127	2	1	2		1	0	0	1
	128	23	10	6	6	18	3	1	2
	129	7	1	2	3	5	0	0	0
	130	1	1	2	1	3	1	1	1
Itasca North West	167	15	9	12	16	13	5	2	3
	168	57	20	31	24	32	2	5	4
	169	68	36	44	46	51	13	11	21

Table 61(con't.)

Sub-DMU	Permit area	1991	1992	1993	1994	1995	1996	1997	1998
Itasca North East	175	23	19	28	36	50	9	8	10
	176	12	22	15	15	13	2	2	9
	177	16	8	13	13	5	4	3	2
	178	15	13	10	15	12	5	2	5
	179	30	17	20	35	31	4	7	16
Itasca South East	180	73	65	46	81	86	3	36	45
	181	34	12	24	29	32	12	4	10
	182	32	13	21	17	14	4	4	6
	183	48	22	28	45	42	13	17	25
	184	19	7	5	25	17	2	4	9
	199	4	5	5	3	2	3	2	2
Itasca South West	170	77	34	50	60	60	15	29	26
	171	56	15	47	49	2	9	10	21
	172	107	68	55	36	47	14	14	28
	173	73	40	40	51	54	11	12	29
	174	35	35	24	31	24	8	8	12
Leech Lake I.R.	197	17	8	7	15	13	9	2	11
	198	6	5	5	2	2	0	1	0
Bemidji	284	106	129	61	143	113	99	46	72
	285	13	19	18	18	30	15	8	7
	286	111	146	136	189	155	82	50	84
	287	5	0	7	3	10	1	0	0
Mille Lacs West	244	78	123	102	68	54	15	56	85
	245	85	76	56	67	64	10	43	37
	251	4	2	11	2	7	1	2	4
Mille Lacs Central	246	168	244	120	159	129	80	142	160
	247	236	165	193	208	186	253	222	300
	248	74	92	55	51	49	56	41	49
	249	98	135	54	74	74	85	71	97
Mille Lacs East	152	32	8	3	5	3	6	5	5
	154	56	58	26	22	21	28	33	52
	155	49	41	23	19	20	22	28	28
	156	90	66	30	56	50	67	53	78
	157	223	123	44	70	62	66	68	69
	158	242	120	78	96	102	120	107	116
	159	354	176	121	163	122	147	131	162
White Earth I.R.	297	5	8	5	5	7	0	4	0
	298	5	2	10	3	2	1	0	1
Big Woods North	409	112	158	159	164	185	252	274	217
	410	120	132	269	227	242	175	169	84
	411	136	127	231	207	202	181	164	163
	412	139	173	287	213	269	288	189	111
	413	165	179	165	243	288	293	224	266
	414	107	98	112	86	234	123	204	210
	415	230	199	216	219	205	218	215	243
	416	106	86	84	65	84	161	116	157
	417	268	259	245	216	256	275	339	180
	418	287	318	214	252	252	248	286	188
	419	254	479	132	123	246	280	242	227
	429			57	156	76	118	142	121

Table 61(con't.)

Sub-DMU	Permit area	1991	1992	1993	1994	1995	1996	1997	1998
Big Woods Central	221	116	79	83	81	77	126	95	115
	222	64	31	100	42	57	48	35	63
	223	187	128	218	307	293	342	265	260
	224	22	13	16	11	10	17	21	13
	225	276	356	151	70	77	154	129	120
	226	235	339	259	263	243	212	182	166
Big Woods Metro North	227	297	280	381	382	353	382	343	325
	228				689	711	828	734	756
	235	94	52	35	35	44	41	68	29
	236	608	639	626	602	623	611	572	550
Big Woods Metro South	337	299	405	1,223	861	953	901	821	681
	338	394	368	195	112	215	158	127	147
	339	308	335	155	256	245	244	239	220
Big Woods Southeast	341	114	117	196	134	223	279	286	317
	342	68	58	118	88	129	133	119	120
	343	233	350	281	400	391	467	615	476
	344	124	131	99	91	88	105	91	48
	345	88	92	148	105	197	154	174	159
	346	177	221	197	116	105	190	270	167
	347	68	129	141	208	195	197	201	151
	348	79	137	153	101	70	163	156	195
	349	101	89	129	92	84	150	173	181
	420	106	164	160	100	94	128	72	0
Prairie North	421	60	105	108	81	81	83	75	29
	422	35	76	65	53	52	64	46	38
	423	22	22	49	30	46	35	21	38
	424	53	47	57	42	65	118	57	23
	425	40	130	41	44	102	90	26	19
	426	42	43	48	110	101	52	39	38
	427	98	87	53	33	51	45	44	43
	428	142	83	88	101	89	96	82	80
Prairie River	431	45	53	47	48	38	91	56	76
	433	195	147	171	174	122	137	151	78
	435	109	93	86	79	71	91	99	52
	440	113	109	113	74	112	122	130	97
	442	238	198	205	191	222	203	191	169
	443	92	68	82	94	76	97	72	81
Prairie Southwest	446	33	26	29	16	23	31	15	28
	447	64	58	48	41	38	45	24	42
	448	44	49	42	47	40	41	26	26
	449	128	113	92	78	100	113	79	78
	450	40	25	26	34	44	32	35	28
	451	105	73	76	45	57	79	48	39
	452	50	72	97	39	37	83	45	72
	453	50	42	46	42	43	57	38	29
	454	130	117	130	93	77	156	81	77
	455	30	20	19	21	18	11	10	17
	456	125	147	79	82	77	80	96	71
	457	66	79	61	71	33	78	44	40
	458	77	68	53	84	60	83	59	52
	459	107	96	71	74	84	106	123	73

Table 61(con't.)

Sub-DMU	Permit area	1991	1992	1993	1994	1995	1996	1997	1998
Prairie Southeast	461	92	118	86	145	131	108	132	163
	462	116	130	127	143	234	275	206	218
	463	50	55	43	47	47	44	26	52
	464	60	59	57	55	64	125	77	92
	465	91	86	82	85	171	172	143	135
	466	120	118	122	121	113	164	133	163
	467	126	113	129	153	173	162	204	235
Unknown	UNK	128	124	8	0	0	0	0	0
Camp Ripley		219	158	287	267	247	160	142	175
TOTAL		12,964	12,999	13,722	13,427	4,013 (527) <sup>†</sup>	14,338 (765) <sup>†</sup>	13,258 (1,009) <sup>†</sup>	12,306 (448) <sup>†</sup>

\* Includes Regular licesnses, Management permits, Intensive harvest permits, and Special permit areas.

† Harvest in () shows Intensive Harvest Permit harvest.

Table 62. Special Muzzleloader Season harvest by block, 1998.  
 (Includes Special Permit Areas)

Block Number	Adult		Fawns		Total
	Male	Female	Male	Female	
106	2	0	0	0	2
107	1	0	0	0	1
109	1	0	0	0	1
120	3	0	0	0	3
121	5	0	0	0	5
123	1	0	0	0	1
126	1	0	0	0	1
152	5	8	4	3	20
154	4	6	0	2	12
155	2	5	0	0	7
156	2	5	1	2	10
157	3	11	2	1	17
158	1	4	2	1	8
159	5	13	4	3	25
167	1	0	0	0	1
171	4	0	0	0	4
172	7	0	0	0	7
175	2	0	0	0	2
177	1	0	0	0	1
178	2	0	0	0	2
179	1	0	0	0	1
183	2	0	0	0	2
184	3	0	0	0	3
197	1	0	0	0	1
201	1	0	0	0	1
202	2	2	1	0	5
204	4	1	0	1	6
205	4	6	2	4	16
206	3	5	0	0	8
207	3	1	0	1	5
208	1	1	1	0	3
209	1	1	0	0	2
210	0	4	0	0	4
211	2	0	0	0	2
212	1	0	0	0	1
221	7	9	8	4	28
222	2	1	1	0	4
223	9	8	4	5	26
224	1	1	0	0	1
225	6	4	5	3	18
226	1	9	3	0	13
227	3	8	3	3	17
228	4	8	4	3	19
235	1	6	0	2	9
236	2	11	8	3	24
244	6	10	7	4	27
245	10	0	0	0	10
246	15	44	11	7	77
247	8	21	8	5	42

Table 62. (Cont.)

Block Number	Adult		Fawns		Total
	Male	Female	Male	Female	
248	5	8	1	1	15
249	5	7	5	4	21
284	3	0	0	0	3
285	1	0	0	0	1
286	2	0	0	0	2
298	7	0	0	0	7
337	19	36	18	8	81
338	9	12	8	3	32
339	3	5	2	3	13
341	4	19	4	3	30
342	3	13	9	3	28
343	7	24	7	6	44
344	2	12	5	1	20
345	2	3	0	0	5
346	1	7	4	3	15
347	7	29	9	3	48
348	5	26	10	5	46
349	6	14	3	2	25
401	16	20	3	5	44
402	17	26	5	2	50
403	2	3	1	0	6
404	7	10	2	1	20
405	5	7	2	1	15
406	3	6	0	3	12
407	9	4	5	2	20
408	2	10	1	2	15
409	2	21	7	6	36
410	14	17	6	5	42
411	0	10	3	2	15
412	11	14	6	5	36
413	12	26	12	7	57
414	8	19	2	5	34
415	13	14	10	5	42
416	15	39	14	6	74
417	17	28	5	3	53
418	5	11	6	2	24
419	5	20	9	5	39
420	5	4	1	1	11
421	7	8	4	3	22
422	7	4	1	1	13
423	3	5	3	2	13
424	11	29	7	9	56
425	3	8	2	4	17
426	6	7	8	1	22
427	5	3	3	1	12
428	2	5	0	1	8
429	4	3	0	2	9
431	14	48	24	19	105
433	16	43	21	15	95
435	12	14	13	4	43
440	10	11	6	2	29

Table 62. (Cont.)

Block Number	Adult		Fawns		Total
	Male	Female	Male	Female	
442	14	35	10	5	64
443	14	14	7	3	38
446	14	22	2	6	44
447	20	18	12	9	59
448	10	7	5	1	23
449	7	16	4	4	31
450	4	6	0	2	12
451	17	19	5	3	44
452	14	27	7	2	50
453	11	14	1	2	28
454	13	31	14	2	60
455	1	2	5	1	9
456	16	18	5	5	44
457	6	7	2	2	17
458	8	18	4	2	32
459	25	38	8	3	74
461	4	23	6	5	38
462	12	27	8	0	47
463	3	6	1	4	14
464	8	23	7	4	42
465	10	26	8	2	46
466	29	46	8	9	92
467	23	49	20	17	109
469	1	1	1	0	3
921	2	13	3	2	20
922	2	11	14	4	31
923	0	33	12	7	52
924	0	0	1	0	1
Total	803	1,474	535	340	3,152

Table 63. Muzzleloader Special Permit Area Data, 1998.

Area	Dates	Permits Issued Regular	Harvest				Total
			Adult male	Fawn male	Adult Female	Fawn Female	
Crow Wing S.P. (921)	12/5-12/6	40 <sup>a</sup>	2	3	13	2	20
Jay Cooke S.P. (922)	11/28-12/6	75 <sup>a,b</sup>	2	14	11	4	31
Myre-Big Island S.P. (923)	11/28-11/30 12/5-12/6	50 <sup>a,b</sup>	0	12	33	7	52
Rice Lake S.P. (924)	11/28-12/2	15 <sup>a,b</sup>	0	1	0	0	1

a Permits for these hunts were antlerless only.

b Management permits were available for these hunts.

c Intensive Harvest Permits were available for these hunts.

Table 64. Black bear registered harvest and hunter success, 1990-1998.

Quota Area	Harvest (success rate)								
	1990	1991	1992	1993	1994	1995	1996	1997	1998
12	79 (29%)	93 (32%)	109 (36%)	90 (27%)	130 (34%)	229 (49%)	114 (23%)	163 (34%)	170 (30%)
13	95 (37%)	93 (34%)	111 (36%)	98 (32%)	108 (34%)	258 (59%)	96 (22%)	125 (35%)	216 (31%)
22	29 (13%)	39 (18%)	40 (21%)	26 (13%)	33 (16%)	29 (14%)	5 (2%)	21 (16%)	8 ( 6%)
24	137 (30%)	155 (34%)	253 (45%)	199 (32%)	176 (26%)	288 (32%)	93 (10%)	251 (29%)	274 (26%)
25	167 (32%)	237 (37%)	331 (47%)	248 (33%)	199 (27%)	489 (40%)	149 (12%)	357 (35%)	419 (27%)
26	252 (40%)	337 (38%)	328 (40%)	330 (39%)	260 (30%)	513 (59%)	131 (15%)	311 (38%)	373 (38%)
31	323 (38%)	377 (39%)	554 (55%)	342 (34%)	260 (27%)	636 (47%)	188 (13%)	402 (38%)	544 (28%)
41	101 (39%)	74 (23%)	95 (28%)	85 (28%)	92 (31%)	148 (50%)	38 (13%)	88 (32%)	120 (25%)
44	348 (34%)	234 (24%)	436 (36%)	539 (37%)	294 (24%)	643 (43%)	231 (16%)	357 (28%)	563 (25%)
45					91 (14%)	173 (24%)	106 (13%)	143 (18%)	170 (15%)
51	433 (39%)	247 (20%)	521 (37%)	585 (35%)	432 (23%)	872 (37%)	431 (18%)	605 (25%)	812 (19%)
No Quota	417 (28%)	257 (19%)	397 (27%)	435 (29%)	254 (17%)	678 (35%)	292 (19%)	389 (22%)	441 (28%)
Total	2,381 (37%)	2,143 (30%)	3,175 (41%)	2,977 (35%)	2,329 (26%)	4,956 (43%)	1,874 (17%)	3,212 (30%)	4,110 (27%)

Table 65. Minnesota bear permits, licenses, hunters, harvests, and success rates during 1987-98.

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Permit applications	19,687	25,879	24,096	24,861	25,890	26,428	27,365	30,127	29,922	30,405	27,353	30,245
Permits available	4,810	5,310	5,520	6,370	7,140	7,920	8,630	9,400	11,950	12,030	11,370	18,210
<b>Licenses purchased:</b>												
Quota area	4,213	4,297	4,628	5,568	6,257	6,845	7,528	8,125	10,304	10,592	9,655	15,451
No-quota area	1,789	1,297	1,145	1,472	1,384	1,460	1,508	1,438	1,930	1,521	1,615	1,796
% Permit-holders buying license	87.6	80.9	83.8	87.4	87.6	86.4	87.2	86.4	86.2	88.0	84.9	84.8
Estimated number of hunters	5,500	5,100	5,400	6,500	7,100 <sup>a</sup>	7,700 <sup>a</sup>	8,400 <sup>a</sup>	8,900 <sup>a</sup>	11,400 <sup>a</sup>	11,300 <sup>a</sup>	8,979 <sup>a</sup>	14,369 <sup>a</sup>
Harvest	1,577	1,509	1,930	2,381	2,143	3,175	2,976	2,329	4,956	1,874	3,150	4,110
% Success rate <sup>b</sup>	29	30	36	37	30	41	35	26	43	17	35	27

<sup>a</sup> In 1991 thru 1998 hunters in the No-quota area were not surveyed, so the percent of license-holders hunting in the quota 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.

<sup>b</sup> Based on harvest divided by the estimated number of people hunting.

Table 66. Success rates of Minnesota bear hunters as measured by registered harvest/licenses sold, 1989-98.

Area	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
12	31	29	32	36	27	34	49	23	33	30
13	46	37	34	36	32	34	59	22	35	31
22	16	13	18	21	13	16	14	2	16	6
24	32	30	34	45	32	26	32	10	29	26
25	33	32	39	47	33	27	40	12	35	27
26	47	40	38	40	39	30	59	15	37	38
31	38	38	39	55	34	27	47	13	37	28
41	28	39	23	28	28	31	50	13	31	25
44						24	43	16	24	25
45	39	34	24	36	37	14	24	13	17	15
51	35	39	20	37	35	23	37	18	25	19
No Quota Areas	-	28	19	27	29	17	35	19	25	28

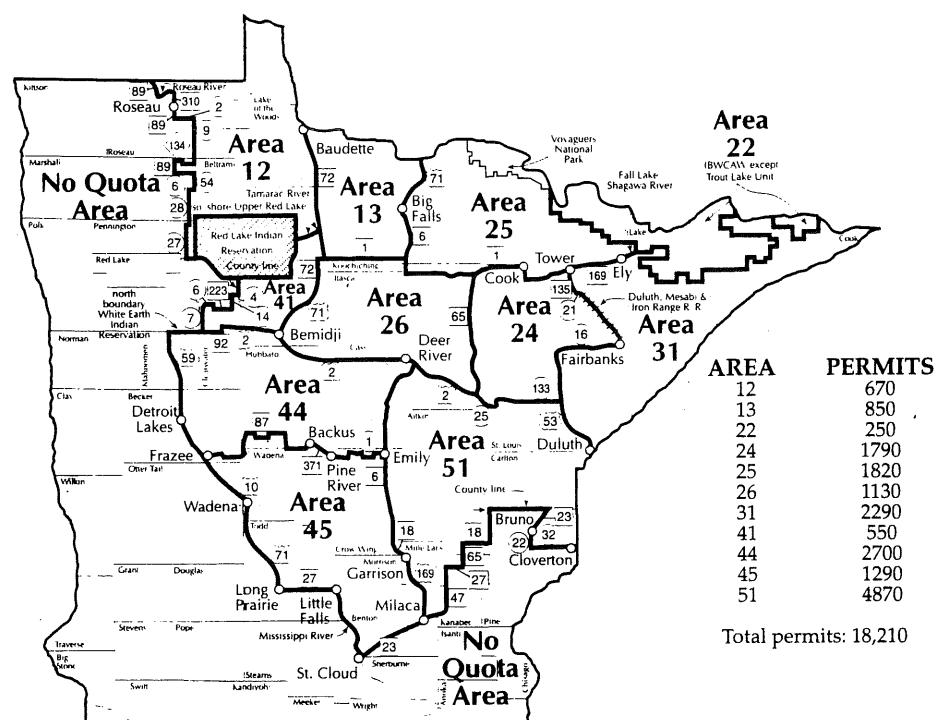


Figure 43. Black bear permit areas, 1998.

Table 67. Moose hunt quota and harvest statistics, 1977-98.

Year	Area	Number of 2,3 or 4-person licenses issued	Number of 2, 3 or 4-person license applications	Chances for permit	Harvest	Party success (%)	Sex of Moose	
							Male	Female
1977	NW	630	16,586	1:18	598	95	348 (58%)	250 (42%)
	NE	300			243	81	172 (71%)	71 (29%)
1979	NW	395	19,023	1:28	330	83	196 (59%)	134 (41%)
	NE	290			236	81	158 (67%)	78 (33%)
1981	NW	505	20,521	1:23	455	90	283 (62%)	172 (38%)
	NE	375			309	82	218 (71%)	91 (29%)
1983	NW	780	17,754	1:14	737	94	493 (67%)	244 (33%)
	NE	523			442	84	273 (62%)	169 (38%)
1985	NW	768	14,772	1:14	718	93	419 (58%)	299 (42%)
	NE	300			250	83	165 (66%)	85 (34%)
1987	NW	772	14,234	1:11	727	94	505 (69%)	222 (31%)
	NE	528			436	83	292 (67%)	144 (33%)
1989	NW	449	15,381	1:15	438	98	291 (66%)	147 (34%)
	NE	545			444	81	285 (64%)	159 (36%)
1991	NW	365	5,665	1:16	359	98	258 (72%)	101 (28%)
	NE	0			-	-		
1993	NW	446	9,925	1:13	419	94	317 (76%)	102 (24%)
	NE	315			264	84	200 (76%)	64 (24%)
1994	NW	262	11,351	1:25	245	93	166 (65%)	77 (32%)
	NE	189			155	82	115 (74%)	40 (26%)
1995	NW	191	10,753	1:28	172	90	112 (65%)	60 (35%)
	NE	188			156	83	129 (83%)	27 (17%)
1996	NW	39	16,899	1:69	38	97	31 (82%)	7 (18%)
	NE	207			156	75	123 (79%)	33 (21%)
1997	NW	0	10,110	1:51	152	77%	124 (82%)	28 (28%)
	NE	198			-	-		
1998	NW	0	10,534	1:58	125	69%	90 (72%)	36 (28%)
	NE	182			-	-		



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Table 68. Trapper response to mail surveys, 1979-80 through 1998-99.

Year	Number mailed	Number not delivered	Delivered questionnaires <u>completed and returned</u>	
			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
1994-95	2,382	76	1,876	81.5
1995-96	3,244	118	2,467	80.3
1996-97	4,071	132	3,017	76.6
1997-98	3,500	96	2,629	77.2
1998-99	3,900	117	2,878	76.4

Table 69. Use of trapper licenses, 1985-86 through 1998-99.

		Return from mail survey	Projections from license sales
1985-86	Trapped	420 ( 83.0%)	12,201
	Did not trap	<u>86 ( 17.0%)</u>	<u>2,498</u>
		<u>506 (100.0%)</u>	<u>14,699</u>
1986-87	Trapped	442 ( 86.0%)	13,240
	Did not trap	<u>72 ( 14.0%)</u>	<u>2,155</u>
		<u>514 (100.0%)</u>	<u>15,395</u>
1987-88	Trapped	512 ( 84.6%)	15,777
	Did not trap	<u>93 ( 15.4%)</u>	<u>2,866</u>
		<u>605 (100.0%)</u>	<u>18,643</u>
1988-89	Trapped	582 ( 80.1%)	9,789
	Did not trap	<u>145 ( 19.9%)</u>	<u>2,432</u>
		<u>727 (100.0%)</u>	<u>12,221</u>
1989-90	Trapped	2,251 ( 80.3%)	7,314
	Did not trap	<u>553 ( 19.7%)</u>	<u>1,794</u>
		<u>2,804 (100.0%)</u>	<u>9,108</u>
1990-91	Trapped	1,399 ( 80.6%)	4,972
	Did not trap	<u>337 ( 19.4%)</u>	<u>1,197</u>
		<u>1,736 (100.0%)</u>	<u>6,169<sup>a</sup></u>
1991-92	Trapped	1,639 ( 79.5%)	4,150
	Did not trap	<u>423 ( 20.5%)</u>	<u>1,070</u>
		<u>2,062 (100.0%)</u>	<u>5,220<sup>a</sup></u>
1992-93	Trapped	1,438 ( 85.5%)	4,927
	Did not trap	<u>243 ( 14.5%)</u>	<u>836</u>
		<u>1,681 (100.0%)</u>	<u>5,763<sup>a</sup></u>
1993-94	Trapped	1,904 ( 85.5%)	4,862
	Did not trap	<u>290 ( 13.2%)</u>	<u>739</u>
		<u>2,194 (100.0%)</u>	<u>5,601<sup>a</sup></u>
1994-95	Trapped	1,647 ( 87.8%)	6,054
	Did not trap	<u>228 ( 12.2%)</u>	<u>841</u>
		<u>1,875 (100.0%)</u>	<u>6,895<sup>a</sup></u>
1995-96	Trapped	2,053 ( 83.2%)	4,684
	Did not trap	<u>414 ( 16.8%)</u>	<u>946</u>
		<u>2,467 (100.0%)</u>	<u>5,630<sup>a</sup></u>
1996-97	Trapped	2,505 ( 84.8%)	5,660
	Did not trap	<u>450 ( 15.2%)</u>	<u>1,015</u>
		<u>2,955 (100.0%)</u>	<u>6,675<sup>a</sup></u>
1997-98	Trapped	2,310 ( 88.6%)	6,198
	Did not trap	<u>296 ( 11.4%)</u>	<u>798</u>
		<u>2,606 (100.0%)</u>	<u>6,996<sup>a</sup></u>
1998-99	Trapped	2,398 (88.6%)	5,541
	Did not trap	<u>480 (16.7%)</u>	<u>1,111</u>
		<u>2,878 (100.0%)</u>	<u>6,652<sup>a</sup></u>

<sup>a</sup> excludes duplicates.

Table 70. Estimated number of trappers of various furbearers, 1984-85 through 1998-99.

	Estimated number of trappers (thousands)														
	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Muskrat	13	9	11	15	7	4	2	2	3	3	4	3	4	4	3
Mink	9	8	9	13	7	5	3	2	3	3	3	2	3	3	3
Short-tailed weasel	1	<1	1	1	1	<1	<1	<1	<1	1	<1	<1	1	<1	<1
Long-tailed weasel	1	<1	1	2	1	1	<1	<1	<1	<1	<1	<1	<1	1	<1
Raccoon (Sept 98-Feb 99)	9	8	8	11	6	4	2	2	2	3	3	2	3	3	3
Raccoon (Mar 98-Aug 98) <sup>a</sup>											<1	<1	<1	<1	<1
Striped skunk	5	4	4	5	3	2	1	1	1	1	1	1	1	1	1
Eastern spotted skunk	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	Closed	Closed	Closed
Badger	1	1	1	1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Opossum	<1	1	1	2	1	1	1	1	1	1	1	1	1	1	1
Red fox (Sept 98-Feb 99)	6	5	5	6	4	2	2	2	2	2	2	2	2	2	1
Red fox (Mar. 98-Aug 98) <sup>a</sup>											<1	<1	<1	<1	<1
Gray fox	2	2	2	2	1	1	<1	<1	<1	<1	<1	<1	n.a.	<1	<1
Coyote	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1
Beaver (Oct 98 - Feb 99)	5	4	6	8	4	3	2	2	2	2	3	2	2	3	3
Beaver (Mar 98 - Apr 98)	3	4	4	4	2	2	1	1	1	1	2	1	2	2	2

<sup>a</sup> Raccoon and red fox season changed to year round beginning May, 1994.

Table 71. Estimated take per trapper of various furbearers, 1983-84 through 1998-99.

	Estimated take per successful 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	1994-95	1995-96	1996-97	1997-98	1998-99
Muskrat	76	75	52	73	69	28	27	24	20	36	64	90	70	55	58	42
Mink	7	8	8	9	9	9	9	10	8	12	12	12	11	11	11	13
Short-tailed weasel	5	4	3	4	5	4	5	3	4	5	6	12	10	9	10	7
Long-tailed weasel	4	2	2	5	4	5	5	3	5	4	4	6	5	5	5	5
Raccoon (Sept 98-Feb 99)	8	8	11	11	12	13	12	16	14	16	5	20	23	23	24	23
Raccoon (Mar 98-Aug 98) <sup>a</sup>												15	15	13	14	15
Striped skunk	9	9	10	10	10	10	10	12	9	8	9	8	8	10	10	9
Eastern spotted skunk	3	1	3	3	2	2	5	7	3	2	6	4	5	Closed	Closed	Closed
Badger	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Opossum	3	3	9	14	7	8	9	11	9	10	8	9	9	9	9	11
Red fox (Sept 98-Feb 99)	7	9	6	8	9	13	10	18	14	11	11	9	7	7	7	5
Red fox (Mar 98-Aug 98) <sup>a</sup>												9	5	4	4	3
Gray fox	3	3	4	3	3	4	3	3	2	4	3	2	2	n.a.	3	3
Coyote	5	5	5	4	3	4	4	3	4	5	5	4	5	4	3	3
Beaver (Oct 98-Feb 99)	7	10	10	12	16	11	15	13	15	13	16	18	14	16	16	16
Beaver (Mar 98 - Apr 98)	25	30	22	22	23	14	20	19	27	29	29	37	29	31	32	29

<sup>a</sup> Raccoon and red fox season changed to year round beginning May, 1994.

Table 72. Minnesota trapper license sales and estimated annual harvest, 1983-84 through 1998-99\*

	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Trapper license sales <sup>b</sup>	16,741	16,836	14,699	15,395	18,643	12,221	9,108	6,163	5,220	5,763	5,601	6,895	5,630	6,675	6,996	6,652
<b>Estimated harvest<sup>c</sup> (thousands)</b>																
Muskrat	865	963	477	826	1,007	185	118	55	45	92	202	355	195	202	194	131
Mink	58	75	57	77	110	59	40	25	21	32	33	40	26	35	34	36
Short-tailed weasel	2	3	1 <sup>d</sup>	3	7	3	2	1	1	1	2	6	4	4	4	2
Long-tailed weasel	1	1	1	3	7	3	2	1	1	1	1	3	2	2	2	2
Raccoon (Sept 98- Feb 99)	69	78	89	95	134	74	41	34	31	34	56	58	53	69	66	64
Raccoon (Mar 98-Aug 98) <sup>f</sup>													1	5	5	7
Striped skunk	36	47	41	42	54	31	17	15	10	7	9	9	8	11	11	9
Eastern spotted skunk <sup>e</sup>	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	closed	closed	closed
Badger	2	2	2	2	3	2	1	1	1	1	1	1	<1	1	1	<1
Opossum	2	1	7	14	10	9	6	6	5	6	5	5	6	6	6	7
Red fox (Sept 98- Feb 99)	42	58	29	40	57	53	25	33	25	23	22	24	14	13	12	6
Red fox (Mar 98-Aug 98) <sup>f</sup>													1	1	1	<1
Gray fox	5	5	6	6	5	5	2	1	1	1	1	1	n.a.	1	1	1
Coyote	9	10	7	7	7	3	4	3	3	4	4	5	3	3	3	2
Beaver (Oct 98- Feb 99)	30	51	43	71	132	47	48	24	25	22	29	49	25	38	36	39
Beaver (Mar 98-Apr 98)	101	103	92	101	26	-	31	20	26	34	32	64	41	48	47	55
<b>Registered harvest</b>																
Otter	408	529	559	777	1,386	922	1,294	88	855	1,368	1,459	2,445	1,435	2,219	2,145	1,946
Lynx <sup>e</sup>	9	closed	closed	closed	closed	closed	closed	closed	closed	closed	closed	closed	closed	closed	closed	closed
Bobcat <sup>e</sup>	208	280	119	160	214	140	129	84	106	168	201	238	134	223	359	103
Fisher	631	1,289	678	1,068	1,642	1,025	1,243	746	528	778	1,159	1,771	942	1,773	2,761	2,695
Marten	closed	closed	430	798	1,363	2,072	2,119	1,349	656	1,602	1,438	1,527	1,500	1,625	2,261	2,299

\* Includes data for all seasons from October through April of years indicated.

<sup>b</sup> Separate licenses were issued for juveniles (13-17 years old) and adults (18 and older), beginning in 1982. As of August 12, 1999, 6,652 trapping licenses were sold in 1998, 777 (11.7%) were juvenile licenses and 5,875 (88.3%) were adult licenses. Duplicate licenses excluded.<sup>c</sup> Based upon trappers' responses to mail surveys.<sup>d</sup> 1 is any number which rounds to 1. <1 is any number which is <0.5.<sup>e</sup> Registered harvest for bobcat includes animals taken by hunting.<sup>f</sup> Raccoon and red fox seasons changed to year round beginning May 1994.<sup>\*</sup> Lynx (1984) and Eastern spotted skunk (1996) listed as Special Concern and threatened species (respectively) and are fully protected.

Table 73. Average price per pelt paid to hunters and trappers in Minnesota, 1987-88 through 1998-99

Species	Average pelt prices paid hunters and trappers in Minnesota (dollars)											
	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Muskrat	3.12	2.07	0.80	0.75	1.55	1.35	1.35	1.61	1.53	3.49	2.24	1.11
Mink (male)	40.54	39.76	30.38	23.06	27.30	24.74	21.89	14.90	11.75	20.82	13.52	9.83
Mink (female)	20.25	22.70	17.26	14.73	17.36	15.02	12.18	11.43	8.56	13.71	9.65	6.11
S.T. Weasel	0.89	1.11	1.20	1.55	0.77	1.31	1.72	1.73	1.84	2.32	2.33	1.72
L.T. Weasel	1.02	1.04	1.25	0.58	1.21	1.06	1.05	2.05	1.24	3.33	2.67	2.05
Raccoon	16.67	7.53	4.88	4.19	8.57	7.29	8.26	9.02	9.40	15.16	13.92	7.25
Striped Skunk	2.47	1.90	1.31	1.84	1.47	2.69	3.70	3.52	3.21	2.11	3.18	4.72
Eastern Spotted Skunk	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Badger	5.74	2.99	2.91	4.33	3.51	4.20	4.62	6.12	6.33	8.49	6.53	6.30
Opossum	0.91	0.62	0.76	3.51	0.96	0.78	0.89	0.98	0.97	1.04	1.10	0.58
Red Fox	16.69	9.89	8.58	7.17	10.81	8.88	10.59	13.42	14.21	14.81	11.23	8.04
Gray Fox	22.56	11.45	7.39	5.16	5.22	6.73	6.55	9.69	7.49	9.00	7.69	5.63
Coyote	18.35	8.43	6.42	8.95	14.85	15.55	14.68	13.55	10.89	12.25	10.12	5.57
Lynx	- - - - - No Open Season - - - - -											
Bobcat	101.10	68.31	48.50	42.50	37.44	28.18	43.42	36.36	31.81	32.82	30.39	27.66
Beaver (fall-winter)	16.75	13.84	12.49	9.44	9.00	7.10	11.24	13.80	12.56	19.24	16.48	11.40
Beaver (spring)	17.12	12.62	10.99	9.66	9.25	7.89	9.41	14.48	10.96	19.14	17.39	14.06
Otter	22.85	22.02	22.01	24.21	24.74	29.90	43.14	47.50	38.76	38.75	39.81	34.03
Fisher (male)	84.36	53.83	26.15	34.85	21.46	15.73	14.17	19.06	16.17	25.48	31.09	18.92
Fisher (female)	170.31	99.63	52.92	46.25	47.93	28.79	28.40	29.93	24.90	34.47	33.65	21.76
Marten (male)	43.13	50.08	47.90	43.89	39.59	27.87	35.86	34.07	28.30	34.47	27.82	19.70
Marten (female)	39.20	43.46	46.88	40.84	27.24	24.96	29.58	28.34	21.42	29.26	21.79	16.12

REGISTERED FURBEARER HARVEST STATISTICS  
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Table 74. Registered furbearer harvests and total permits issued, 1985-98<sup>a</sup>.

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 <sup>b</sup>	--	106	2,360	528	2,020	686	2,282	855
1992 <sup>b</sup>	--	168	2,420	778	2,050	1,602	3,440	1,368
1993 <sup>b</sup>	--	201	2,299	1,159	1,925	1,438	2,254	1,459
1994 <sup>b</sup>	--	238	2,186	1,771	2,477	1,527	2,964	2,445
1995 <sup>b</sup>	--	134	2,520	942	2,268	1,500	2,579	1,435
1996 <sup>b</sup>	--	223	1,557	1,773	1,392	1,625	1,623	2,219
1997 <sup>b</sup>	--	359	2,517	2,761	2,517	2,261	2,543	2,145
1998 <sup>b</sup>	-	103	2,808	2,695	2,808	2,299	2,749	1,946

<sup>a</sup> 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.

<sup>b</sup> Confiscation and 1854 Authority removed.

# BOBCAT 1998-1999

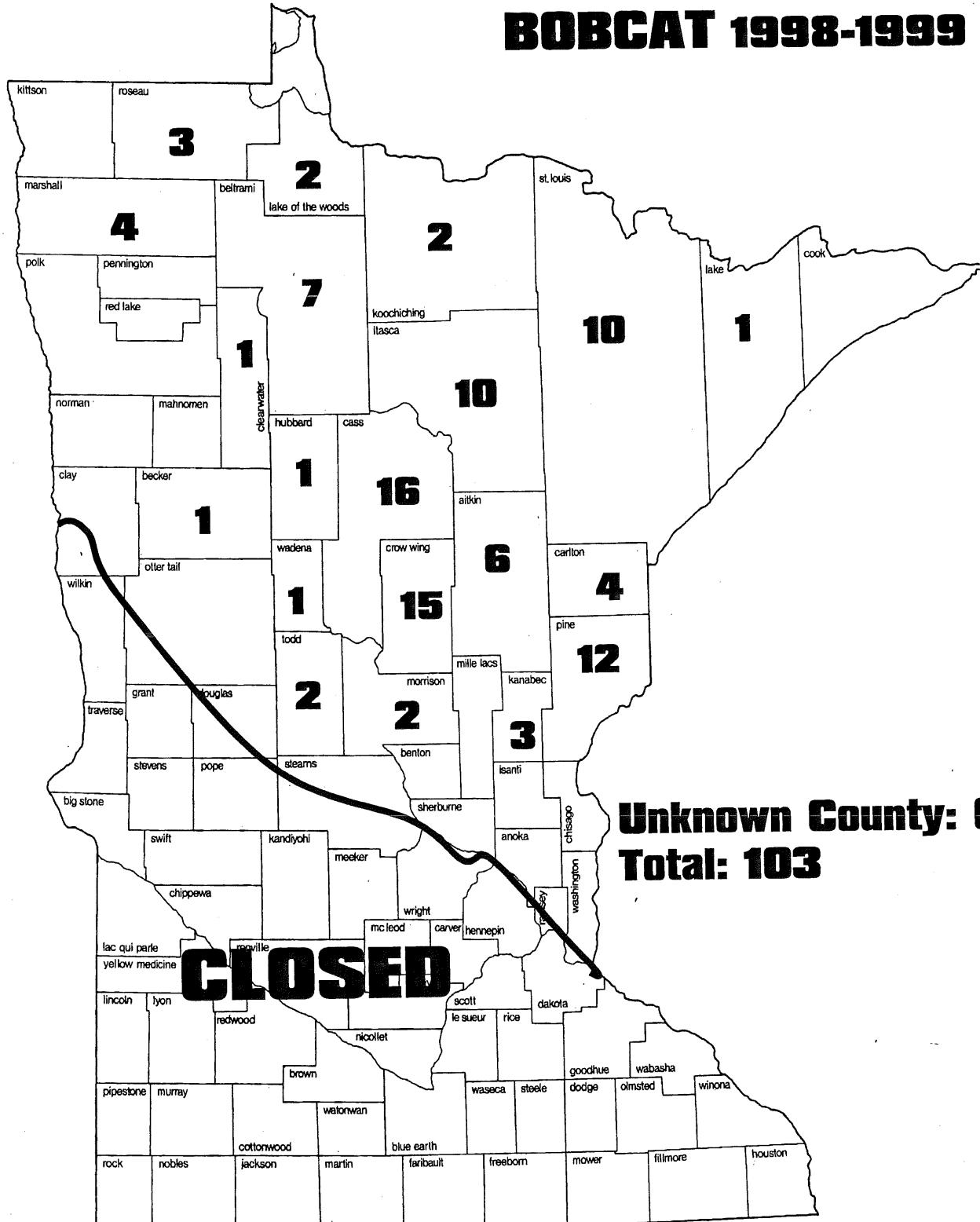


Figure 44. Bobcat harvest by county, 1998-1999

Table 75. Time distribution of bobcat harvest by 5-day increments, 1998-99 season.

Interval	Sex			Total	% of Known Total	Cumulative Percent
	M	F	U			
Nov. 28 -Dec. 2	9	118	2	29	29	29
Dec. 3- 7	13	19	-	32	32	61
Dec. 8-12	18	14	1	33	33	94
Dec. 13*	2	4	-	6	6	100
Unknown	1	2	-	3	-	-
Total	43	57	3	103	100	100

\* 1-day interval

Table 76. Distribution of bobcat harvest among takers, 1983-84 thru 1998-99.

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
1994-95	103 (68)	25 (17)	12 ( 8)	6 ( 4)	5 ( 3)	151
1995-96	67 (74)	13 (14)	5 ( 6)	4 (4)	2 (2)	91
1996-97	115 (73)	28 (18)	85 (5)	2 (1)	4 (3)	157
1997-98	129 (61)	43 (20)	17 (8)	12 (6)	9 (5)	210
1998-99	59 (77)	11 (14)	2 (3)	3 (4)	1 (2)	76
Total	1355(74)	329 (18)	204 (11)	70 ( 4)	37 ( 2)	1,833

Table 77. Bobcat harvest by method of take, 1982-1998.

Year	Total Harvest	Trapping				Hunting			
		Harvest	(% of Total)	Takers	Average Take	Harvest	(% of Total)	Takers	Average Take
1982	274	239	(87)	147	1.6	35	(13)	23	1.5
1983	208	168	(81)	118	1.4	40	(19)	32	1.3
1984	280	252	(90)	156	1.6	28	(10)	22	1.3
1985	119	83	(70)	62	1.3	36	(30)	27	1.3
1986	160	119	(74)	89	1.3	41	(26)	31	1.3
1987	214	177	(83)	118	1.5	37	(17)	26	1.4
1988	140	94	(67)	76	1.2	46	(33)	32	1.4
1989	129	90	(70)	49	1.8	39	(31)	28	1.4
1990	84*	61	(73)	43	1.4	22	(26)	17	1.3
1991	106*	59	(56)	31	1.9	43	(41)	33	1.3
1992	168	133	(80)	85	1.6	35	(20)	23	1.5
1993	201	147	(73)	88	1.7	54	(27)	41	1.3
1994	238	189	(80)	120	1.6	49	(21)	31	1.6
1995	134	73	(55)	53	1.4	61	(46)	38	1.6
1996	223	133	(60)	91	1.5	70	(31)	53	1.3
1997	359	313	(87)	176	1.8	44	(13)	34	1.3
1998	103	95	(92)	67	1.4	8	( 8)	8	1.0

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

Table 78. Comparison of bobcat harvest by county, 1989-90 through 1998-99.

County	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99
Aitkin	31	4	3	22	28	14	12	20	19	6
Becker	1	3	5	1	1	7	5	4	10	1
Beltrami	8	4	6	8	15	23	6	20	37	7
Benton	-	-	1	0	0	0	1	0	0	0
Carlton	1	1	2	10	5	8	5	14	18	4
Cass	27	11	14	27	16	31	10	22	64	16
Chisago	0	0	0	0	0	0	0	0	0	0
Clearwater	2	0	0	5	2	7	6	3	14	1
Cook	2	3	0	0	1	0	2	0	0	0
Crow Wing	0	5	4	6	3	8	5	5	8	15
Hubbard	1	1	3	3	2	4	2	4	19	1
Isanti	1	0	0	0	0	0	0	0	0	0
Itasca	19	11	16	35	39	51	20	51	45	10
Kanabec	6	1	0	4	7	3	1	6	13	3
Kittson	0	3	3	3	1	3	3	1	0	0
Koochiching	1	0	5	5	3	6	1	23	14	2
Lake	1	0	1	5	1	0	2	0	0	1
Lake of the Woods	0	0	0	0	0	2	0	2	0	2
Mahnomen	-	-	-	-	-	-	1	0	2	0
Marshall	0	1	5	0	6	4	2	5	28	4
Mille Lacs	0	3	7	3	1	5	3	0	0	0
Morrison	2	2	2	5	14	5	6	5	1	2
Ottertail	1	0	1	0	2	0	0	0	2	0
Pennington	0	0	0	0	0	0	0	2	1	0
Pine	15	18	16	11	29	26	23	20	23	12
Polk	0	0	0	0	0	0	0	1	1	0
Roseau	0	2	1	3	5	9	1	5	15	3
St. Louis	7	8	3	8	10	15	7	7	14	10
Todd	-	-	-	-	-	-	-	-	-	2
Wadena	2	2	2	0	2	0	2	1	5	1
Unknown	1	1	6	5	8	7	8	2	4	0
Total	129	84	106	168	201	238	134	223	357	103

## FISHER 1998-1999

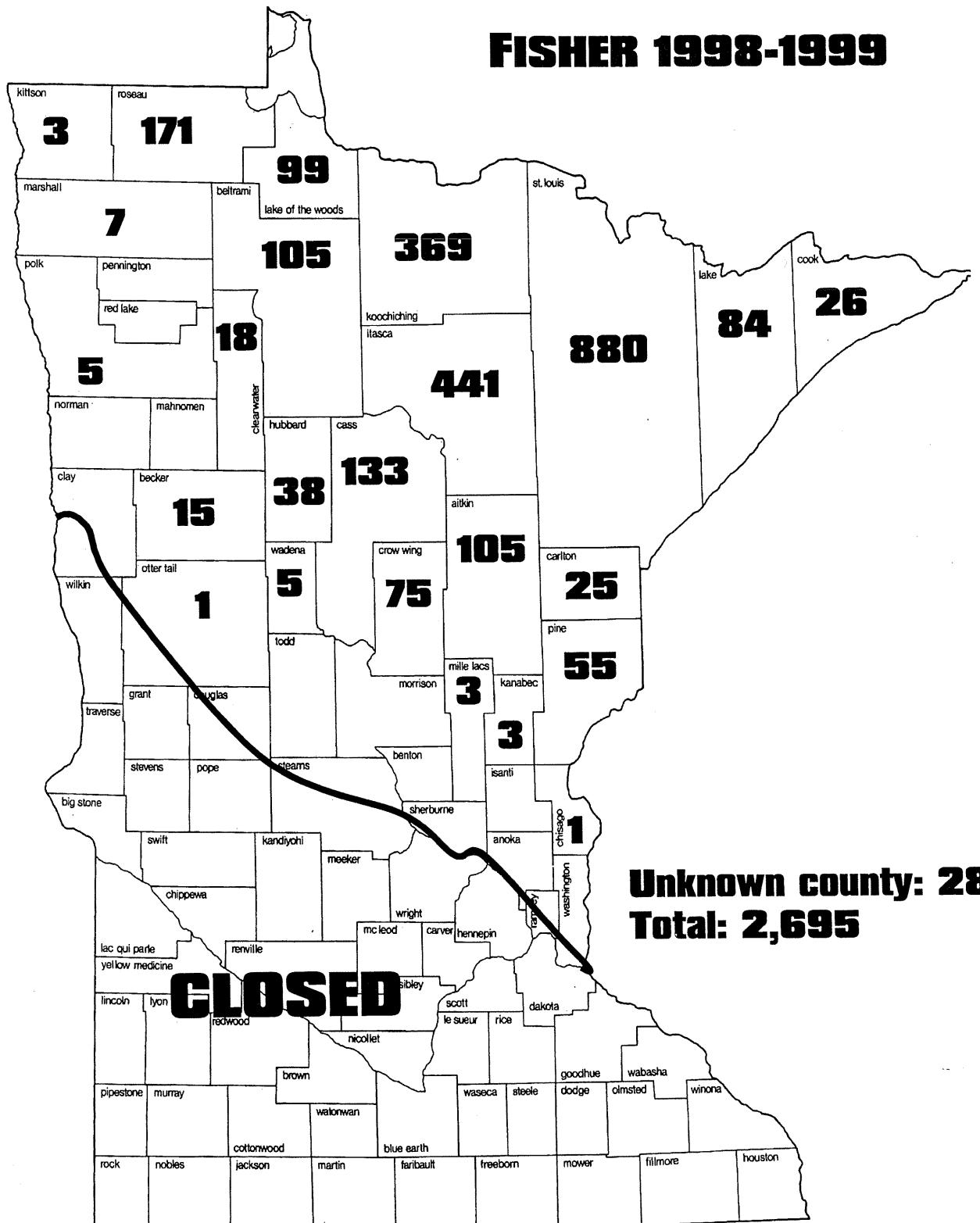


Figure 45. Fisher harvest by county, 1998-1999.

Table 79. Fisher harvest by date and sex, 1998-99 season.

Date	Sex			Total	% of known Cumulative	
	Male	Female	Unknown		Total	Percent
Nov. 28	6	3	1	10	-	-
Nov. 29	68	59	-	127	5	5
Nov. 30	74	80	1	155	6	11
Dec. 1	126	91	1	218	8	21
Dec. 2	81	99	2	182	7	28
Dec. 3	83	90	2	175	7	35
Dec. 4	109	75	2	186	7	42
Dec. 5	166	143	4	313	12	54
Dec. 6	108	117	1	226	9	63
Dec. 7	81	83	2	166	6	69
Dec. 8	81	82	3	166	6	75
Dec. 9	81	79	2	162	6	81
Dec. 10	71	74	1	146	6	87
Dec. 11	51	53	-	104	4	91
Dec. 12	90	77	1	168	6	97
Dec. 13	48	51	-	99	3	100
Unknown	40	49	3	92	--	--
Total	1,364	1,305	26	2,695	100	100

Table 80. Fisher harvest by county and sex, 1998-99 season.

County	Sex			Total
	Male	Female	Unknown	
Aitkin	52	47	6	105
Becker	8	7	0	15
Beltrami	60	45	0	105
Carlton	15	10	0	25
Cass	72	60	1	133
Chisago	0	1	0	1
Clearwater	11	7	0	18
Cook	15	11	0	26
Crow Wing	42	33	0	75
Hubbard	22	16	0	38
Itasca	233	196	12	441
Kanabec	1	2	0	3
Kittson	3	0	0	3
Koochiching	177	192	0	369
Lake	34	50	0	84
Lake of the Woods	55	44	0	99
Mahnomen	0	0	0	0
Marshall	4	3	0	7
Mille Lacs	2	1	0	3
Ottertail	1	0	0	1
Pennington	0	0	0	0
Pine	27	28	0	55
Polk	3	2	0	5
Red Lake	0	0	0	0
Roseau	86	84	1	171
St. Louis	421	453	6	880
Todd	0	0	0	0
Wadena	3	2	0	5
Unknown	17	11	0	28
Total	1,364	1,305	26	2,695

Table 81. Comparison of fisher harvest by county, 1987-98.

County	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Aitkin	24	14	26	17	8	15	17	23	26	58	86	105
Becker	2	4	4	5	4	6	4	22	17	15	25	15
Beltrami	115	68	78	34	34	34	44	103	27	84	140	105
Carlton	6	3	2	3	3	8	12	14	14	10	45	25
Cass	60	24	43	34	30	33	57	100	58	142	212	133
Chisago												1
Clearwater	3	1	3	3	2	3	3	13	0	6	31	18
Cook	29	29	10	14	4	17	17	16	12	12	24	26
Crow Wing	14	3	12	12	14	18	23	30	24	32	65	75
Hubbard	9	6	8	4	6	7	6	8	15	30	66	38
Itasca	247	135	184	99	73	76	177	299	116	291	477	441
Kanabec	0	1	0	0	0	2	0	1	0	6	7	3
Kittson	4	2	1	2	1	0	1	1	0	0	7	3
Koochiching	303	128	211	77	96	97	148	250	92	232	386	369
Lake	114	78	80	78	17	57	82	99	43	60	123	84
Lake of the Woods	91	66	58	27	21	26	8	43	4	30	59	99
Mahnomen	0	5	0	0	0	0	1	1	0	0	0	0
Marshall	19	7	4	3	2	3	7	9	2	4	21	7
Mille Lacs										6	0	3
Norman	1 <sup>a</sup>	1 <sup>a</sup>	-----closed-----									0
Pennington	0	1	0	0	0	0	0	1	0	1	1	0
Pine	1	1	3	2	0	3	17	23	20	24	34	55
Polk	0	1	0	0	0	0	1	2	3	3	6	5
Red Lake	1	0	0	0	1	0	1	0	0	2	5	0
Roseau	90	68	53	32	21	32	68	93	26	89	134	171
St. Louis	509	377	463	279	187	229	463	616	153	604	783	880
Todd											2	0
Wadena									1	2	10	5
Unknown	0	3	0	21	4	112	2	5	289	30	12	28
Total	1642	1025	1243	746	528	778	1,159	1,771	942	1,773	2,761	2,695

<sup>a</sup> The reported harvest for 1987 and 1988 is accidental take - Norman County is closed to fisher trapping.

# MARTEN 1998-1999

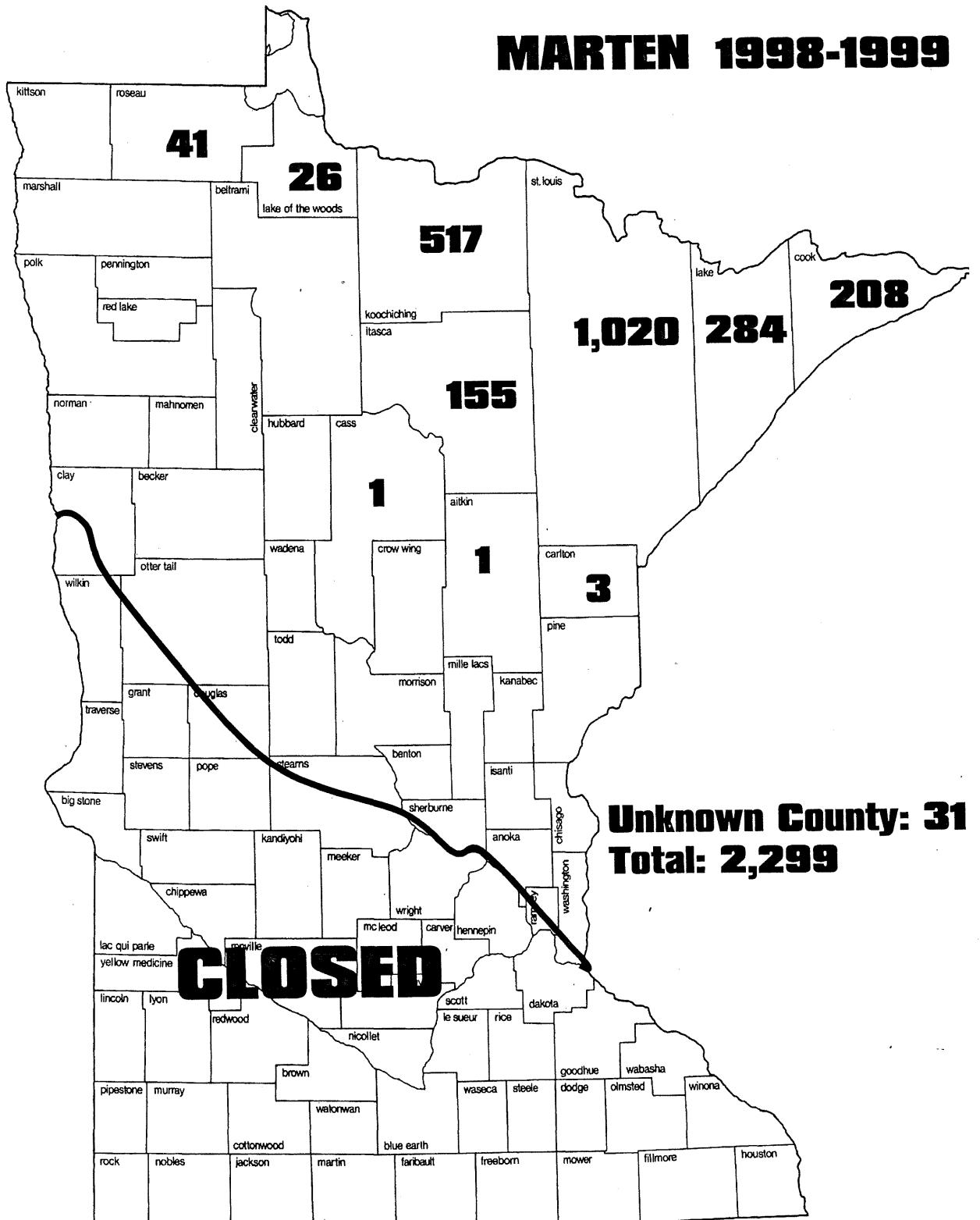


Figure 46. Marten harvest by county, 1998-1999

Table 82. Marten harvest by date and sex, 1998-99 season.

Date	Sex			Total	% of Known Total	Cumulative Percent
	Male	Female	Unknown			
Nov. 28	15	3	0	18	1	1
Nov. 29	174	64	3	241	11	12
Nov. 30	143	54	0	197	9	21
Dec. 1	117	69	1	187	8	29
Dec. 2	88	56	0	144	6	35
Dec. 3	82	54	0	136	6	51
Dec. 4	96	44	0	140	6	47
Dec. 5	148	108	1	257	12	59
Dec. 6	132	68	1	201	9	68
Dec. 7	61	46	2	109	5	73
Dec. 8	75	42	0	117	5	78
Dec. 9	77	50	2	129	6	84
Dec. 10	68	42	0	110	5	89
Dec. 11	51	28	0	79	4	93
Dec. 12	55	38	0	93	4	97
Dec. 13	33	24	0	57	3	100
Unknown	63	20	1	84	-	-
Total	1,478	810	11	2,299	100	100

Table 83. Marten harvest by county and sex, 1998-99 season.

County	Sex			Total
	Male	Female	Unknown	
Aitkin	1	0	0	1
Beltrami	6	6	0	12
Carlton	1	2	0	3
Cass	0	1	0	1
Cook	149	59	0	208
Itasca	92	61	2	155
Koochiching	318	198	1	517
Lake	186	95	3	284
Lake of the Woods	17	9	0	26
Roseau	22	19	0	41
St. Louis	666	349	5	1,020
Unknown	20	11	0	31
Total	1,478	810	11	2,299

Table 84. Comparison of marten harvest by county, 1988-98.

County	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Aitkin					Closed						1
Beltrami	0	0	0	0	1	0	1	0	2	12	12
Carlton					Closed						3
Cass					Closed						1
Cook	305	288	178	69	180	133	164	156	116	195	208
Itasca	11	18	16	12	28	43	41	26	83	164	155
Koochiching	266	204	123	115	206	232	313	251	382	597	517
Lake	457	481	446	123	357	252	299	252	234	287	284
Lake of the Woods	1	0	0	0	0	1	2	0	0	12	26
Roseau					Closed						41
St. Louis	1,032	1,123	567	336	666	771	707	396	797	980	1,020
Unknown	0	5	19	1	164	6	0	419	11	14	31
Total	2,072	2,119	1,349	656	1,602	1,438	1,527	1,500	1,625	2,261	2,299

## OTTER 1998-1999

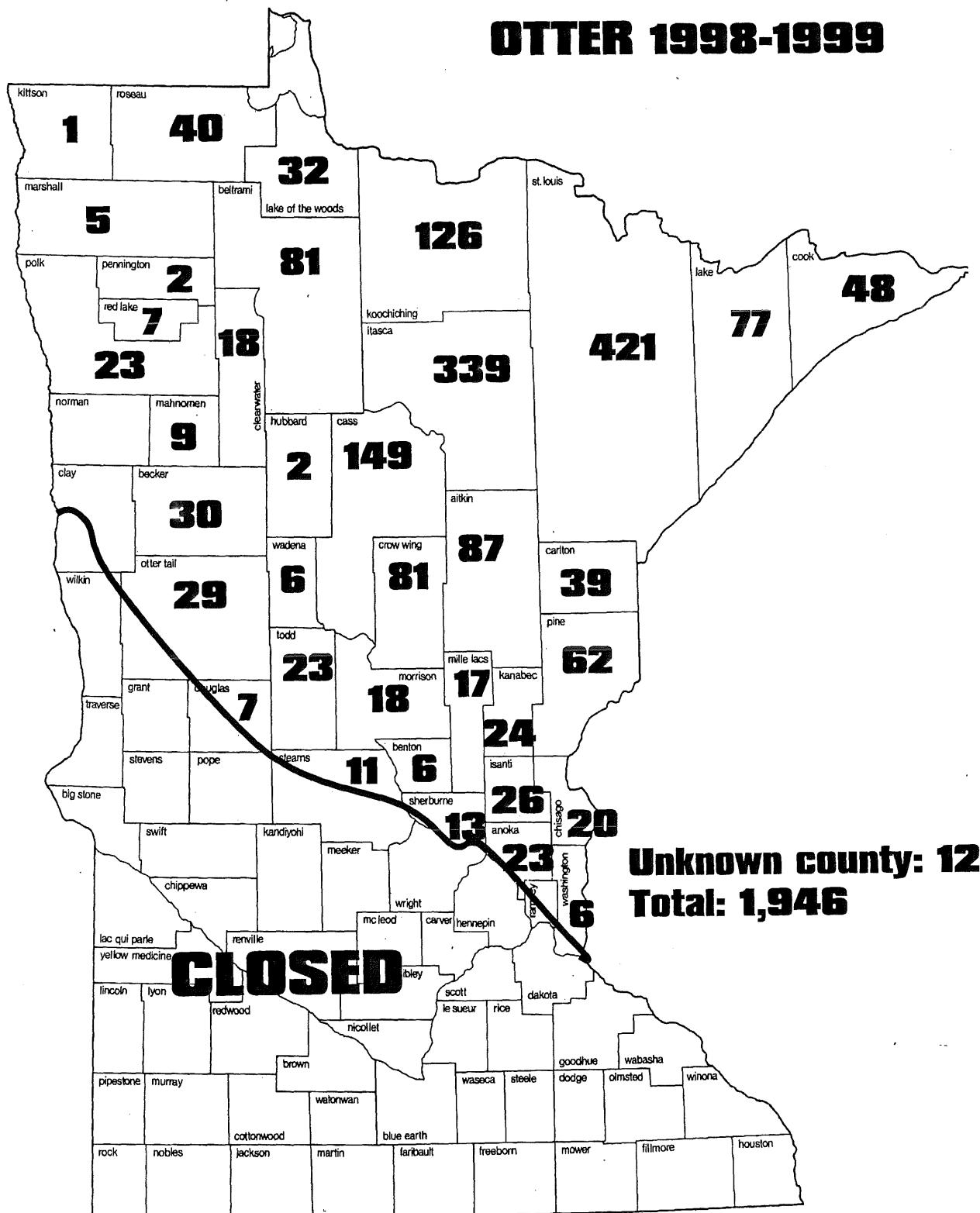


Figure 47. Otter harvest by county, 1998-1999.

Table 85. Otter harvest by 5-day interval and sex, 1998-99 season.

Interval	Sex			Total	% of Known Total	Cumulative Percent
	Male	Female	Unknown			
Oct. 24-28	42	42	4	88	5	5
Oct. 29-Nov. 2	114	93	9	216	12	17
Nov. 3-7	146	106	10	262	14	31
Nov. 8-12	82	62	2	146	8	39
Nov. 13-17	61	69	2	132	7	46
Nov. 18-22	57	44	0	101	5	51
Nov. 23-27	61	50	0	111	6	57
Nov. 28-Dec. 2	116	94	2	212	11	68
Dec. 3-7	129	100	0	229	12	80
Dec. 8-12	84	58	0	142	8	88
Dec. 13-17	36	33	2	71	4	92
Dec. 18-22	40	45	1	86	5	97
Dec. 23-27	19	20	0	39	2	99
Dec. 28-Jan. 1	7	14	0	21	1	100
Jan. 2-3*	5	4	0	9	0	100
Unknown	31	45	5	81	-	-
Total	1,030	879	37	1,946	100	100

\* 2-day interval.

Table 86. Otter harvest by county and sex, 1998-99 season.

County	Sex			Total
	Male	Female	Unknown	
Aitkin	37	45	5	87
Anoka	10	13	0	23
Becker	16	14	0	30
Beltrami	40	41	0	81
Benton	2	4	0	6
Carlton	13	26	0	39
Cass	87	62	0	149
Chisago	9	11	0	20
Clay	0	0	0	0
Clearwater	9	9	0	18
Cook	25	23	0	48
Crow Wing	44	37	0	81
Douglas	3	4	0	7
Hubbard	17	11	0	28
Isanti	11	15	0	26
Itasca	179	144	16	339
Kanabec	11	13	0	24
Kittson	0	0	1	1
Koochiching	71	54	1	126
Lake	41	34	2	77
Lake of the Woods	17	15	0	32
Mahnomen	3	6	0	9
Marshall	2	3	0	5
Mille Lacs	8	9	0	17
Morrison	9	9	0	18
Norman	0	0	0	0
Ottertail	15	13	1	29
Pennington	2	0	0	2
Pine	33	27	2	62
Polk	13	10	0	23
Red Lake	3	4	0	7
Roseau	27	13	0	40
St. Louis	241	175	5	421
Sherburne	4	9	0	13
Stearns	5	6	0	11
Todd	13	10	0	23
Wadena	3	3	0	6
Washington	4	2	0	6
Unknown	3	5	4	12
Total	1,030	879	37	1,946

Table 87. Comparison of otter harvest by county, 1987-1998.

County	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Aitkin	55	57	62	49	44	78	70	83	57	78	95	87
Anoka	2	8	21	14	7	14	18	20	13	13	21	23
Becker	41	55	49	32	21	36	38	62	64	54	85	30
Beltrami	125	87	92	74	93	97	91	166	59	133	133	81
Benton	0	1	0	1	1	0	4	5	0	1	4	6
Carlton	24	12	13	25	23	39	38	40	17	33	43	39
Cass	147	84	130	73	67	107	114	184	124	184	189	149
Chisago	11	9	8	10	5	9	17	26	9	13	20	20
Clay										2	7	0
Clearwater	19	5	13	6	14	14	27	52	13	57	25	18
Cook	33	25	31	24	30	28	44	53	37	28	29	48
Crow Wing	57	31	65	40	41	83	75	111	59	73	84	81
Douglas									2	5	7	7
Hubbard	36	19	39	45	34	44	30	43	48	89	95	28
Isanti	24	12	17	7	5	10	19	20	10	17	29	26
Itasca	199	141	207	108	110	193	259	432	245	383	371	339
Kanabec	28	31	30	18	11	24	32	57	13	20	43	24
Kittson	0	0	0	0	0	1	0	1	1	0	2	1
Koochiching	77	48	59	31	59	52	65	147	68	139	109	126
Lake	61	33	40	26	21	91	44	76	33	62	57	77
Lake of the Woods	39	16	11	6	21	15	1	20	9	16	24	32
Mahnomen	5	8	13	8	0	0	2	21	18	11	6	9
Marshall	1	1	3	0	2	6	7	13	3	14	14	5
Mille Lacs	28	17	12	7	10	5	16	40	7	27	18	17
Morrison	17	9	13	12	3	16	13	34	12	20	25	18
Norman	1	6	1	1	0	0	0	0	4	3	1	0
Ottertail	1	1	3	5	4	5	10	10	19	14	41	29
Pennington	1	0	1	1	1	0	0	0	0	5	6	2
Pine	70	41	64	49	12	76	52	92	59	72	73	62
Polk	7	8	10	7	12	14	28	33	36	45	35	23
Ramsey	0	0	0	1	0	0	0	0	0	0	0	0
Red Lake	1	0	4	0	5	2	5	8	1	9	9	7
Roseau	12	9	13	6	7	14	11	29	3	24	41	40
St. Louis	256	135	248	180	159	187	286	507	148	473	332	421
Sherburne	1	4	5	0	1	8	7	11	10	12	15	13
Stearns									3	15	15	11
Todd	0	0	3	0	0	0	1	1	19	22	22	23
Wadena	4	1	7	5	7	2	4	3	9	14	8	6
Washington	3	3	4	3	1	3	0	1	0	7	4	6
Unknown	0	5	3	12	24	91	31	44	203	32	8	12
Total	1,386	992	1,294	888	855	1,368	1,459	2,445	1,435	2,219	2,145	1,946

