

Status of Wildlife Populations,
Fall 1992 and 1981-1991 Hunting
and Trapping Harvest Statistics

compiled by
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St. Paul, Minnesota

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

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Status of Wildlife Populations, Fall 1992

and

1981-91 Hunting and Trapping Harvest Statistics

This is the 16th year that the Wildlife Populations and Research Unit has compiled this booklet; it is primarily an administrative document intended for DNR personnel. (Since 1984 we have also generated a companion volume containing annual summaries of activities and findings from each ongoing research project in the Unit).

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

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

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

CONTENTS

Wildlife populations and surveys

Farmland wildlife	1
Predator Scent Post Survey	31
Forest wildlife	35
Migratory birds	57
Nongame wildlife	73

Harvest statistics

Hunting	77
Trapping	107
Registered furbearers	115

Index

August farmland roadside survey	
1992 data	3-9, 14
historical summary	10-13, 15-19
Badger	
hunting	
harvest	82
number of hunters	81
take per hunter	81
pelt prices	113
survey, August roadside	9
trapping	
harvest	112
number of trappers	111
take per trapper	111
Bear	
hunting	
harvest by county	100, 101
hunter-days	102
methods	104
number of hunters	102
permits issued	102
success by hunting method	104
success by permit area	103
management units	103
survey, scent post indices	34
Beaver	
pelt prices	113
survey, fall aerial	
route locations	42
live colonies per mile	42, 43
trapping	
harvest	112
number of trappers	111
take per trapper	111
Black duck	
hunting	
harvest, Minnesota, 1990-91	85
Black duck & mallard	
hunting	
harvest, Minnesota, 1990-91	85

Bobcat	
carcass examination data	45
harvest	
by county	118, 122
by method of take	121
distribution among takers by year	120
distribution by 5-day increments	119
registered take	45, 112, 117
pelt prices	45, 113
population data	45
population model	44
scent post indices	34, 45
Bufflehead	
hunting	
harvest, Minnesota, 1990-91	85
Canvasback	
breeding populations, North America	64, 65
hunting	
harvest, Minnesota, 1990-91	85
Cat, domestic	
survey, scent post indices	34
Coot, American	
hunting	
harvest	82
number of hunters	81
take per hunter	81
Cottontail, eastern	
hunting	
harvest	82
number of hunters	81
take per hunter	81
survey	
August roadside	8-9
historical August roadside summary	10, 12, 17
Coyote	
hunting	
harvest	82
number of hunters	81
take per hunter	81
Crane, sandhill	
survey, August roadside	9
Deer, white-tailed	
farmland/transition zone	
management units	21
productivity	22-23
spring population densities, estimates	24-27
survey, August roadside	8-9, 13
forest zone	
management units	52
spring population modeling, density estimates	53

Deer, white-tailed (continued)	
hunting	
antlerless permits issued	92
archery harvest by county	93-94
licenses sold (bonus deer)	89
licenses sold (firearms)	89, 91
licenses sold (archery)	89, 91
muzzleloader harvest	90, 95-99
registered harvest	90-91
success rates	90, 92
Dog, domestic	
survey, scent post indices	34
Dove, mourning	
survey	
August roadside	8-9
historical August roadside summary	10, 13, 19
Duck stamp sales	
Minnesota (federal and state).	82
Ducks	
breeding populations	
Minnesota	56-60
North America	64-65
Fall flight forecast	
Canada and United States	66
Mississippi flyway	67
hunting	
harvest	
Minnesota	82
nonresidents in Minnesota	84
per hunter, Minnesota, 1982-91	81
top 10 states, 1991	86
number of hunters	
Minnesota	81
nonresidents in Minnesota	84
top 10 states, 1991	86
Eagle, bald	
nesting activity, 1990	75
historical nesting data	76
Ermine (see Weasel, short-tailed)	
Fisher	
carcass examination data	49
pelt prices	49, 113
population data	49
population model	48
trapping	
permits issued	117
registered take	49, 112, 117
take by county	123, 126
take by county and sex	125
take by date and sex	124

Fox, gray	
hunting	
harvest	82
number of hunters	81
take per hunter	81
pelt prices	113
survey, August roadside	9
trapping	
harvest	112
number of trappers	111
take per trapper	111
Fox, red	
hunting	
harvest	82
number of hunters	81
take per hunter	81
pelt prices	113
survey	
August roadside	9
scent post indices	34
trapping	
harvest	112
number of trappers	111
take per trapper	111
Gadwall	
breeding populations, North America	64-65
hunting	
harvest, Minnesota, 1990-91	85
Gallinules (see Rails and Gallinules)	
Geese, other than Canada	
hunting	
harvest, Minnesota	82
number of hunters	81
take per hunter	81
Geese, Canada	
hunting	
harvest, Minnesota	82
number of hunters, Minnesota	81
number of hunters, nonresident in Minnesota	84
take per hunter, Minnesota	81
take per nonresident hunter	84
winter population estimates	
Eastern Prairie Population, 1963-1991	61-62
Goldeneye	
hunting	
harvest, Minnesota, 1990-91	85

Grouse, ruffed	
hunting	
harvest	82
number of hunters	81
number of nonresident hunters	84
take per hunter	81
take per nonresident hunter	84
survey, Spring drumming	37-39
Grouse, sharp-tailed	
hunting	
harvest	82
number of hunters	81
take per hunter	81
survey	
August roadside	9
Spring dancing ground	40
Grouse, spruce	
hunting	
harvest	82
number of hunters	81
take per hunter	81
Hare, snowshoe	
hunting	
harvest	82
number of hunters	81
take per hunter	81
survey	41
Hunters, deer	
antlerless permits issued	92
hunting success	90, 92
licenses sold (firearms, archery, bonus)	89, 91
Hunters, small game	
harvest	82
license sales	82, 83
mail survey response	79, 80
numbers hunting and not hunting	80
take per hunter	81
Hunters, nonresident small game	
harvest	84
licenses sold	84
mail survey response	84
Hunters, waterfowl	
ducks retrieved per hunter-day	
Minnesota	86
Mississippi flyway	86
top 10 states	86
United States	86
duck stamp sales, Minnesota	82
harvest by species, Minnesota	85

Hunters, waterfowl (continued)	
hunter-days	
Minnesota	86
Mississippi flyway	86
top 10 states	86
United States	86
number of hunters	
Minnesota	86
Mississippi flyway	86
nonresidents in Minnesota	84
top 10 states	86
United States	86
Jackrabbit, white-tailed	
hunting	
harvest	82
number of hunters	81
take per hunter	81
survey	
August roadside	8-9
historical August roadside summary	10, 12, 18
Lynx	
pelt prices	113
trapping	
registered harvest, 1981-91	112
Mallard (domestic)	
hunting	
harvest, Minnesota	85
Mallard (wild)	
breeding populations	
Minnesota	59, 60
North America	64-65
hunting	
harvest, Minnesota, 1990-91	85
Marten, pine	
carcass examination data	51
pelt prices	51, 113
population data	51
population model	50
trapping	
permits issued	117
registered harvest	51, 112, 117
take by county	127, 129
take by county and sex	129
take by date and sex	128
Merganser, hooded	
hunting	
harvest, Minnesota, 1990-91	85
Merganser, other than hooded	
hunting	
harvest, Minnesota, 1990-91	85

Mink	
pelt prices	113
trapping	
harvest	112
number of trappers	111
take per trapper	111
Moose	
hunting, 1971-91	
harvest	105
license applications	105
licenses issued	105
party success	105
sex ratio of moose killed	105
survey, aerial	
area boundaries	54
population estimates	54, 55
Muskrat	
pelt prices	113
trapping	
harvest	112
number of trappers	111
take per trapper	111
Opossum	
pelt prices	113
trapping	
harvest	112
number of trappers	111
take per trapper	111
Otter	
carcass examination data	47
pelt prices	47, 113
population data	47
population model	46
trapping	
permits issued	117
registered take	47, 112, 117
take by county	130, 133
take by county and sex	132
take by date and sex	131
Partridge, gray	
hunting	
harvest	82
number of hunters	81
take per hunter	81
survey	
August roadside	7, 9, 14
historical August roadside summary	9-11, 16
Pelt prices of furbearers, 1977-78 thru 1991-92	113

Pheasant, ring-necked	
hunting	
harvest	82
harvest by nonresident hunters	84
number of hunters	81
number of nonresident hunters	84
take per hunter	81
take per nonresident hunter	84
survey	
August roadside	
agricultural region data	3-5
broods	
observed per 100 miles driven	6
observed per 100 hens	6
mean size	6
cocks observed per 100 miles driven	6
county data	4-5
hatch date	14
hens observed per 100 miles driven	6
historical August roadside summary	9-11, 15
Pheasant stamp sales	82
Pintail	
breeding populations, North America	64-66
hunting	
harvest, Minnesota, 1989-90	85
Ponds, May (North Central U.S. and Prairie Canada)	63-64
Prairie chicken, greater	
survey	
August roadside	9
Spring booming grounds, 1982-92	20
Predator scent post survey	
indices	34
route locations	33
Rabbit (see Cottontail, eastern; Hare, snowshoe; and	
Jackrabbit, white-tailed)	
Raccoon	
hunting	
harvest	82
harvest by nonresident hunters	84
number of hunters	81
number of nonresident hunters	84
take per hunter	81
take per nonresident hunter	84
pelt prices	113
trapping	
harvest	112
number of trappers	111
take per trapper	111
survey, scent post indices	34

Rails/gallinules		
hunting		
harvest	82	
number of hunters	81	
take per hunter	81	
Redhead		
breeding populations, North America	64-65	
hunting		
harvest, Minnesota, 1990-91	85	
Registered furbearers		
harvest	45, 47, 49, 51, 112, 117-133	
permits issued	117	
population data	44-51	
Ring-necked duck		
hunting		
harvest, Minnesota, 1990-91	85	
Ruddy duck		
hunting		
harvest, Minnesota, 1990-91	85	
Scaup, greater		
breeding populations, North America	64-65	
hunting		
harvest, Minnesota, 1990-91	85	
Scaup, lesser		
breeding populations, North America	64-65	
hunting		
harvest, Minnesota, 1990-91	85	
Scent post survey (see Predator scent post survey)		
Scoter		
hunting		
harvest, Minnesota, 1990-91	85	
Shoveler, northern		
breeding populations, North America	64-65	
hunting		
harvest, Minnesota, 1990-91	85	
Skunk, spotted		
pelt prices	113	
survey, August roadside	9	
trapping		
harvest	112	
number of trappers	111	
take per trapper	111	

Skunk, striped	
pelt prices	113
survey	
August roadside	9
scent post indices	34
trapping	
harvest	112
number of trappers	111
take per trapper	111
Snipe, common	
hunting	
harvest	82
number of hunters	81
take per hunter	81
Squirrel, fox	
hunting	
harvest	82
number of hunters	81
take per hunter	81
survey, August roadside	9
Squirrel, gray	
hunting	
harvest	82
number of hunters	81
take per hunter	81
survey, August roadside	9
Teal, blue-winged	
breeding populations	
Minnesota	59-60
North America	64-65
hunting	
harvest, Minnesota, 1990-91	85
Teal, green-winged	
breeding populations, North America	64-65
hunting	
harvest, Minnesota, 1990-91	85
Trappers	
harvest	112
license sales	112
mail survey response	109-110
number trapping	110-111
take per trapper	111
Turkey, wild	
Fall hunting	
harvest	88
number of permits available	88
number of permits issued	88
success rate	88
take by sex	88

Turkey, wild (continued)	
Spring hunting	
area open to hunting by zone	87
harvest	87
number of permits available	87
number of permit applicants	87
number of persons hunting	87
success rate	87
Survey, TPD (Turkeys seen per hunter-day)	27-29
Waterfowl (see Ducks; duck by species name; Geese; and Hunters, waterfowl)	
Weasel, long-tailed	
pelt prices	113
trapping	
harvest	112
number of trappers	111
take per trapper	111
Weasel, short-tailed	
pelt prices	113
trapping	
harvest	112
number of trappers	111
take per trapper	111
Wigeon, American	
breeding populations, North America	64-65
hunting	
harvest, Minnesota, 1990-91	85
Wolf, gray	
survey, scent post indices	34
Woodcock, American	
breeding populations	69-71
breeding range	68
hunting	
daily and seasonal hunting success indices	71
harvest	82
number of hunters	81
take per hunter	81
recruitment	70
Wood duck	
hunting	
harvest, Minnesota, 1990-91	85

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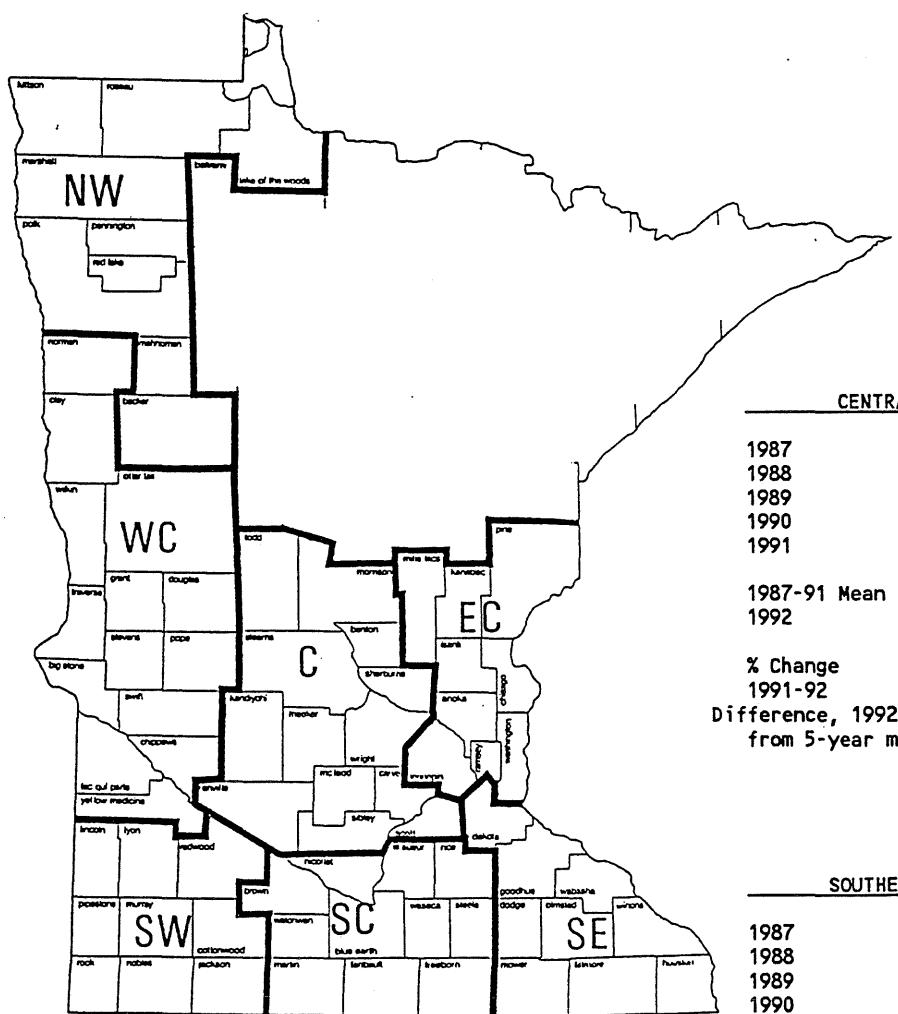
WEST CENTRAL		STATEWIDE		EAST CENTRAL	
1987	80	1987	50	1987	25
1988	45	1988	35	1988	40
1989	33	1989	40	1989	54
1990	46	1990	58	1990	72
1991	78	1991	77	1991	88
1987-91 Mean	56	1987-91 Mean	52	1987-91 Mean	56
1992	30	1992	44	1992	51
% Change 1991-92	-62%	% Change 1991-92	-43%	% Change 1991-92	-42%
Difference, 1992 from 5-year mean	-46%	Difference, 1992 from 5-year mean	-15%	Difference, 1992 from 5-year mean	-9%
					
SOUTH CENTRAL		CENTRAL		SOUTHEAST	
1987	42	1987	36	1987	39
1988	32	1988	31	1988	30
1989	40	1989	42	1989	43
1990	62	1990	61	1990	54
1991	79	1991	80	1991	51
1987-91 Mean	51	1987-91 Mean	50	1987-91 Mean	43
1992	47	1992	47	1992	63
% Change 1991-92	-42%	% Change 1991-92	-44%	% Change 1991-92	+24%
Difference, 1992 from 5-year mean	-8%	Difference, 1992 from 5-year mean	-6%	Difference, 1992 from 5-year mean	+47%
SOUTHWEST		SW		SE	
1987	60	1987	39	1987	39
1988	25	1988	30	1988	30
1989	32	1989	43	1989	43
1990	60	1990	54	1990	54
1991	84	1991	51	1991	51
1987-91 Mean	52	1987-91 Mean	43	1987-91 Mean	43
1992	37	1992	63	1992	63
% Change 1991-92	-55%	% Change 1991-92	+24%	% Change 1991-92	+24%
Difference, 1992 from 5-year mean	-29%	Difference, 1992 from 5-year mean	+47%	Difference, 1992 from 5-year mean	+47%

Figure 1. Ring-necked pheasants observed per 100 miles of August roadside count route, 1987-92, and percent change 1991-92 for routes surveyed both years.

Table 1. County, regional and statewide August roadside count data for ring-necked pheasants in Minnesota, 1987-1992.

Region and County	Miles surveyed 1992	Pheasants seen per 100 miles						1987-91 Mean	Percent change ^a 1991-92
		1987	1988	1989	1990	1991	1992		
West Central	925	79.5	45.3	33.1	45.6	78.0	29.5	56.3	-62
Big Stone	75	339	96	36	136	125	19		
Chippewa	50	116	48	52	64	80	58		
Clay	75	0	9	11	0	13	12		
Douglas	50	14	14	0	38	32	52		
Grant	50	4	0	18	8	18	30		
Lac Qui Parle	75	107	200	73	73	252	45		
Norman	50	0	0	0	0	0	0		
Otter Tail	50	140	44	2	18	22	10		
Pope	75	67	61	49	96	156	57		
Stevens	75	113	29	97	103	128	36		
Swift	75	63	17	77	37	108	79		
Traverse	75	69	53	4	0	31	9		
Wilkin	75	0	0	0	1	9	3		
Yellow Medicine	75	40	21	12	31	39	4		
Central	775	36.4	31.2	42.3	60.5	80.0	46.6	50.1	-44
Benton	50	104	28	74	24	36	56		
Carver	50	26	44	14	54	38	28		
Kandiyohi	75	8	60	71	51	207	123		
McLeod	50	--	20	154	88	74	52		
Meeker	50	21	28	65	133	272	88		
Morrison	50	8	2	28	36	68	0		
Renville	50	0	0	0	0	0	0		
Scott	50	72	48	42	140	28	62		
Sherburne	50	48	0	0	0	42	12		
Sibley	75	44	26	17	63	79	49		
Stearns	100	11	14	2	16	39	20		
Todd	50	26	80	100	78	88	12		
Wright	50	100	58	38	116	28	70		
East Central	425	24.5	40.0	53.6	72.0	88.2	51.3	55.7	-42
Anoka	50	4	20	16	108	76	6		
Chisago	75	43	33	115	131	164	136		
Hennepin	25	4	120	44	164	0	36		
Isanti	75	9	57	48	45	105	5		
Kanabec	50	26	18	0	40	8	2		
Mille Lacs	50	42	18	138	102	190	104		
Pine	50	30	70	0	8	66	36		
Washington	50	26	18	36	8	6	58		

Table 1. Continued.

Region and County	Miles surveyed	Pheasants seen per 100 miles							Percent change ^a 1991-92
		1992	1987	1988	1989	1990	1991	1992	
Southwest	475	60.4	24.7	32.0	59.6	83.6	37.5	52.1	-55
Cottonwood	50	48	32	14	26	58	26		
Jackson	50	16	8	32	90	22	12		
Lincoln	50	76	0	18	60	390	174		
Lyon	50	22	28	48	32	48	0		
Murray	50	98	40	40	52	10	32		
Nobles	75	41	12	16	33	47	31		
Pipestone	50	46	40	20	64	86	20		
Redwood	50	6	22	0	22	8	32		
Rock	50	200	48	108	170	102	14		
South Central	725	41.7	31.6	39.6	61.8	79.0	47.2	50.7	-42
Blue Earth	75	29	43	37	16	--	11		
Brown	75	24	35	52	41	47	5		
Faribault	0	49	13	21	15	7	--		
Freeborn	75	72	31	37	60	52	23		
LeSueur	75	83	47	32	145	323	224		
Martin	75	74	35	3	41	19	19		
Nicollet	75	43	7	52	72	37	5		
Rice	75	12	27	71	87	127	76		
Steele	50	68	34	12	86	116	72		
Waseca	75	3	96	73	95	36	43		
Watonwan	75	21	4	36	29	25	3		
Southeast	500	39.0	30.1	43.4	53.6	51.0	63.4	43.4	+24
Dakota	50	4	0	14	6	6	56		
Dodge	50	66	48	94	62	34	94		
Fillmore	50	14	4	56	16	48	134		
Goodhue	50	4	12	10	38	16	22		
Houston	50	14	10	0	26	52	14		
Mower	75	71	44	65	88	59	25		
Olmsted	75	41	65	83	128	131	151		
Wabasha	50	6	22	20	36	70	28		
Winona	50	114	26	18	28	0	22		
Statewide	3825	50.0	34.8	39.8	57.5	76.9	44.2	51.8	-43

^a Percent change for 1991-92 calculated only for routes surveyed both years.

Table 2. Statewide pheasant population parameters calculated from August roadside count data, 1987-92.

Population Parameter	1987	1988	1989	1990	1991	1992	1987-91 Mean	Percent change ^a 1991-92
Cocks/100 Miles	3.6	2.8	2.9	4.9	5.9	3.8	4.0	-34
Hens/100 Miles	4.9	3.8	4.6	7.8	10.6	6.5	6.3	-40
Broods/100 Miles	7.0	4.7	5.2	7.9	12.1	6.3	7.4	-49
Mean Brood Size	5.9	6.0	6.2	5.7	5.0	5.4	5.8	+8
Broods/100 Hens	142.8	123.6	113.0	101.0	114.6	98.0	119.0	-15
Median Hatch Date	May 27	May 31	Jun 6	Jun 9	Jun 2	Jun 8	Jun 3 ^b	

^a Percent change for 1991-92 calculated only for routes surveyed both years.

^b Median hatch date, 1987-91.

Table 3. Regional and statewide August roadside count results for gray (Hungarian) partridge, 1987-92.

Agricultural Region	Miles Surveyed 1992	Partridges seen per 100 miles						Percent change ^a 1991-92	
		1987	1988	1989	1990	1991	1992		
Northwest	475	3.6	3.8	24.8	20.4	15.3	1.7	13.6	-85
West Central	925	14.7	25.9	20.0	14.8	15.5	6.3	18.2	-57
Central	775	15.1	18.2	13.1	19.5	11.6	5.5	15.5	-54
East Central	425	0.0	3.1	0.0	0.0	0.7	0.0	0.8	-100
Southwest	475	99.2	110.7	93.5	101.5	66.5	11.8	94.3	-82
South Central	725	47.0	63.6	84.1	62.7	23.9	10.1	56.3	-55
Southeast	500	66.6	40.4	42.0	34.6	18.4	10.4	40.4	-47
Statewide ^b	4300	33.4	37.3	39.7	35.2	20.9	6.7	33.3	-67

^a Percent change 1991-92 for routes surveyed both years only.

^b Statewide means include the Northwest agricultural region.

Table 4. Statewide gray (Hungarian) partridge population parameters calculated from August roadside count results, 1987-92.

Population Parameter	1987	1988	1989	1990	1991	1992	1987-91 Mean	Percent change ^a 1991-92
Adults/100 Miles	7.0	7.5	9.9	11.8	8.0	2.4	8.8	-69
Broods/100 Miles	2.7	3.1	3.3	3.3	2.1	0.7	2.9	-66
Mean Brood Size	9.9	9.7	9.1	7.1	6.1	6.0	8.4	-2
Broods/100 Adults	38.0	40.6	33.3	28.0	26.1	30.1	33.2	+8
Median Hatch Date	Jun 14	Jun 15	Jun 21	Jun 21	Jun 23	Jun 23	Jun 19 ^b	

^a Percent change 1991-92 for routes surveyed both years only.

^b Median hatch date, 1987-91.

Table 5. August roadside count data for selected farmland wildlife species and percent change 1991-92 by agricultural region.

Agricultural Region	Miles Surveyed 1992	Animals seen per 100 miles											
		Cottontail			Jackrabbit			Mourning dove			White-tailed deer		
		1991	1992	Percent change ^a	1991	1992	Percent change ^a	1991	1992	Percent change ^a	1991	1992	Percent change ^a
Northwest	475	2.0	0.4	-75	2.3	0.4	-78	205.8	202.1	-2	37.0	18.9	-40
West Central	925	2.8	3.0	+8	1.4	0.3	-77	316.9	261.2	-17	9.3	10.7	+15
Central	775	5.8	6.1	+5	0.7	0.8	+14	255.0	241.2	-5	4.6	4.1	-15
East Central	425	8.9	8.5	-5	0.0	0.0	0	187.3	134.8	-27	12.5	11.8	-6
Southwest	475	4.2	4.0	-5	0.4	1.1	+175	169.5	198.3	+16	9.9	6.1	-38
South Central	725	6.0	4.7	-23	0.4	0.8	+100	234.9	222.3	-8	3.9	5.5	+38
Southeast	500	9.2	7.2	-22	0.4	0.4	0	287.0	236.6	-18	11.8	13.4	+13
Statewide ^b	4300	5.3	4.7	-12	0.8	0.6	-28	248.3	222.2	-10	10.9	9.5	-12

^a Percent change 1991-92 calculated only for routes surveyed both years.

^b Statewide means include the Northwest agricultural region.

Table 6. Statewide August roadside count data for selected farmland wildlife species, 1988-92.

Species	Animals seen per 100 miles driven					Percent change ^a 1991-92
	1988	1989	1990	1991	1992	
Ring-necked pheasant ^b	34.8	39.8	57.5	76.9	44.2	-43
Gray partridge (Hun)	37.3	39.7	35.2	20.9	6.7	-67
Mourning dove	245.0	283.4	255.6	248.3	222.2	-10
Eastern cottontail	4.0	5.4	6.7	5.3	4.7	-12
White-tailed jack rabbit	0.7	1.6	1.4	0.8	0.6	-28
White-tailed deer	5.2	6.4	7.2	10.9	9.5	-12
Sharp-tailed grouse	0.36	0.00	0.05	0.29	0.09	-69
Greater prairie-chicken	0.00	0.00	0.02	0.00	0.00	0
Sandhill crane	7.66	2.44	6.19	2.87	3.19	+11
Badger	0.00	0.03	0.00	0.02	0.00	-100
Gray & fox squirrel	1.62	1.20	0.85	1.38	0.93	-29
Gray & red fox	0.22	0.74	0.91	0.56	0.67	+25
Striped & spotted skunk	0.38	0.30	0.55	0.22	0.09	-64

^a Percent change 1991-92 calculated only for routes surveyed both years.

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

Table 7. Animals seen per 100 miles of August roadside count for 5 species in Minnesota, statewide, 1955-1992.^a

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

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

^b No count.

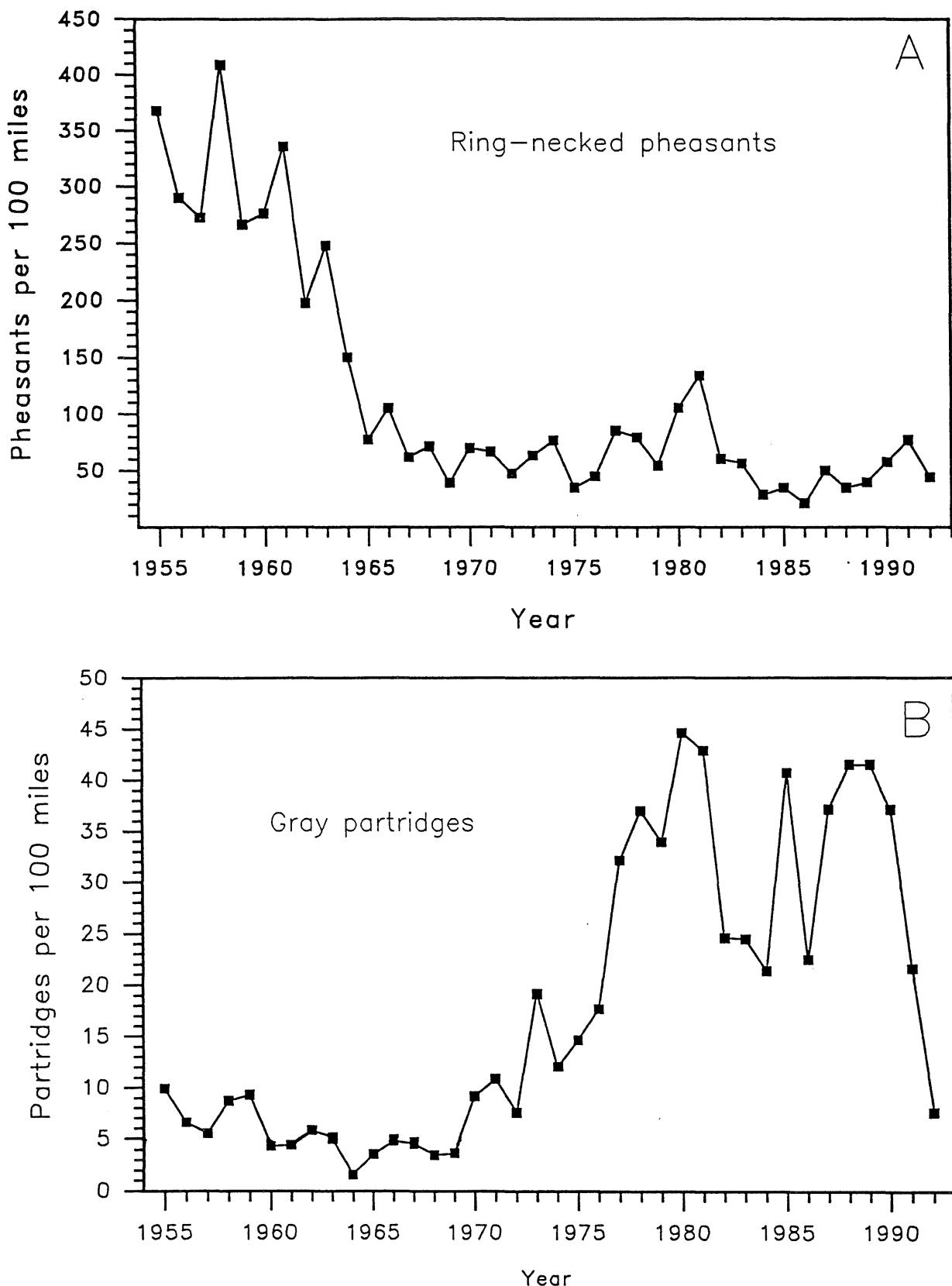


Fig. 2. August roadside count indices (birds seen per 100 miles driven) for (A) Ring-necked pheasants and (B) Gray partridges, 1955–1992. Gray partridge means do not include the Northwest agricultural region.

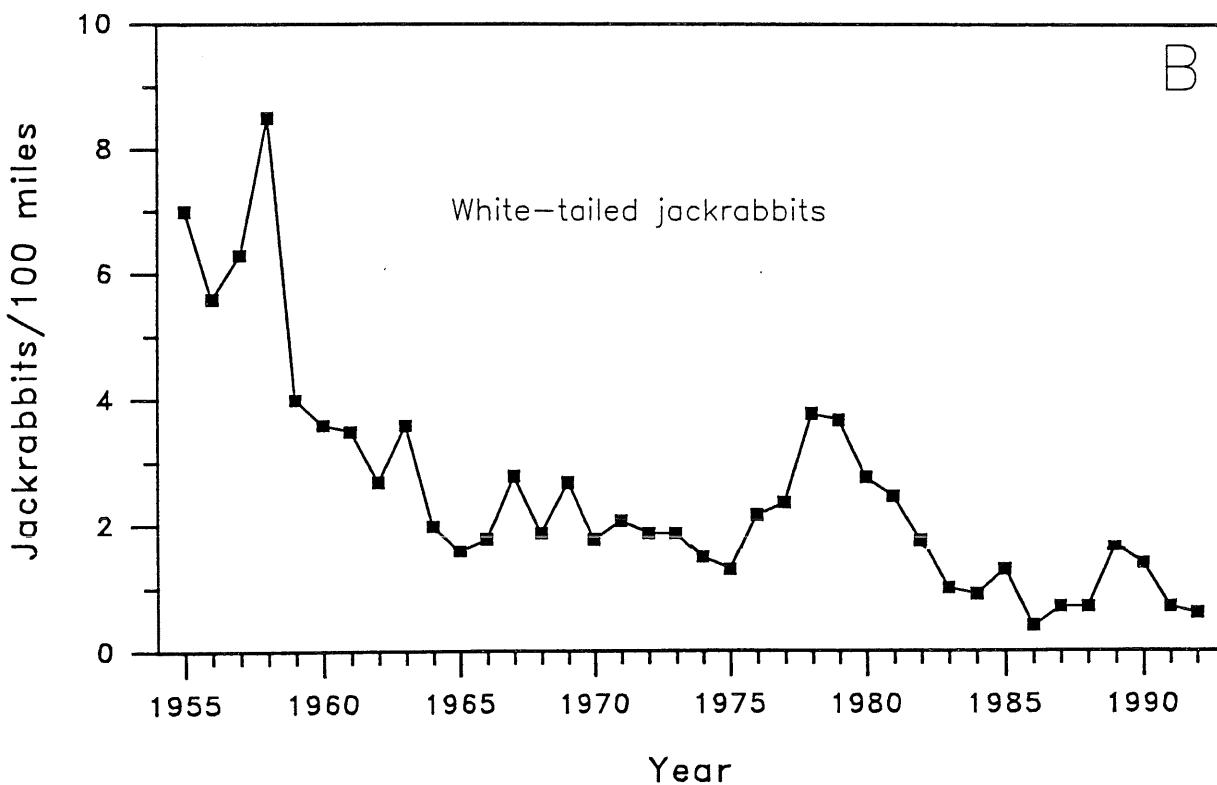
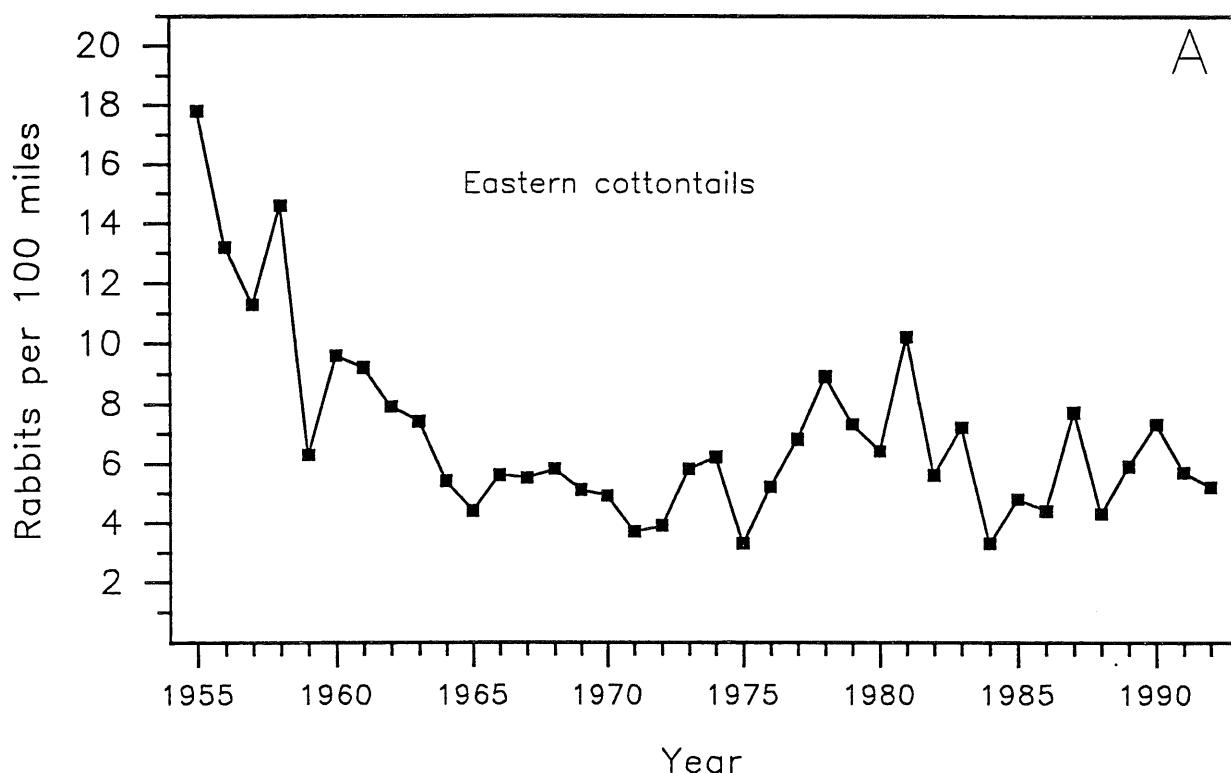


Fig. 3. August roadside count indices (animals seen per 100 miles driven) for (A) Eastern cottontails, and (B) White-tailed jackrabbits, 1955–1992. Means do not include the Northwest agricultural region.

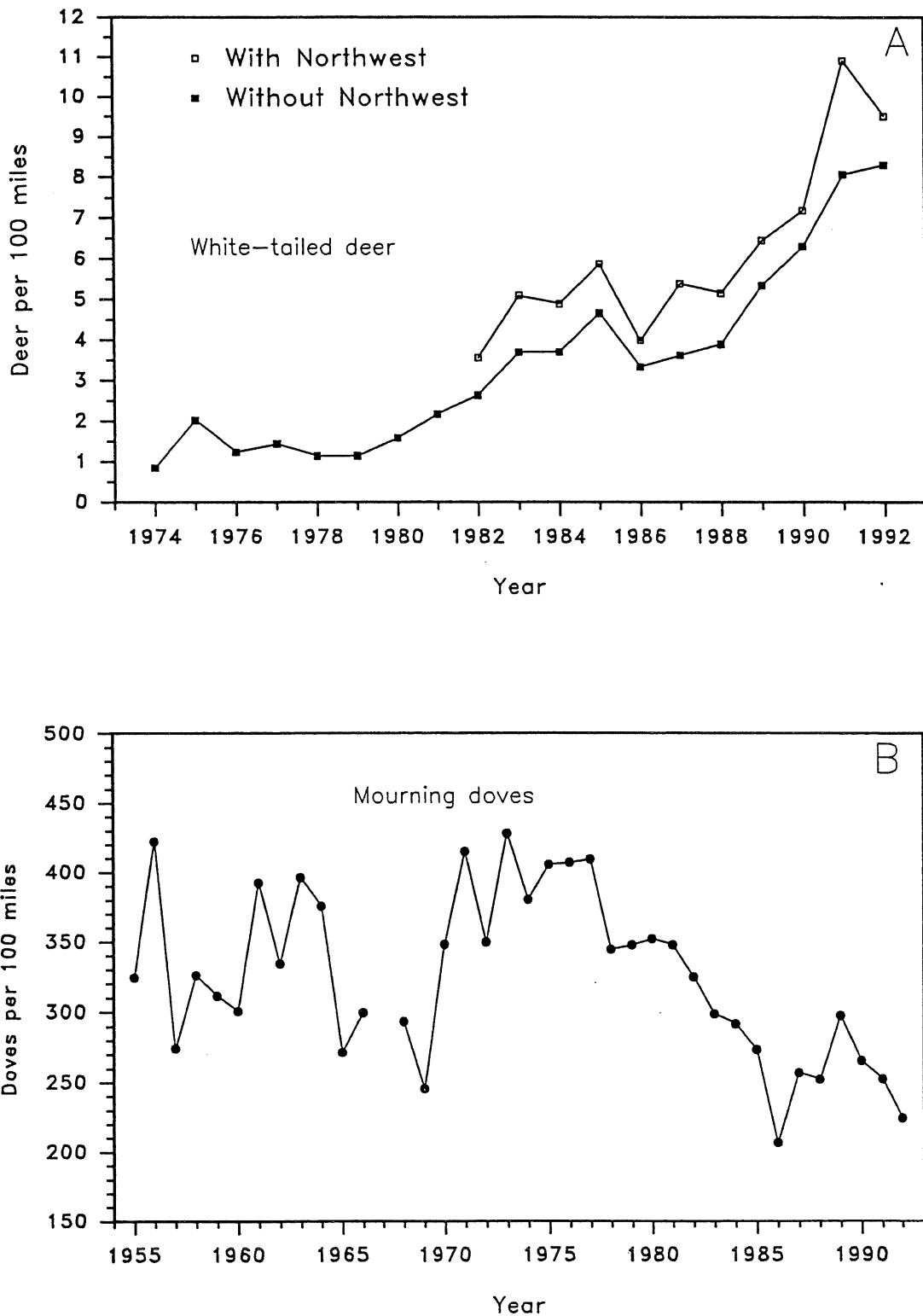


Fig. 4. August roadside count indices (animals seen per 100 miles) driven) for (A) White-tailed deer, including and excluding the Northwest agricultural region, 1974–1992; and (B) mourning doves, 1955–1992. Dove means do not include the Northwest agricultural region. Doves were not counted in 1967.

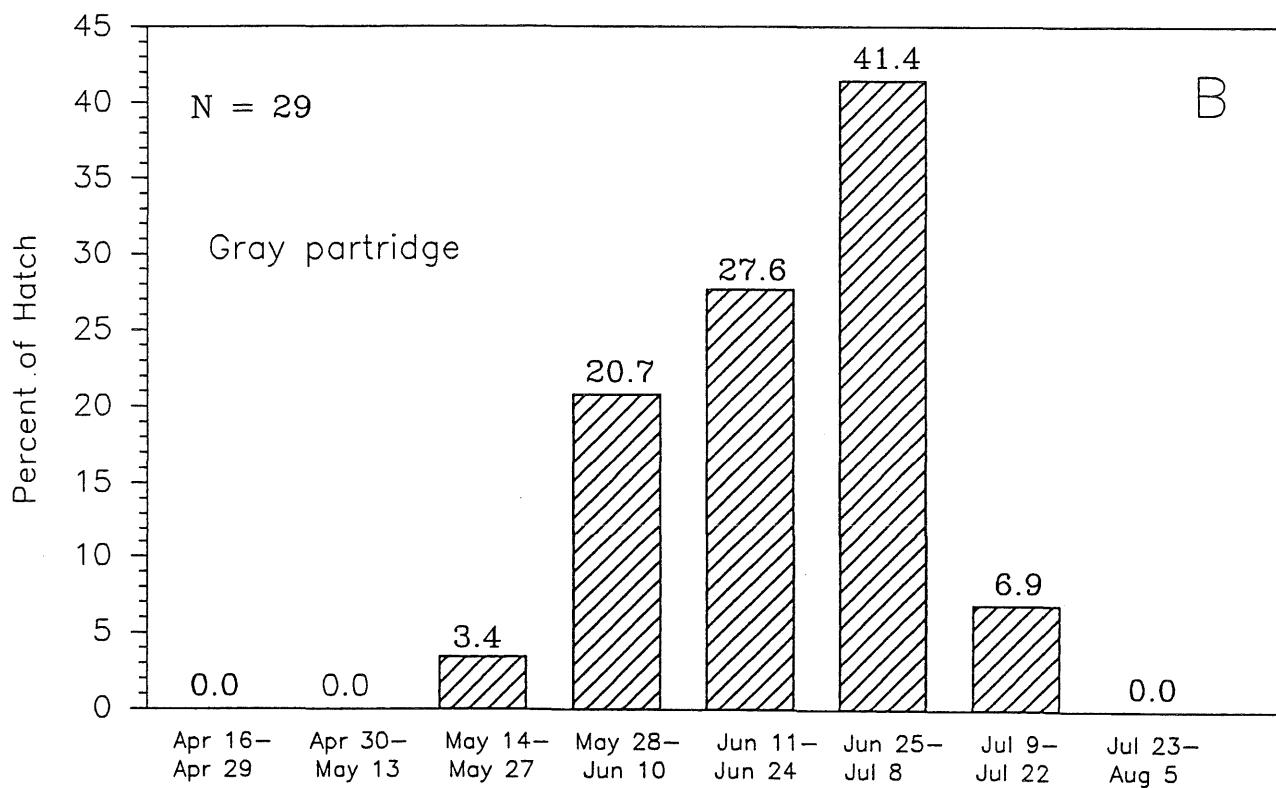
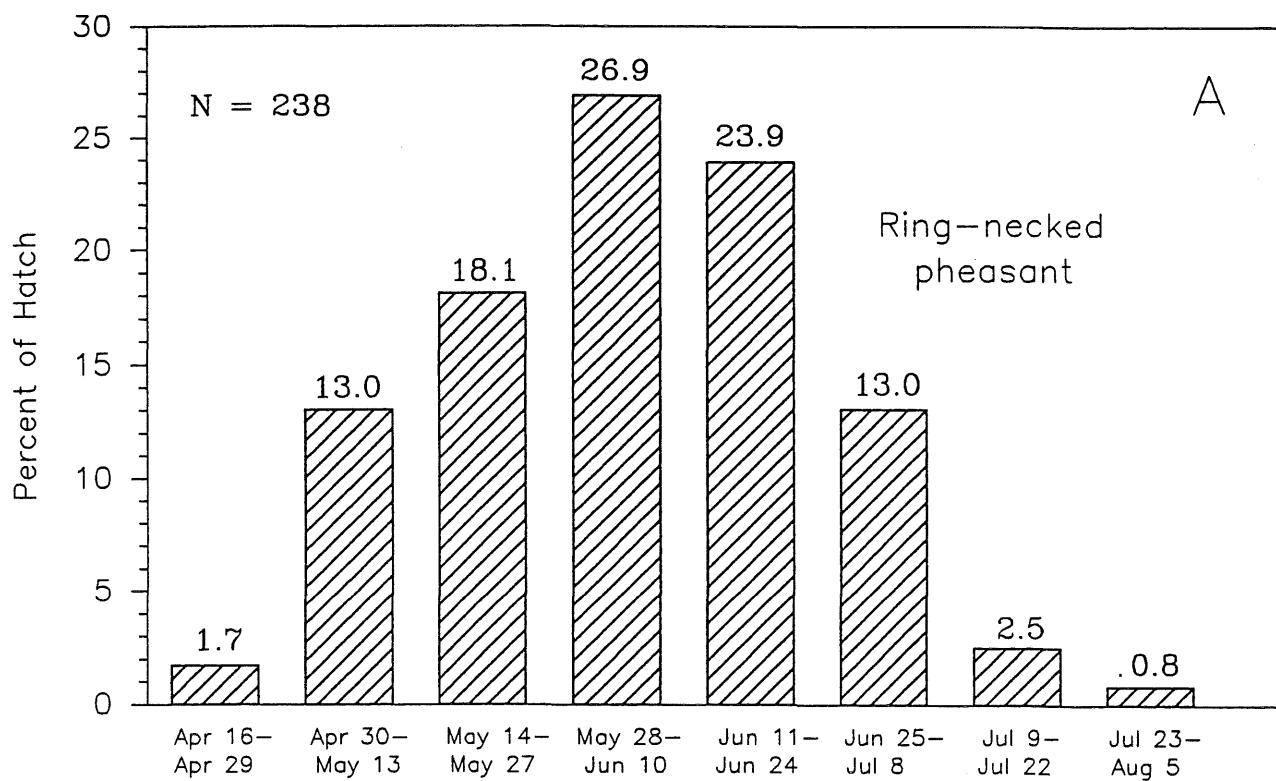


Fig. 5. Biweekly distribution of (A) Ring-necked pheasant, and (B) Gray partridge hatch, 1992.

Table 8. Ring-necked pheasants seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1992.

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

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

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

Table 9. Gray partridges seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1992.

Year	Agricultural region							Statewide Mean	
	WC	C	EC	SW	SC	SE	NW	Without NW	With NW
1955	16.4	8.0	0.0	10.8	9.5	9.0	NO COUNT	9.9	
1956	2.9	8.3	0.0	14.7	6.0	7.8		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*	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

* 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, 1955-1992.

Year	Agricultural region							Statewide Mean	
	WC	C	EC	SW	SC	SE	NW	Without NW	With NW
1955	8.1	15.0	14.5	20.3	19.6	32.0	NO COUNT	17.8	
1956	9.6	16.2	12.4	16.2	12.8	12.7		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*	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

* 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, 1955-1992.

Year	Agricultural region							Statewide Mean	
	WC	C	EC	SW	SC	SE	NW	Without NW	With NW
1955	9.0	2.6	1.5	13.0	10.6	1.6	NO COUNT	7.0	
1956	5.8	3.7	1.9	10.1	7.7	2.4		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*	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

* 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, 1955-1992.

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

^a Mourning doves were not counted in 1967.

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

Table 13. Greater prairie-chicken spring booming ground counts for 14 northwestern counties, 1982-92 (counts coordinated and summarized by AWM Terry Wolfe, Crookston).

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

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

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

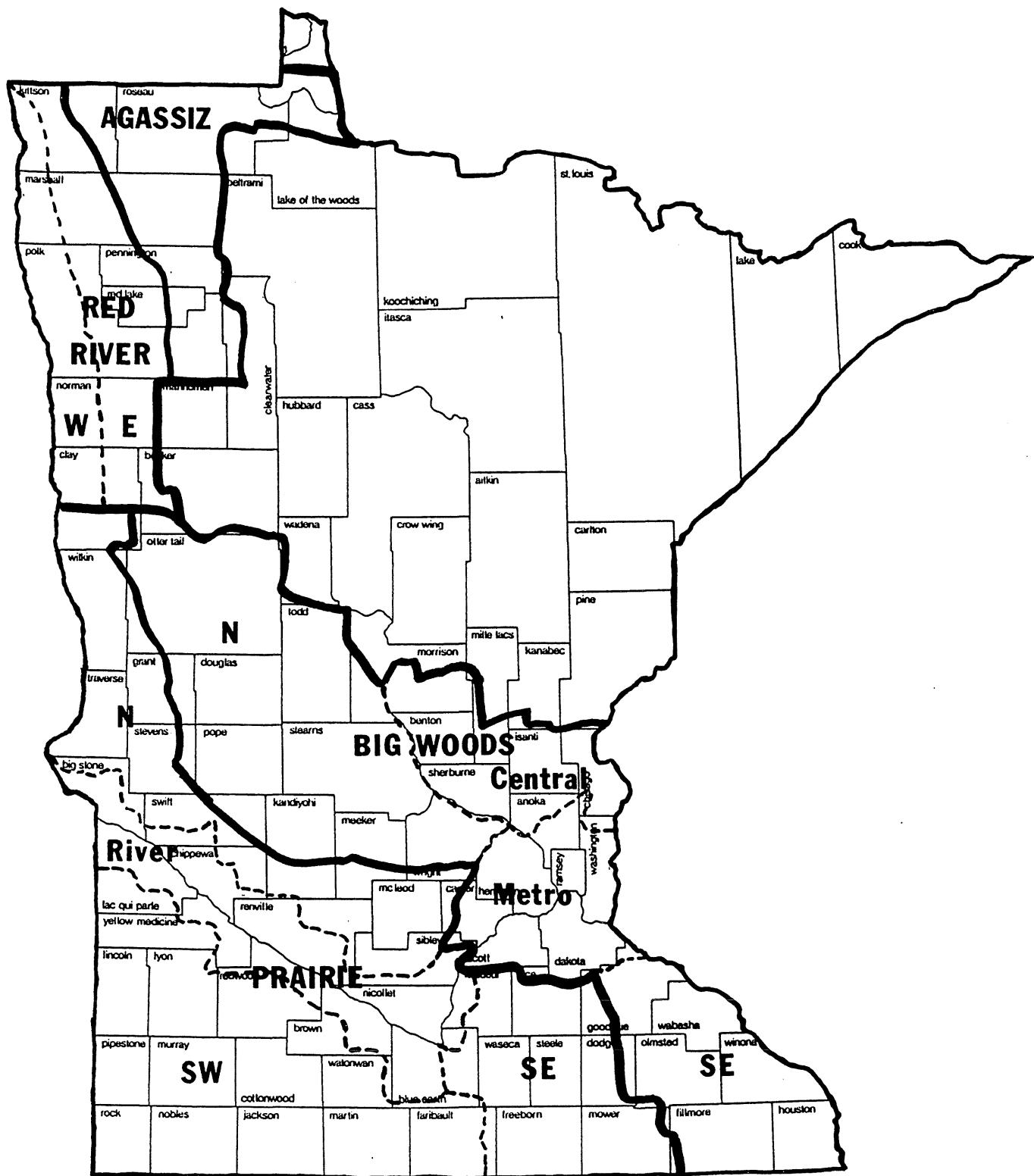


Figure 6. Deer Management Units (DMU) and sub-units in the Farmland Zone.

Table 14. Deer productivity data for the Northwest^a Deer Management Unit (DMU), 1989-1992. The baseline mean values (1978-1987) are provided as references.

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

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

Table 15. Deer productivity data for the Big Woods Deer Management Unit, 1989-1992. The baseline mean values (1978-1987) are provided as references.

Year	Subunit	n	Fawns		Adults		
			Percent pregnant	Fetuses/doe	n	Percent pregnant	Fetuses/doe
1992		<u>65</u>	<u>22</u>	<u>0.25</u>	<u>96</u>	<u>95</u>	<u>1.82</u>
North	21	33	0.43	36	92	1.75	
Central	6	17	0.17	9	100	2.00	
Metro	29	14	0.14	34	94	1.76	
SE	9	22	0.22	17	100	2.00	
1991		50	20	0.22	71	96	1.76
1990		96	32	0.33	125	95	1.82
1989		51	31	0.31	85	96	1.85
Baseline mean (1978-1987)			44	0.51		94	1.74

Table 16. Deer productivity data for the Prairie Deer Management Unit, 1989-1992. The baseline mean values (1978-1987) are provided as references.

Year Subunit	n	Fawns		Adults		
		Percent pregnant	Fetuses/ doe	n	Percent pregnant	Fetuses/ doe
1992	<u>37</u>	<u>19</u>	<u>0.22</u>	<u>44</u>	<u>93</u>	<u>1.93</u>
North	4	25	0.25	5	80	1.60
River	18	11	0.17	22	100	2.14
SW	11	18	0.18	13	92	1.92
SE	4	50	0.50	4	75	1.25
1991	30	20	0.20	67	94	1.82
1990	43	42	0.45	62	97	1.84
1989	37	38	0.38	54	89	1.65
Baseline mean (1978-1987)		46	0.54		93	1.78

Table 17. Estimated pre-fawning deer density^a (deer/mi²), permit^b and harvest summaries, and pre-fawning deer population goals (deer/mi²) by deer management unit (DMU), sub-unit (DMSU) and permit area (PA) of Minnesota's farmland zone, 1991-92.

DMU DMSU PA	1991			1992	
	Density	Total permits issued	Total harvest	Density	Pre-fawning population goal
RED RIVER					
West					
401	2.3	506	508	1.5-1.6	0.8- 1.2
402	1.8	576	668	1.9	1.7- 2.3
Total	2.0	1082	1176	1.7	
East					
403	3.3	600	705	5.7	2.2- 2.8
404	4.5	1100	1303	5.8-5.9	2.7- 3.3
405	4.0	1388	1153	4.2	2.2- 2.8
406	5.2	1193	999	6.8	2.7- 3.3
407	4.1	1222	1270	4.4	3.6- 4.4
408	4.5	850	999	5.0-5.1	3.6- 4.4
Total	4.3	6353	6429	5.3	
RED RIVER TOTAL	3.4	7435	7605	3.9	
AGASSIZ					
201	15.4	876	703	10.4-10.9	9.0-11.0
202	13.1	800	714	12.2-12.7	10.0-12.0
203	19.2	500	539	19.8-20.6	13.5-16.5
204	8.3	1500	1879	9.6- 9.9	5.0- 6.0
205	7.2	800	1564	9.6-10.2	6.2- 7.4
206	6.1	900	1207	9.2- 9.6	5.3- 6.3
207	8.6	900	982	10.2-10.6	7.7- 9.2
208	3.6	400	470	4.2- 4.5	2.7- 3.3
209	3.6	800	840	4.7- 4.9	2.3- 2.7
210	5.7	1500	1456	8.0- 8.3	2.3- 2.7
AGASSIZ TOTAL	7.2	8976	10354	8.9	
BIG WOODS					
North					
409	12.8	3209	2869	17.9-18.5	5.6- 6.8
410	6.5	3560	3821	9.3- 9.7	5.5- 6.5
411	9.5	4080	4011	12.5	5.0- 6.0
412	4.9	2600	3071	7.0- 7.2	3.6- 4.4
413	6.2	1500	2168	9.3- 9.6	5.0- 6.0
414	8.9	1500	2263	12.9-13.3	8.5-10.0
415	4.1-4.6	900	1586	6.9- 7.2	4.5- 5.5
416	4.3	1400	1755	7.2- 7.4	3.6- 4.4
417	4.2	2200	3062	7.5- 7.7	3.5- 4.5
418	3.9	1500	2168	6.0	3.6- 4.4
419	4.4	1800	2021	6.6- 6.8	3.0- 4.0
Total	5.9	24249	28795	9.1	
Central					
221	9.1	1000	1615	9.8-10.0	9.0-11.0
222	14.8	1000	1918	14.8	10.8-13.2
223	10.2	1000	1239	11.7-11.9	8.0
224	20.4	150	191	26.7-27.2	20.0
225	11.3	2500	3587	13.5-13.8	7.2- 8.8
226	8.9	2000	2106	10.3-10.6	5.4- 6.6
Total	10.9	7650	10656	12.8	

Table 17. Continued.

DMU	1991			1992	
	DMSU PA	Density	Total permits issued	Total harvest	Density
BIG WOODS					
Metro					
227	10.3	1944	1776	11.3-11.5	4.8- 5.8
235	16.7	150	332	17.9-18.1	18.0-22.0
236	7.2	1231	1554	6.6- 6.7	2.9- 3.5
338	4.8	750	1210	4.8	4.5- 5.5
339	4.8	954	1097	4.8	4.5- 5.5
Total	6.6	5029	5969	6.2	
Southeast					
341	6.1	2000	1828	4.9	4.5- 5.5
342	10.0	1300	1531	7.7	8.1- 9.9
343	6.6	1853	1803	4.9- 5.1	4.5- 5.5
344	21.4	1400	1774	19.0	18.0-22.0
345	10.1	1300	1339	9.0	8.1- 9.9
346	14.0-15.0	2294	2406	12.3	9.0-11.0
347	7.2	1050	1379	7.2	5.4- 6.6
348	12.8	1300	1686	10.8	9.0-11.0
349	11.2	2200	2163	9.1	9.0-11.0
Total	8.3	14697	15909	9.9	
BIG WOODS TOTAL	7.3	51625	61329	9.4	
PRAIRIE					
North					
420	5.0	1105	933	3.4	1.7- 2.3
421	2.4	697	801	3.0	1.6- 2.2
422	3.5	613	688	3.5- 3.6	1.4- 2.0
423	2.8	750	748	3.6	1.3- 1.9
424	2.9	750	1222	5.0- 5.1	1.8- 2.0
425	3.0	599	645	2.9	1.2- 1.8
426	4.0	1000	1015	4.2- 4.3	2.0- 3.0
427	2.4	400	943	3.8- 3.9	1.3- 1.7
428	2.9	900	1061	4.1	2.3- 2.8
Total	3.8	6814	8056	3.2	
River					
431	3.0	656	733	5.8	2.3- 2.8
433	5.0	350	1267	11.7	4.0- 5.0
435	4.2	500	1199	8.5	3.2- 3.8
440	3.9	538	1015	5.5	3.2- 3.8
442	5.6	1000	1726	5.9	3.2- 3.8
443	4.0	1000	1130	5.3	3.2- 4.0
Total	4.4	4044	7070	7.2	
Southwest					
446	3.6	718	838	5.2	3.2- 4.0
448	4.0	801	904	3.5	3.2- 4.0
450	1.7	500	573	1.8	1.2- 1.8
451	2.8	1211	1297	2.5	2.4- 3.0
452	2.1	781	753	2.4	1.4- 2.0
453	2.1	600	697	1.8	1.4- 2.0
454	3.9	1200	1496	3.4	2.0- 2.6
455	4.5	238	277	5.0	3.7- 4.5
456	2.9	995	976	2.2	1.7- 2.3
457	2.6	602	849	3.2	1.7- 2.3

Table 17. Continued.

DMU DMSU PA	Density	1991		1992		Pre-fawning population goal		
		Total permits issued	Total harvest	Density				
PRAIRIE								
Southwest								
458	2.5	550	746	2.4	1.5- 2.1			
459	2.6	1000	1426	3.1	1.7- 2.3			
Total	2.7	9196	10832	2.8				
Southeast								
461	3.4	700	977	3.3	2.5- 3.1			
462	4.0	950	1201	4.1	2.7- 3.3			
463	2.3	912	811	2.0	1.7- 2.3			
464	2.6	500	668	3.2	1.7- 2.3			
465	2.1	270	458	2.1	1.5- 2.1			
466	2.3	840	1110	2.0	1.6- 2.2			
467	1.7	600	847	1.4- 1.5	1.0- 1.6			
Total	2.6	4772	6072	2.5				
PRAIRIE TOTAL	3.3	24826	32030	3.6				
FARMLAND								
TOTAL	5.1	92862	111318	6.2				

^a Pre-fawning deer density determined from population modeling.^b Total permits issued includes antlerless permits and deer management permits.

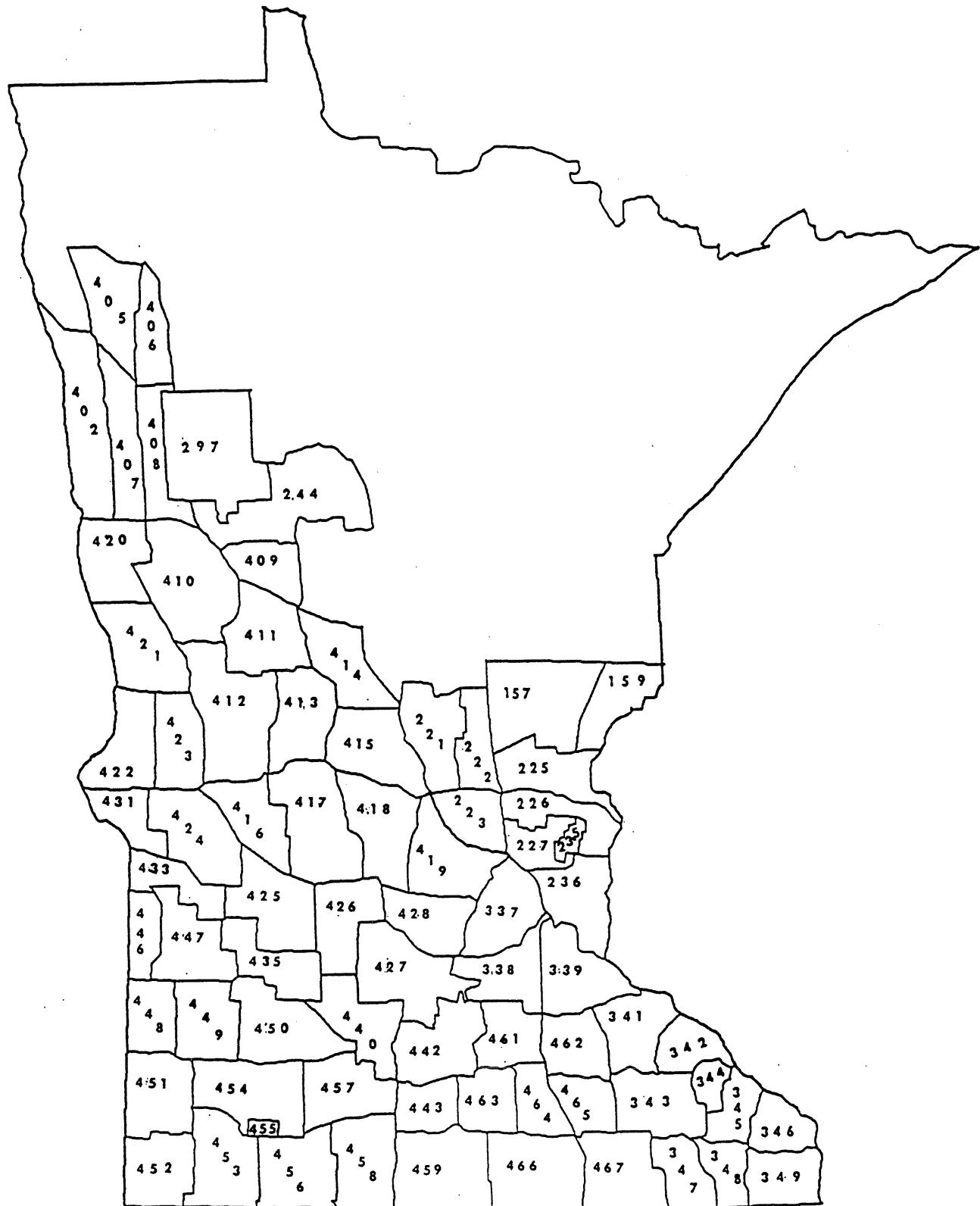


Figure 7. Location of antlerless deer permit areas used for the wild turkey survey, Minnesota, November-December, 1991.

Table 18. Survey of wild turkey sightings by Minnesota antlerless-deer hunters. Comparison of mean number of turkeys seen per hunter per day (TPD) by year, Minnesota, 1987-91.

Antlerless deer permit area	TPD				
	1987	1988	1989	1990	1991
157					0.00
159					0.02
221			0.06	0.02	
222			0.05	0.06	
223			0.02	0.00	
225		0.10	0.03	0.03	
226	0.05	0.15	0.12	0.04	0.20
227			0.02	0.05	0.08
235	0.07	0.18	0.05	0.20	0.59
236	0.01		0.19	0.05	0.22
244					0.00
297					0.02
337	0.13	0.35	0.32	0.07	0.26
338	0.28	0.73	0.64	0.59	0.62
339	0.92	0.95	1.46	0.96	2.40
341	0.74	0.97	1.15	1.14	2.89
342	0.27	0.44	1.49	1.62	2.27
343	0.27	1.25	1.94	1.54	1.52
344	0.79	1.25	2.50	2.53	1.86
345	0.94	2.96	2.81	3.07	2.73
346	2.04	3.87	4.24	3.40	3.06
347	1.68	2.56	3.23	4.12	2.72
348	2.81	4.17	6.28	5.15	3.29
349	3.64	5.66	6.47	4.42	3.82
402					0.01
405					0.10
406					0.04
407					0.35
408					0.12
409					0.06
410					0.02
411					0.06
412					0.01
413					0.12
414					0.12
415			0.11	0.19	
416					0.03
417					0.11
418	0.09	0.16	0.07	0.03	0.00
419	0.23	0.24	0.10	0.33	0.20
420					0.41
421					0.34
422					0.58
423					0.06
424					0.18
425					0.12

continued

Table 18. Continued.

Antlerless deer permit area	TPD				
	1987	1988	1989	1990	1991
426				0.07	0.01
427			0.08	0.00	0.47
428			0.13	0.06	0.03
431	0.28	0.31	0.18	0.02	0.24
432	0.13	0.10	0.06	0.09	
433					0.03
435					0.73
436			0.12	0.57	
438			0.60	0.70	
440					0.34
442	0.67	1.06	1.05	1.87	1.14
443				0.49	0.18
446				0.03	0.06
447				0.00	0.00
448					0.11
449				0.03	0.55
450				0.01	0.05
451					0.01
452					0.30
453					0.05
454					0.42
455					0.08
456		0.05	0.00	0.11	0.21
457					0.37
458					0.05
459	0.33	0.08	0.15	0.14	0.07
461	0.24	0.06	0.15	0.07	0.33
462	0.25	0.14	0.88	0.74	2.11
463	0.03	0.02	0.03	0.07	0.22
464	0.03	0.00	0.02	0.06	0.07
465	0.14	0.08	0.13	0.08	0.09
466	0.10	0.31	0.22	0.26	0.77
467	0.06	0.06	0.10	0.31	0.05

PREDATOR SCENT POST SURVEY

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

SCENT STATION ROUTE SPECIFICS - 1991

Zone	Rts. Done	No. Segments	Segment Density	Station Nights
Forest	42	181	1/179 mi ²	1732
Transition	26	107	1/237 mi ²	995
Farmland	<u>23</u> 91	<u>100</u> 388	1/262 mi ²	<u>914</u> 3641

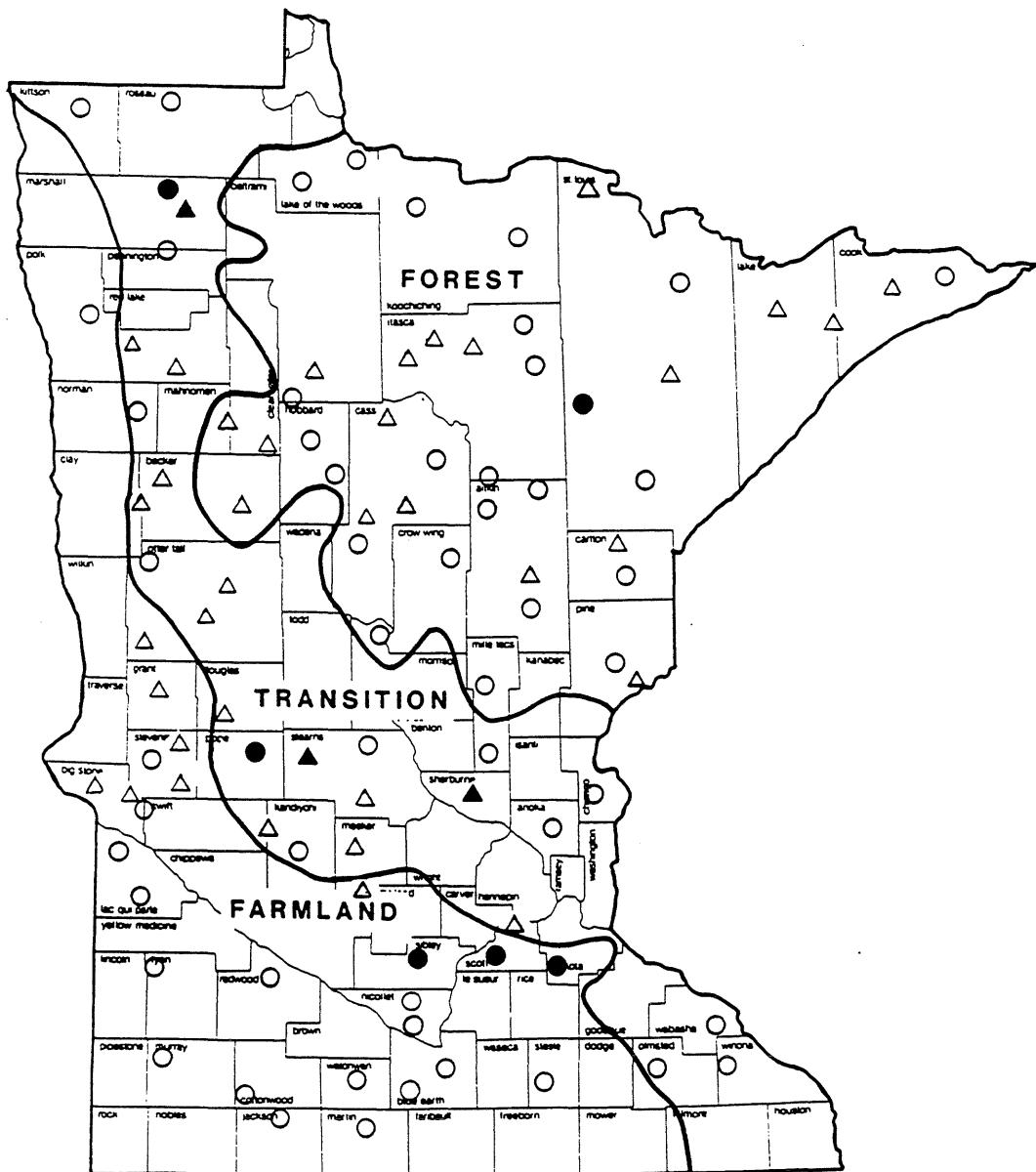


Figure 8. Approximate locations of scent post routes conducted by DNR Section of Wildlife (○) and cooperators (△) in the Forest, Transition, and Farmland Survey Zones, 1991. Shaded symbols indicate routes not run in 1991.

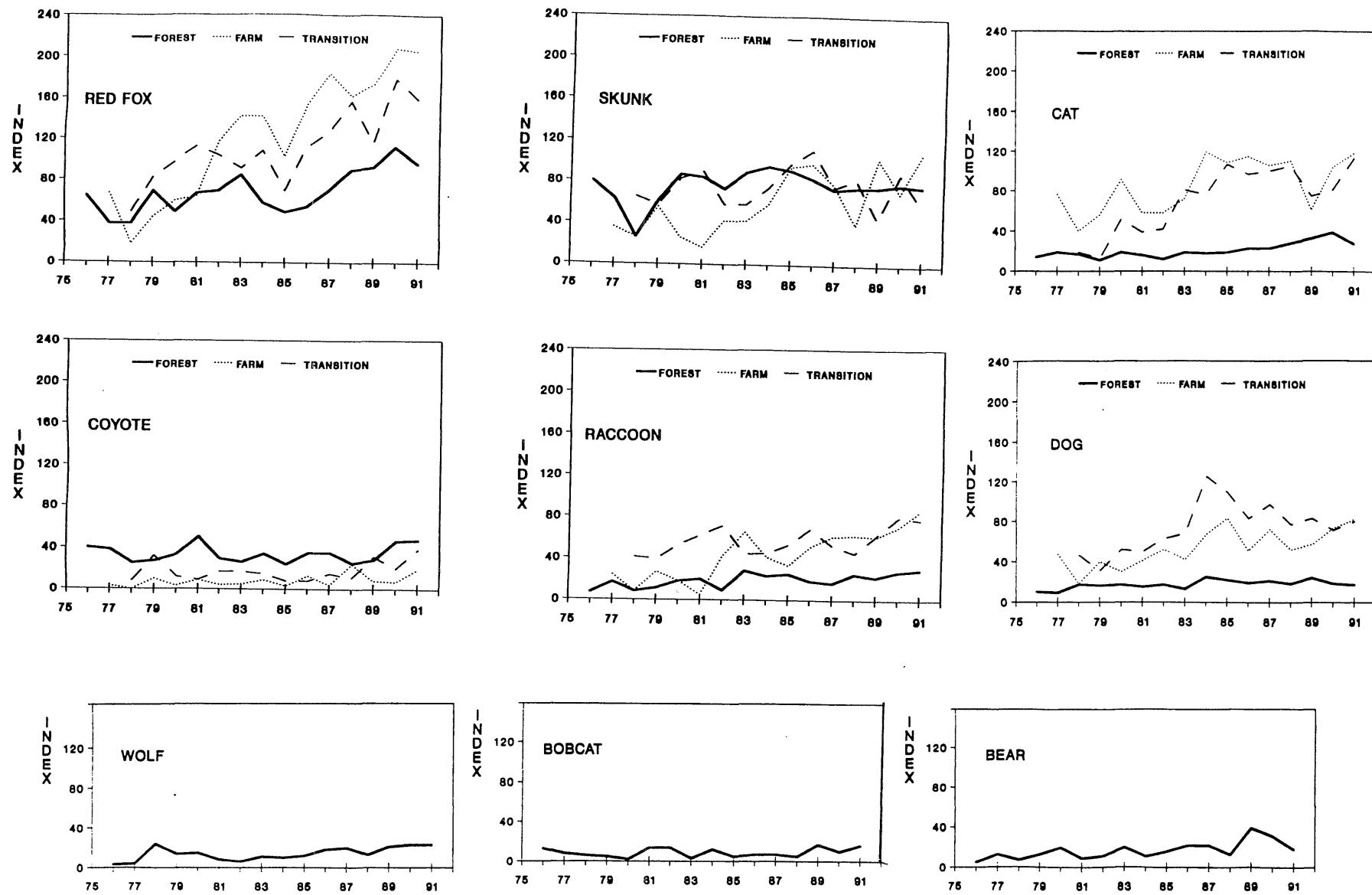


Figure 9. Scent post visitation indices for nine species in the Forest, Transition, and Farmland survey zones, 1976-92.

FOREST WILDLIFE POPULATIONS
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Table 19. Mean number of ruffed grouse drums per stop by census zone, 1961-92.

Year	Census Zone					Range-wide 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

RUFFED GROUSE 1991-1992

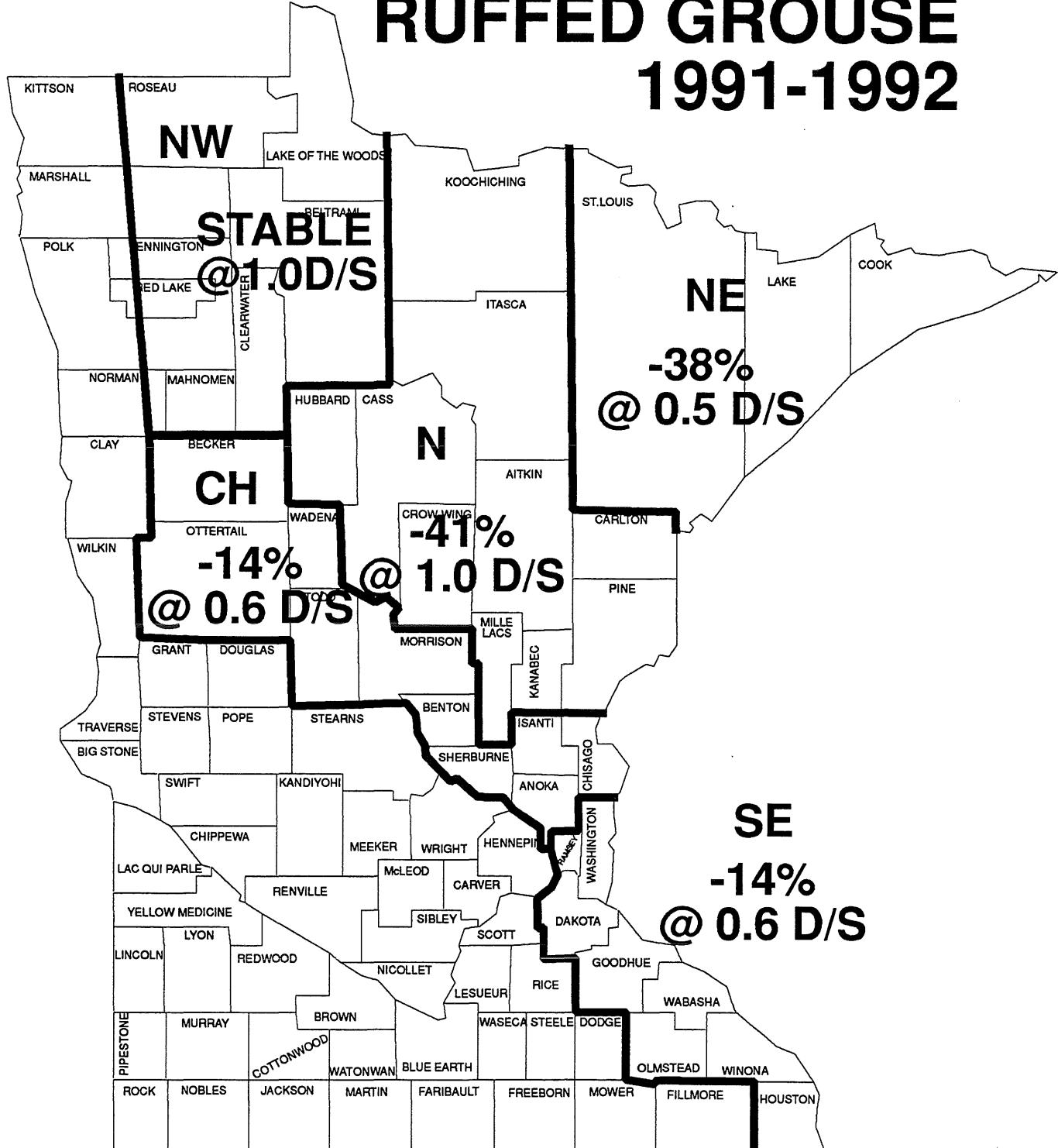


Figure 10. Changes in average numbers of ruffed grouse drums per stop on roadside counts.
1991-92.

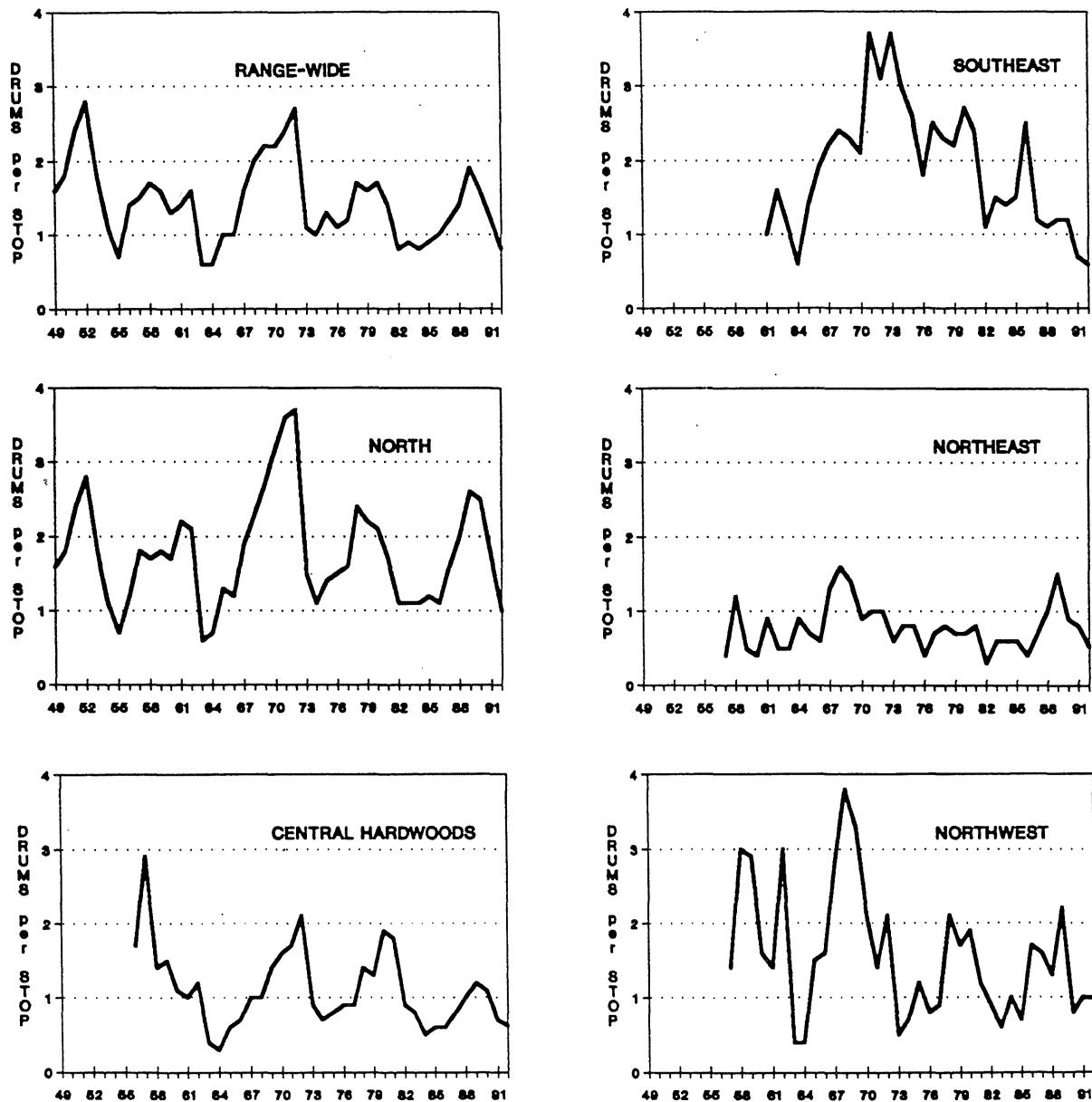


Figure 11. Summary of ruffed grouse drumming trends range-wide and in each of five survey zones, 1949-92.

SHARP-TAILED GROUSE 1991-1992

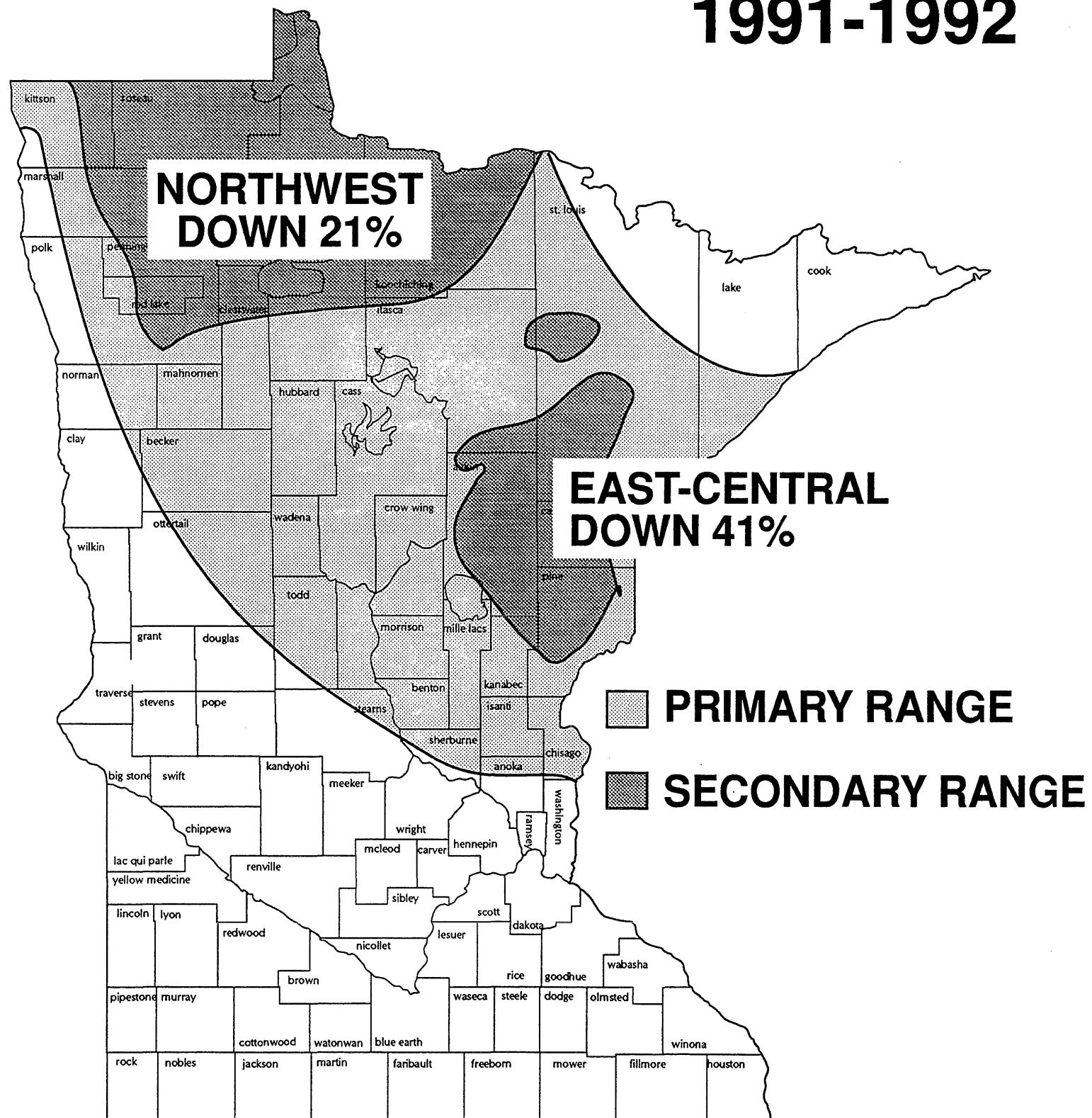


Figure 12. Changes in the numbers of dancing male sharp-tailed grouse on Northwest and East-central survey areas, 1991-1992.

Table 20. Number of snowshoe hares seen per 100 km of ruffed grouse drumming routes in the North, Northwest, and Northeast survey zones, 1974-92.

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

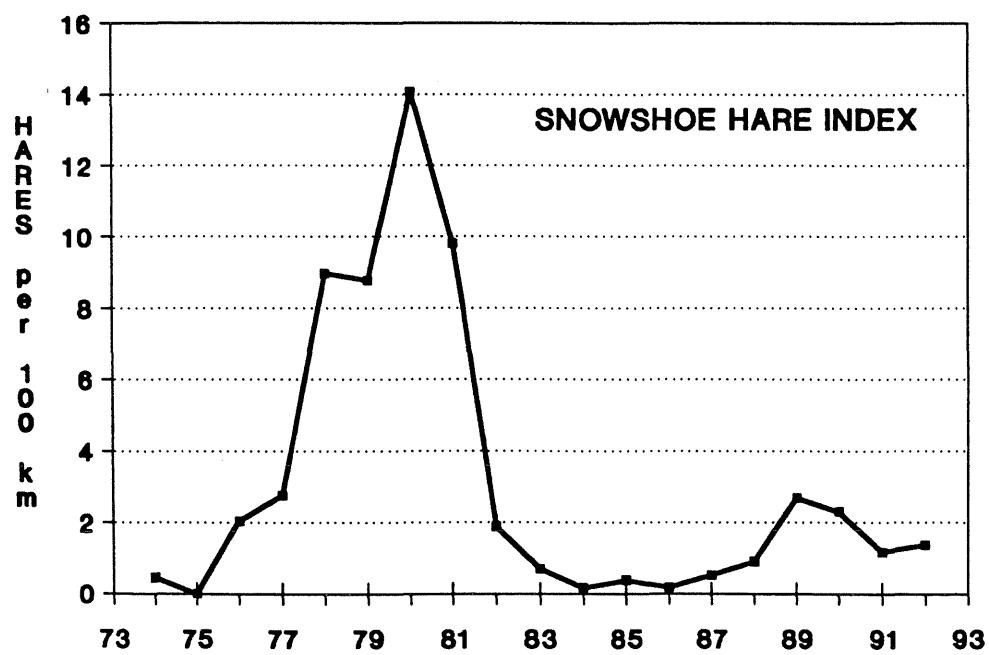


Figure 13. Snowshoe hare index (hares/100km) based on hares seen on northern ruffed grouse drumming routes, 1974-1992.

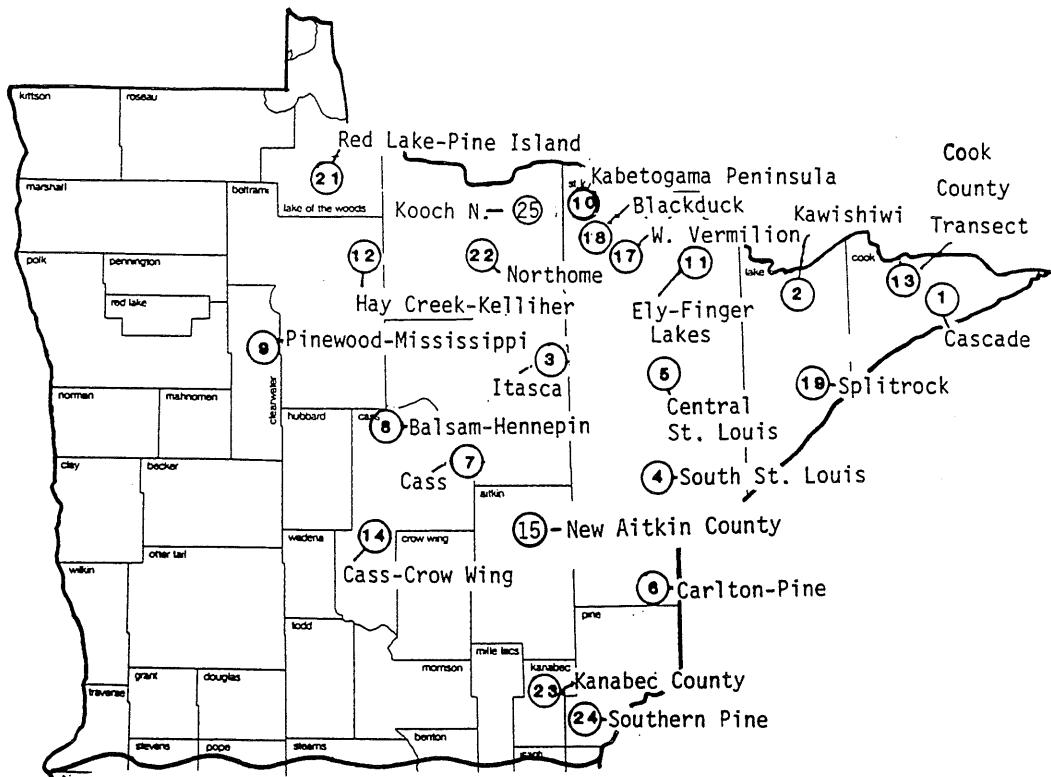


Figure 14. Approximate locations of 23 aerial beaver survey routes flown in 1991.

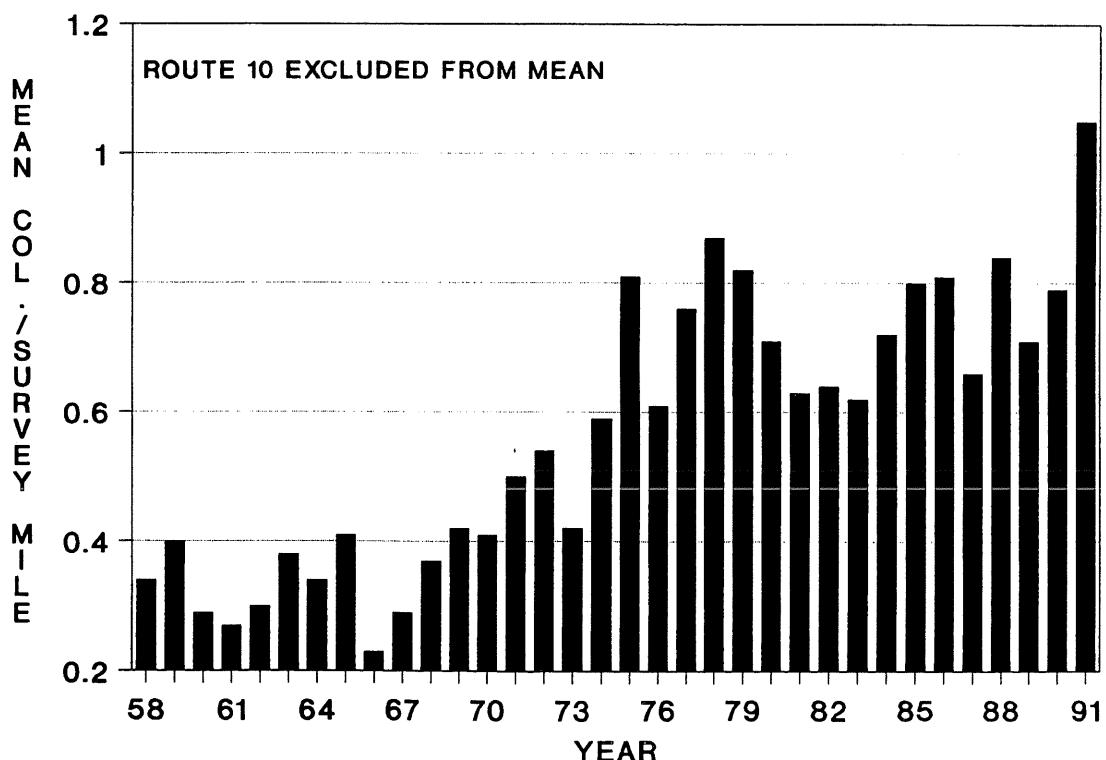


Figure 15. Range-wide mean number of live beaver colonies per mile of survey route, 1958-91.

Table 21. Live beaver colonies per mile of census route in northern Minnesota, 1985-91.

Number	Route name	Year							1985-90 Mean	% Change 1991-mean
		1985	1986	1987	1988	1989	1990	1991		
1	Cascade	0.46	-	0.37	0.40	0.43	0.44	1.13	0.42	169.0
2	Kawishiwi	0.78	-	1.03	0.72	0.47	0.80	1.03	0.76	35.5
3	Itasca	0.67	-	0.22	0.48	0.56	0.45	0.92	0.48	91.7
4	South St. Louis	0.33	-	0.54	0.64	-	0.92	1.35	0.61	121.3
5	Central St. Louis	1.05	-	1.02	-	0.83	0.81	1.12	0.93	20.4
6	Carlton & Pine	0.45	-	0.49	1.04	-	1.06	1.50	0.76	97.4
7	Cass	1.23	-	0.59	0.77	0.84	0.98	1.16	0.88	31.8
8	Balsam-Hennepin	-	-	0.74	0.57	0.59	0.46	0.61	0.59	3.4
9	Pinewood-Mississippi	-	-	0.38	0.36	0.49	0.41	0.59	0.41	43.9
10	Kabetogama Peninsula	2.93	2.92	2.98	2.93	2.92	3.3	2.62	2.95	-11.2
11	Ely-Finger Lakes	1.28	-	1.00	1.23	1.09	1.20	1.67	1.16	44.0
12	Hay Creek-Kelliher	-	-	0.49	0.49	0.56	0.46	0.58	0.50	16.0
13	Cook County Transect	0.31	-	0.31	0.31	0.68	0.38	1.18	0.40	195.0
14	Cass-Crow Wing	0.87	0.69	0.64	0.77	0.89	0.87	0.96	0.79	21.5
15	Little Willow-Aitkin	0.59	-	0.23	0.66	0.59	0.63	0.68	0.54	25.9
16	East Aitkin County	0.90	-	-	1.03	0.80	-	-	0.91	-
17	West Vermilion	0.73	0.95	0.80	0.87	-	1.29	-	0.93	-
18	Blackduck	1.53	-	0.84	1.20	-	1.24	-	1.20	-
19	Splitrock	0.56	-	1.15	1.18	0.53	0.73	2.42	0.83	191.6
20	Isabella	-	-	-	-	-	-	-	-	-
21	Red Lake-Pine Island	-	-	0.37	0.30	0.36	0.33	0.51	0.34	50.0
22	Northome	0.95	0.80	0.75	0.77	-	1.14	0.78	0.88	-11.4
23	Kanabec County	0.76	-	0.52	1.29	0.94	0.81	0.58	0.86	-32.6
24	Southern Pine	0.86	-	-	1.95	1.03	0.93	0.89	1.19	-25.2
25	Koochiching North	-	-	1.29	1.39	1.15	1.05	1.43	1.22	17.2

BOBCAT POPULATION ESTIMATE

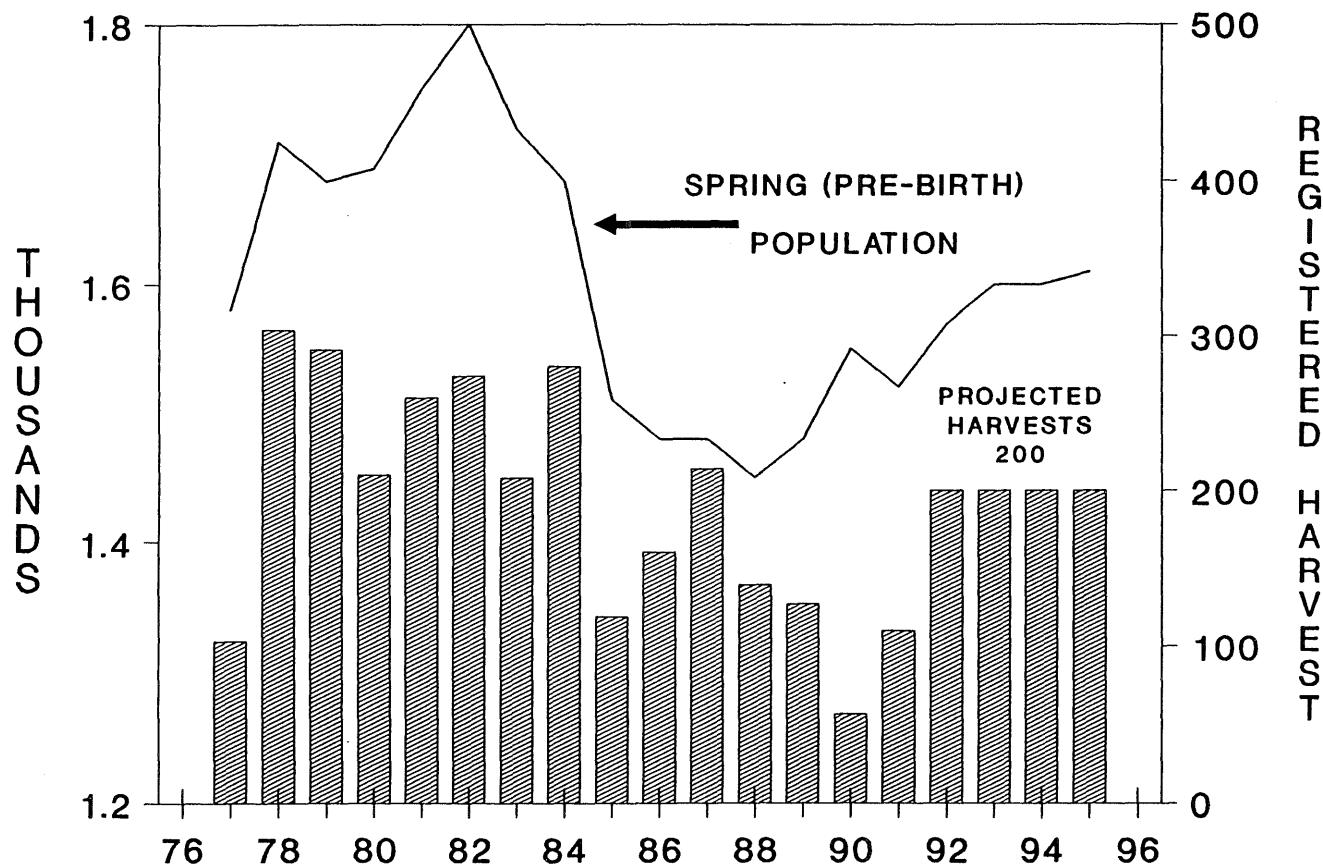


Figure 16. Population modeling summaries for bobcat, 1977-95.

Table 22. Bobcat harvest, age structure, and population index data, 1977 to 1991.

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Registered take	103	304	291	210	260	274	208	280	119	160	214	140	129	84	106
% autumn pop. taken ¹	5%	14%	14%	10%	12%	14%	10%	13%	6%	8%	11%	8%	6%	5%	6%
Carcasses examined	34	113	75	48	230	261	205	288	99	132	163	114	119	62	93
% juveniles	35%	54%	37%	31%	37%	35%	37%	37%	33%	26%	33%	39%	39%	20%	35%
% 1.7 yrs. old	18%	15%	12%	33%	23%	15%	18%	13%	19%	17%	16%	18%	17%	34%	33%
% male >2.7 yrs.	41%	60%	53%	56%	55%	47%	51%	44%	43%	51%	48%	42%	56%	44%	32%
Juv. :: >2.7 yr. females	1.2	4.4	1.6	1.9	2.1	1.3	1.5	1.4	1.2	0.9	1.4	1.7	2.0	0.8	3.6
% male juveniles	50%	61%	54%	80%	59%	47%	56%	52%	41%	53%	44%	58%	49%	58%	59%
% male 1.7 yrs.	33%	53%	44%	69%	63%	49%	56%	66%	41%	32%	52%	62%	53%	80%	55%
% >2.7 yrs. old	47%	31%	52%	35%	40%	50%	37%	50%	48%	58%	51%	46%	44%	46%	70%
Overall % males	41%	59%	52%	66%	58%	48%	45%	51%	42%	51%	48%	54%	53%	59%	61%
Mean pelt price	\$74	\$164	\$118	\$79	\$73	\$66	\$61	\$76	\$70	\$120	\$101	\$68	\$48	\$43	\$37
Scent post index ²	8	6	5	2	14	14	3	12	5	8	7	5	17	10	16
Snowshoe hare index ³	9.0	8.8	14.1	9.8	1.8	0.7	0.2	0.3	0.2	0.5	0.9	2.7	2.3	1.2	1.4

¹ estimated from population model

² index for autumn prior to harvest season

³ index for spring after harvest season

OTTER POPULATION ESTIMATE

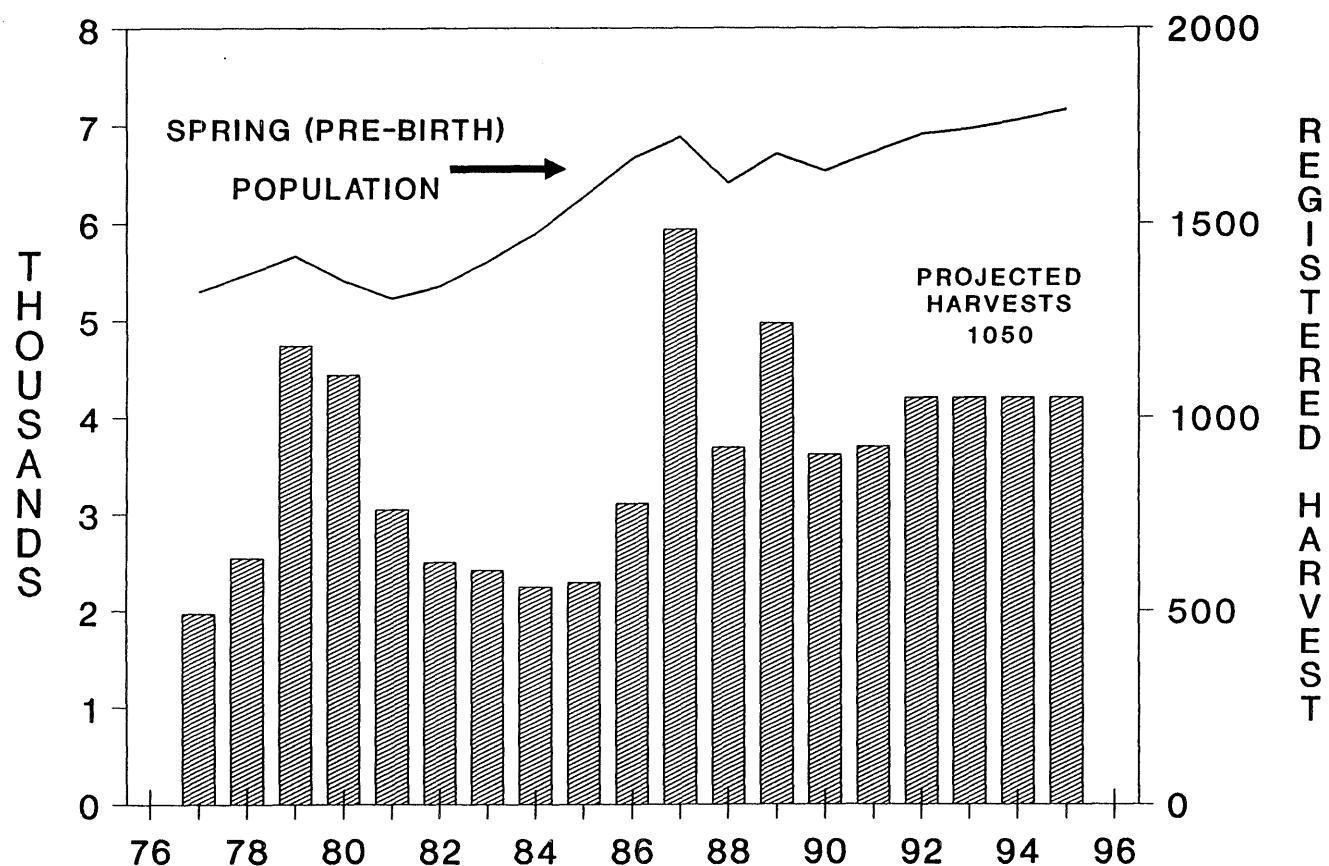


Figure 17. Population modeling summaries for otter, 1977-95.

Table 23. Otter harvest, carcass collection, and pelt price data, 1980-90. Carcasses were not collected after 1986.

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Season dates	11/15-11/29	11/14-11/28	11/13-11/27	11/12-11/26	11/17-12/01	11/16-12/15	10/24-11/29	10/24-11/29	10/29-11/27	10/28-12/17	10/27-1/6	10/26-1/5
Registered harvest	1,111	485	385	408	513	559	777	1,386	922	1,294	903	855
% of autumn population harvested ^a	20%	9%	7%	7%	8%	8%	11%	17%	15%	18%	13%	13%
No. carcasses examined	88	471	389	433	549	572	745	---	---	---	---	---
% juveniles	54.5	55.0	50.6	42.3	47.9	43.4	45.2	---	---	---	---	---
% yearlings	14.7	19.7	25.6	30.9	23.3	22.9	23.3	---	---	---	---	---
% male juveniles	39.6	55.6	56.7	55.7	47.1	53.3	45.1	---	---	---	---	---
% males ≥ 1.7 yrs.	57.5	53.3	65.1	56.8	50.0	50.0	48.1	---	---	---	---	---
Mean pelt prices:												
otter	\$33	\$30	\$26	\$25	\$22	\$21	\$24	\$23	\$22	\$22	\$24	\$25
beaver (autumn)	\$18	\$14	\$11	\$12	\$12	\$15	\$20	\$17	\$14	\$12	\$9	\$9

^a From population modeling; includes an additional 20% accidental harvest over registered total.

FISHER POPULATION ESTIMATE

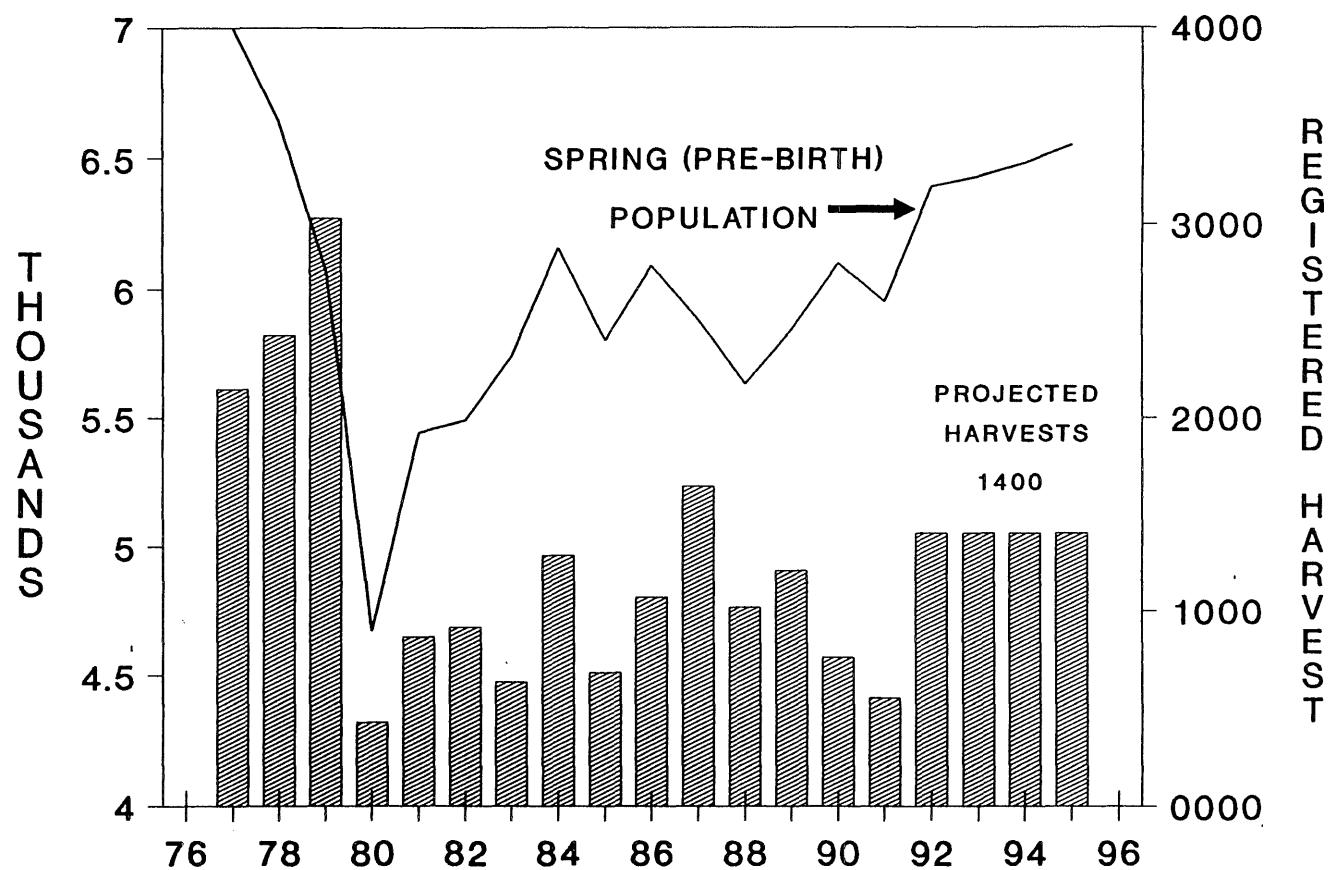


Figure 18. Population modeling summaries for fisher, 1977-95.

Table 24. Harvest, carcass collection, and pelt price data for fisher seasons in Minnesota, 1977 to 1991. Fisher taken in 1980 were on Indian Reservations.

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Season	12/1-1/31	12/1-1/31	12/1-1/31	closed	12/1-12/10	12/1-12/10	12/1-12/11	12/1-12/16	11/30-12/15	11/29-12/4	11/28-12/13	11/26-12/11	12/2-12/17	12/1-12/16	11/30-12/15
Limit	3	3	3	---	1	1	1	1	1	1	1	1	1	1	1
Registered take	2150	2426	3032	(423)	862	912	631	1285	678	1068	1642	1025	1243	746	528
% of available autumn population harvested ¹	26%	30%	42%	9%	17%	17%	10%	18%	10%	14%	21%	16%	15%	12%	10%
No. carcasses examined ²	562	577	467	----	843	1073	662	1270	712	1186	1534	805	1024	592	410
% juveniles	69%	70%	65%	----	66%	66%	69%	63%	63%	59%	63%	70%	64%	65%	66%
% 1.7 yr.	16%	16%	15%	----	24%	19%	18%	20%	20%	24%	15%	15%	19%	14%	21%
% ≥ 2.7 yrs.	14%	14%	21%	----	10%	15%	13%	17%	18%	18%	22%	15%	17%	21%	13%
Juv:ad. female ratio	8.4:1	7.1:1	5.6:1	----	10.5:1	9.4:1	8.8:1	7.2:1	5.4:1	5.3:1	4.7:1	6.8:1	5.8:1	4.5:1	7.8:1
% male juveniles	54%	44%	54%	----	48%	46%	45%	52%	46%	48%	46%	48%	47%	44%	50%
% male 1.7 yrs.	28%	35%	46%	----	43%	41%	40%	45%	40%	50%	40%	45%	47%	55%	52%
% male ≥ 2.7 yrs.	43%	28%	44%	----	37%	52%	40%	45%	34%	37%	37%	33%	36%	30%	35%
% males overall	48%	40%	50%	----	47%	46%	44%	49%	43%	46%	43%	45%	45%	43%	48%
Pelt price: males	\$71	\$132	\$108	\$90	\$94	\$70	\$71	\$70	\$74	\$84	\$84	\$54	\$26	\$35	\$21
females		\$147	\$128	\$104	\$110	\$99	\$121	\$122	\$130	\$162	\$170	\$100	\$53	\$46	\$48
Snowshoe hare index ³	9.0	8.8	14.1	9.8	1.8	0.7	0.2	0.3	0.2	0.5	0.9	2.7	2.3	1.2	1.4

¹ estimated from population model

² may exceed registration totals due to harvests by Indians, accidental catches, etc.

³ number of snowshoe hares seen per 100 km of ruffed grouse drumming route during the spring after fisher season

PINE MARTEN POPULATION ESTIMATE

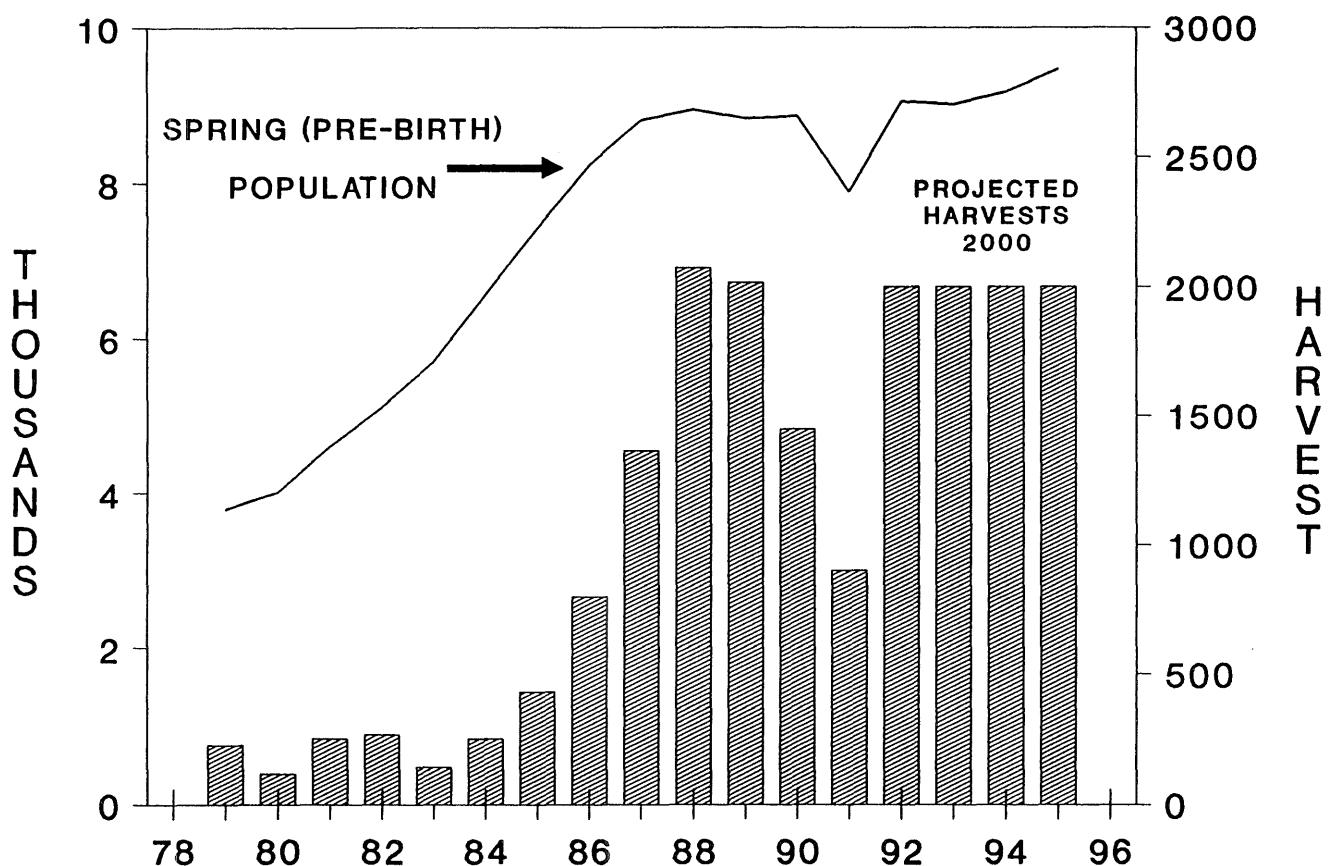


Figure 19. Population modeling summaries for pine marten, 1979-95.

Table 25. Harvest, carcass collection, and pelt price data for pine marten seasons in Minnesota, 1985 to 1991.

	1985 11/30-12/15	1986 11/29-12/14	1987 11/28-12/13	1988 11/26-12/11	1989 12/2-12/17	1990 12/1-12/16	1991 11/30-12/15
Season							
Limit	1	1	1	2	2	2	1
Registered take	430	798	1363	2072	2119	1349	656
% of available autumn population harvested ¹	6%	9%	16%	20%	20%	16%	12%
No. carcasses examined ²	507	884	1754	1977	1014	1375	716
% juveniles	73%	64%	66%	66%	68%	48%	74%
% 1.7 yr.	18%	21%	18%	11%	12%	18%	9%
% ≥2.7 yrs.	9%	15%	16%	23%	20%	34%	17%
juv:ad. female ratio	17.2:1	12.3:1	11.2:1	8.6:1	9.7:1	3.6:1	16.1:1
% male juveniles	69%	65%	65%	58%	57%	59%	69%
% male 1.7 yrs.	68%	71%	67%	50%	63%	54%	71%
% male ≥2.7 yrs.	82%	81%	75%	66%	65%	61%	72%
% males overall	70%	69%	67%	59%	59%	59%	70%
pelt price (male)	\$30	\$36	\$43	\$50	\$48	\$44	\$40
pelt price (female)	\$28	\$27	\$39	\$43	\$47	\$41	\$27

¹ estimated from population model

² may exceed registration totals due to harvests by Indians, accidental catches, etc.

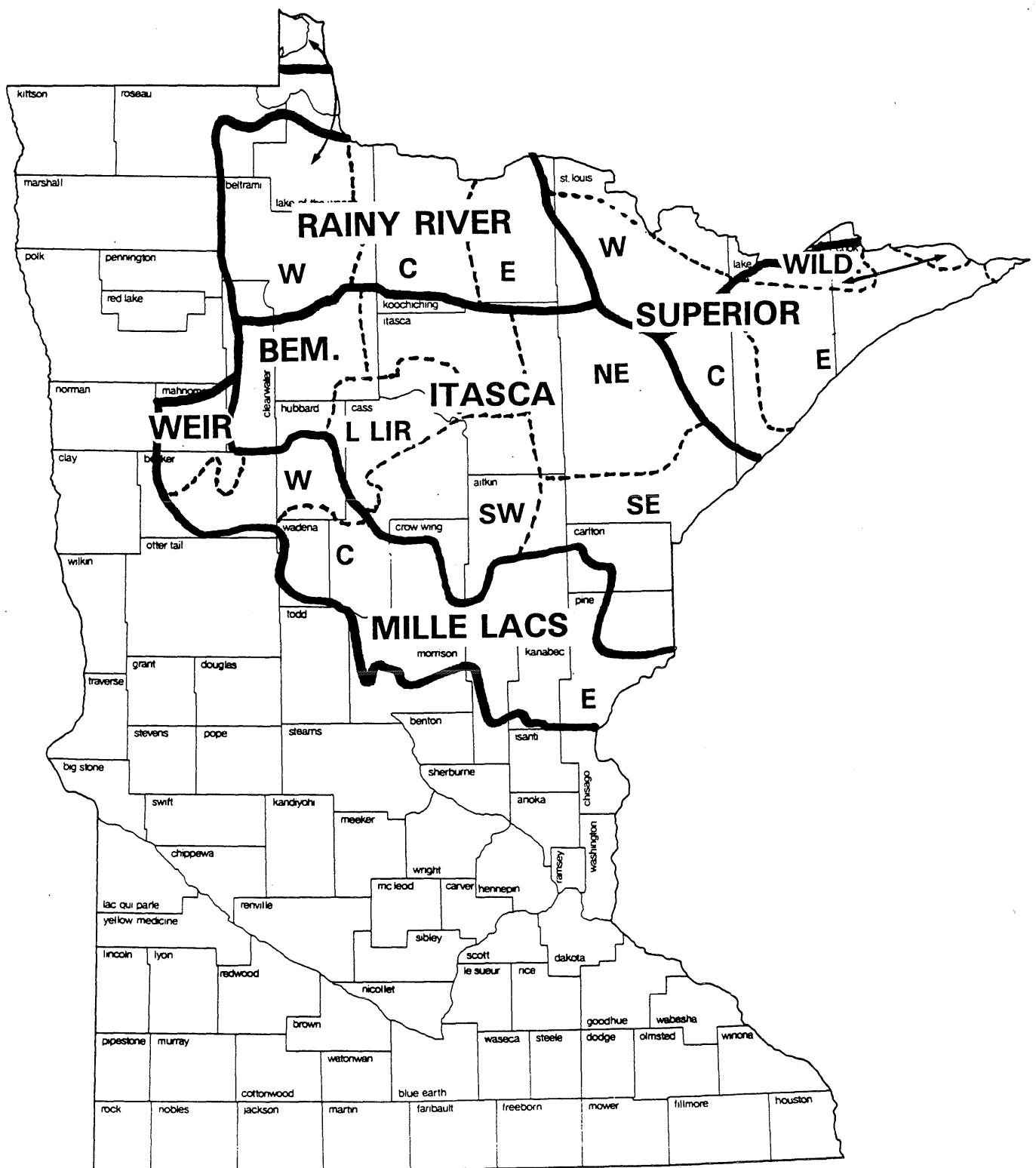


Figure 20. Deer Management Units (DMU) and sub-DMU's in the Forest Zone.

Table 26. Spring white-tailed deer densities estimated from population modeling in Deer Management Subunits of Minnesota's Forest zone, 1984-92.^a

DMU and subunit	Deer per square mile									
	1984	1985	1986	1987	1988	1989	1990	1991	1992	Goal*
<u>Itasca</u>	12	13	13	15	17	16	20	24	28	
Northwest	18	19	17	18	20	19	24	27	30	22-24
Southwest	12	13	12	14	16	16	20	23	27	22-24
Northeast	8	9	10	11	13	12	16	18	22	18-20
Southeast	12	14	15	18	21	21	26	31	37	25-27
Leech Lake IR	10	11	11	13	14	13	16	17	20	18-20
Bemidji	15	15	14	15	16	15	18	21	23	20-22
<u>Mille Lacs</u>	12	12	12	13	14	15	18	21	22	
West	16	16	15	16	17	17	20	23	25	20+5
Central	14	14	14	14	15	16	19	21	23	16-18**
East	10	11	11	13	16	18	22	25	26	10-15
White Earth IR	5	6	6	6	6	6	7	7	8	14-16
<u>Rainy River</u>	11	11	11	13	14	12	15	16	18	
West	11	12	12	13	14	12	15	16	18	18-20
Central	7	7	7	8	9	8	9	10	11	10-12**
East	14	16	16	18	20	18	21	23	26	20-22
<u>Superior</u>	8	9	9	11	12	11	14	16	18	
West	11	13	13	15	17	15	19	22	25	20-22
Central	8	9	9	11	12	11	14	16	19	13-15
East	4	4	4	5	6	5	6	7	8	6-8

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

* Tentative revisions (1992) of population goals.

** Goal varies among quota areas within subunit.

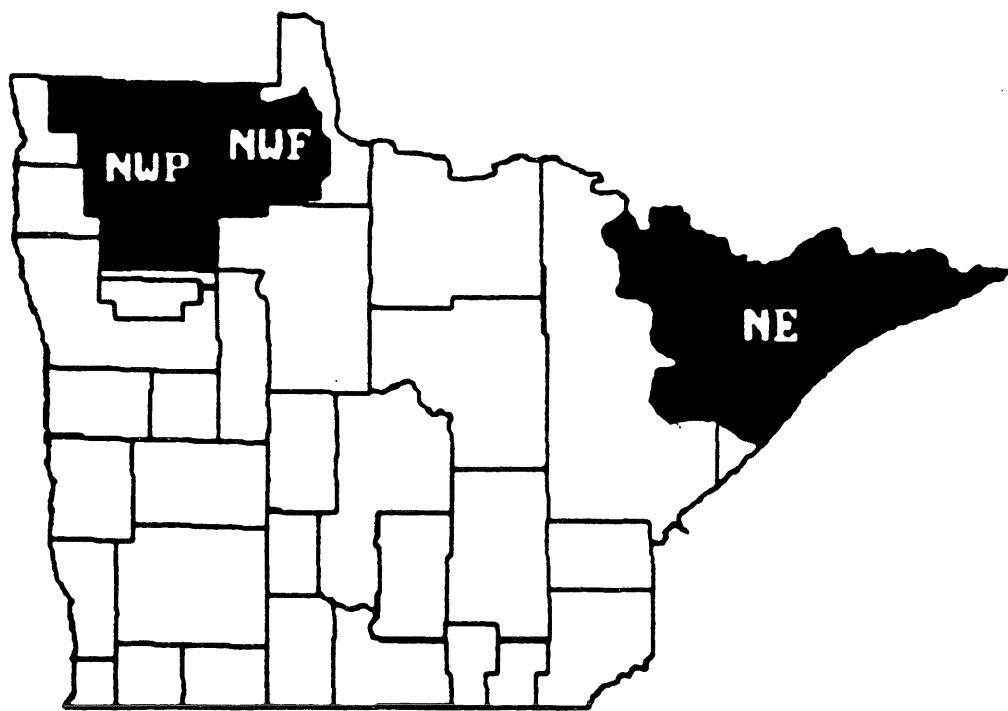


Figure 21. Aerial moose survey area boundaries.

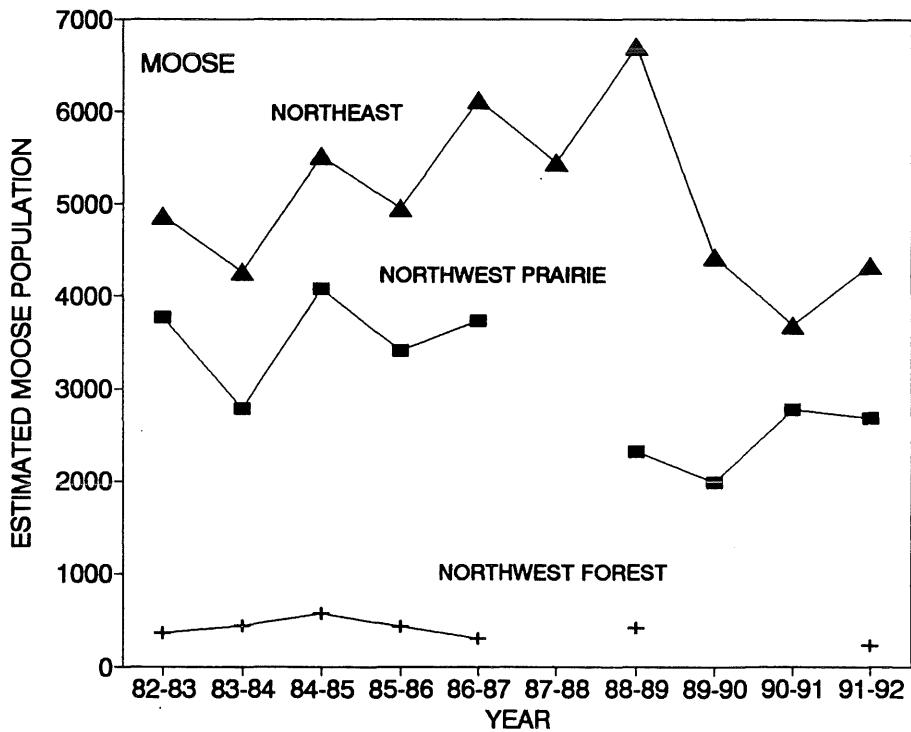


Figure 22. Moose population trends by survey area in northern Minnesota. Trend lines are broken where survey information was not collected.

Table 27. Moose population estimates from aerial moose survey in Minnesota, 1982-92.

Year	Population Estimate by Survey Area (+90% CI)					
	Northwest Prairie		Northwest Forest		Northeast	
1982-83	3772	(930)	370	(124)	4877	(999)
1983-84	2784	(567)	446	(139)	4274	(925)
1984-85	4086	(518)	578	(148)	5518	(1494)
1985-86	3415	(412)	433	(100)	4955	(1034)
1986-87	3740	(747)	307	(83)	6120	(1438)
1987-88	no survey		no survey		5457	(1057)
1988-89	2328	(474)	419	(153)	6702	(2357)
1989-90	1985	(435)	no survey		4429	(1218)
1990-91	2771	(817)	no survey		3688	(1669)
1991-92	2678	(±629)	223	(± 65)	4345	(±1355)
change 1990-91 to 1991-92	- 3%		* -47%		+18%	

* change since last survey in 1988-89.

MIGRATORY BIRD POPULATIONS
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Table 28. Estimated spring duck populations of selected species in Minnesota, 1975-92.

Species	Year	Unadjusted population index	Visibility factor	Adjusted population estimate (thousands)
Mallard	1975	55,093	3.19	176
	1976	69,844	1.69	118
	1977	60,617	2.21	134
	1978	56,152	2.61	147
	1979	61,743	2.57	159
	1980	83,775	2.05	172
	1981	79,562	1.95	155
	1982	51,655	2.33	121
	1983	73,424	2.12	156
	1984	94,514	1.99	188
	1985	96,045	2.26	217
	1986	108,328	2.16	235
	1987	165,881	1.16	192
	1988	155,453	1.75	272
	1989	124,362	2.19	273
	1990	140,879	1.65	232
	1991	128,315	1.75	225
	1992	144,125	2.50	360
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

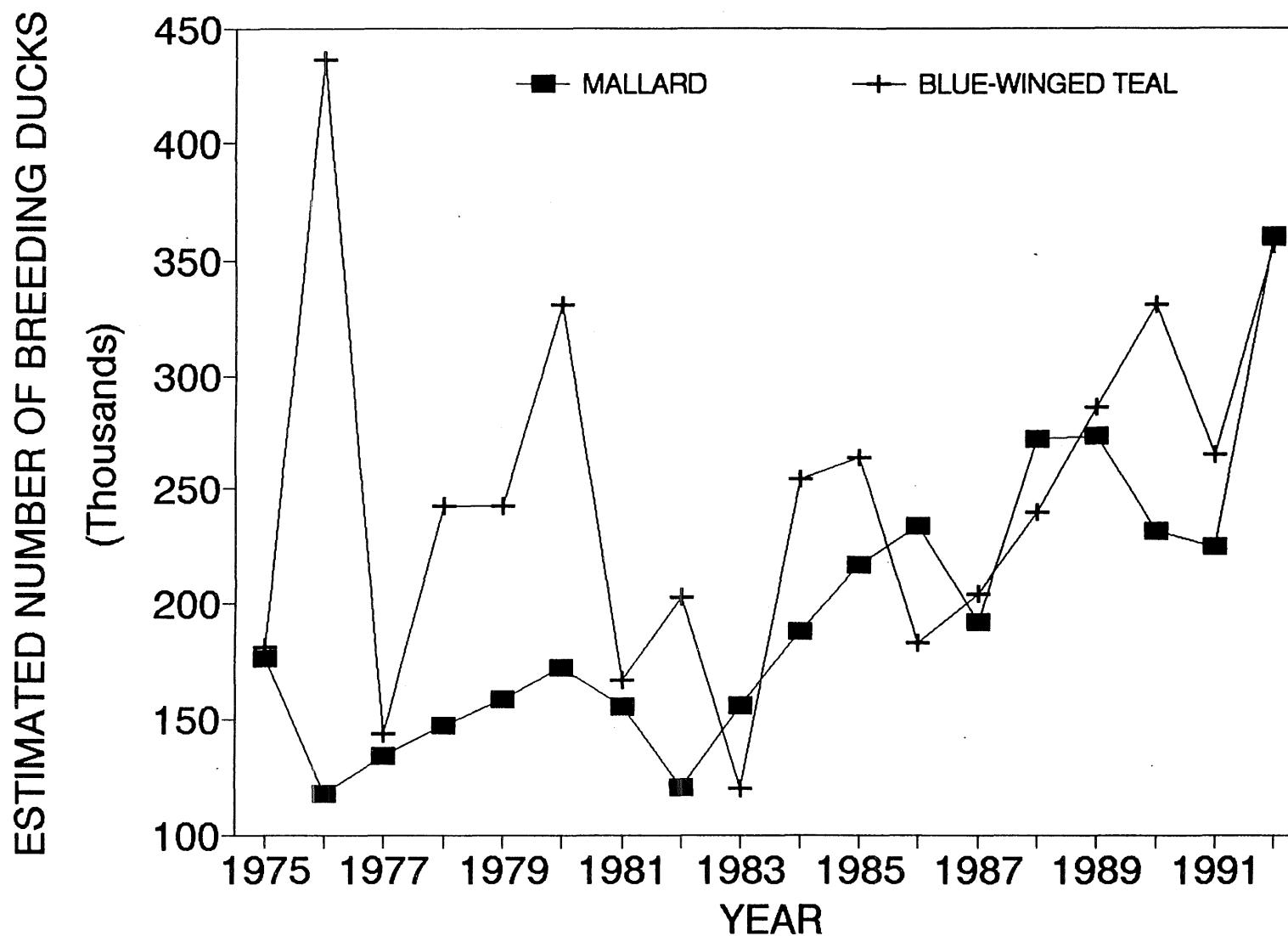


Figure 23. Estimated number of mallards and blue-winged teal breeding in Minnesota, 1975-92.

Table 29. Winter population estimates (post hunting season) of the Canada goose eastern prairie flock, 1963-91 (taken from : U.S. Fish and Wildlife Service/Canadian Wildlife Service. 1992. 1992 Status of waterfowl and fall flight forecast; July 1992. 42pp).

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

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

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

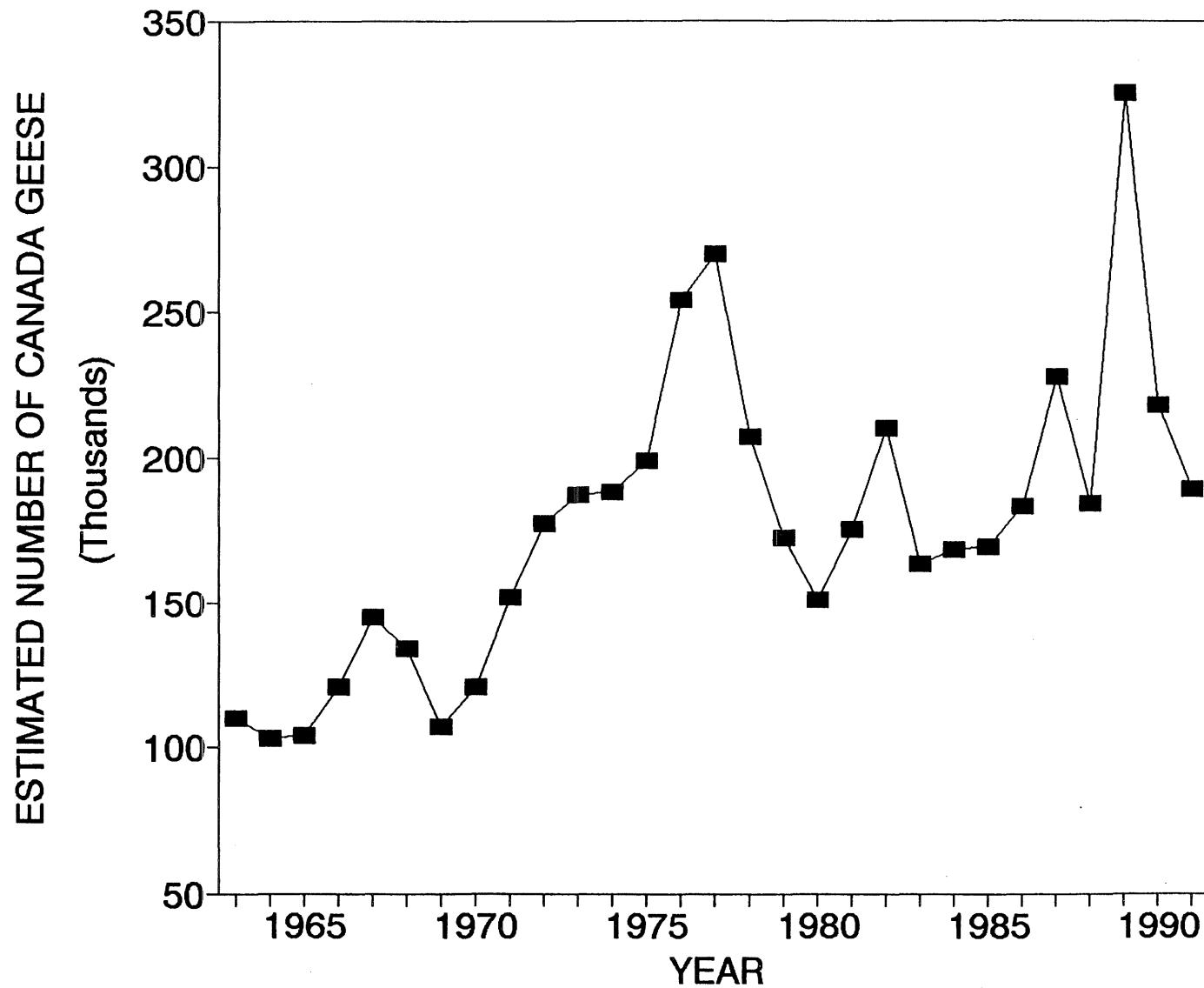


Figure 24. Winter population estimates of the Eastern Population of Canada geese, 1963-91 (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service reports 1992. 1992 Status of waterfowl and fall flight forecasts; July 1992. 42pp).

Table 30. Summary of the number of May ponds (adjusted for visibility) in Prairie Canada (portions of Alberta, Saskatchewan and Manitoba) 1961-92 and north-central U.S. (North Dakota, South Dakota and Montana) 1974-92. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service, 1992. 1992 Status of waterfowl and fall flight forecast. July 1992. 42pp).

Year	Ponds (thousands)	
	Prairie Canada	North Central U.S. ^a
1961	2,006	--
1962	2,531	--
1963	2,499	--
1964	3,445	--
1965	4,415	--
1966	4,672	--
1967	4,732	--
1968	1,938	--
1969	3,530	--
1970	4,957	--
1971	4,096	--
1972	4,065	--
1973	2,937	--
1974	6,693	1,509
1975	6,267	1,911
1976	5,057	1,392
1977	2,278	771
1978	3,622	1,590
1979	4,859	1,522
1980	2,141	761
1981	1,443	683
1982	3,185	1,458
1983	3,906	1,259
1984	2,458	1,766
1985	4,283	1,327
1986	4,025	1,735
1987	2,598	1,348
1988	2,110	794
1989	1,696	1,290
1990	2,817	691
1991	2,494	706
Average	3,400	1,269
1992	2,784	825
% Change in 1992 from:		
1991	+12	+17
Average	-18	-35

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

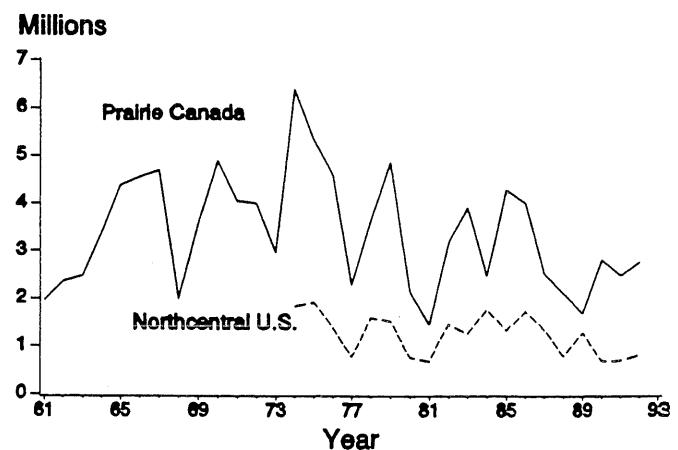
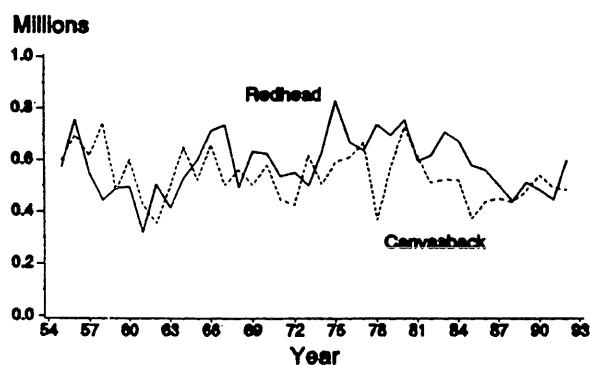
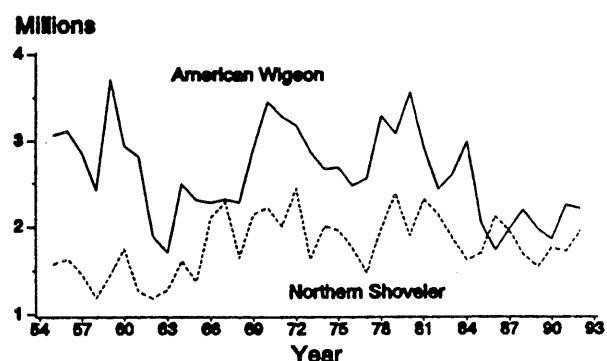
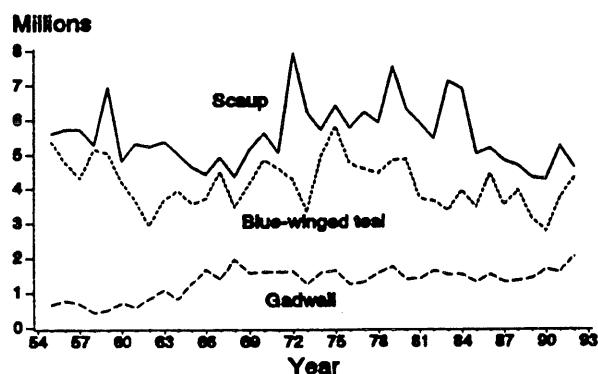
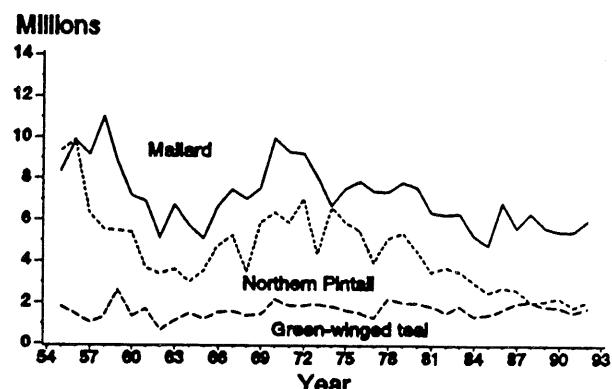
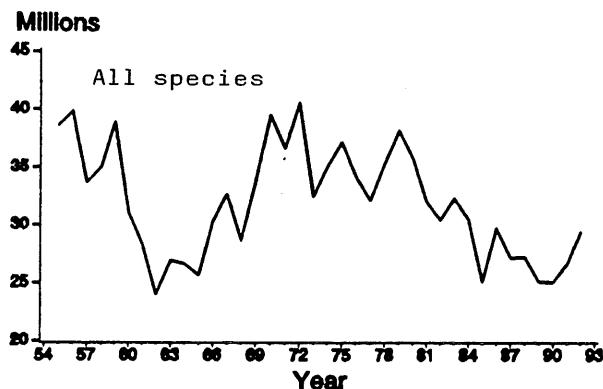


Figure 25. Estimates of North American breeding populations of selected ducks and number of water areas in May in Prairie Canada and Northcentral U.S. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service 1992. 1992 Status of waterfowl and fall flight forecasts; July 1992. 42pp).

Table 31. North American breeding population estimates for 10 species of ducks, 1955-92. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service. 1992. 1992 Status of waterfowl and fall flight forecast; July 1992. 42pp). In thousands.^a

Year	Mallard		Gadwall		American wigeon		Green-winged teal		Blue-winged teal		Northern shoveler		Northern pintail		Redhead		Canvasback		Scaup	
	N	SE*	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE	N	SE
1955	8355.9	383.5	662.7	56.0	3066.7	269.0	1822.8	265.0	5381.2	368.5	1571.3	108.6	9387.1	554.1	572.1	69.0	599.2	68.3	5608.9	453.3
1956	9841.5	394.6	782.6	51.4	3117.6	321.7	1479.5	153.2	4762.9	308.3	1630.4	86.1	9897.3	605.6	755.1	94.5	695.8	80.5	5733.8	571.9
1957	9151.3	398.9	691.0	75.3	2851.5	296.8	1053.3	143.5	4312.4	263.2	1458.7	110.4	6310.7	421.1	542.2	68.2	614.5	91.8	5745.3	436.9
1958	10993.6	521.8	453.8	36.4	2421.3	244.3	1326.1	223.1	5164.7	386.8	1187.3	143.0	5552.4	363.2	443.1	55.4	742.4	97.0	5285.8	473.0
1959	8746.1	649.3	527.2	59.8	3703.0	386.1	2601.1	505.1	5046.2	483.0	1455.8	288.1	5482.9	383.0	492.8	89.1	480.6	51.4	6961.3	602.3
1960	7164.1	347.5	720.9	54.8	2936.5	411.3	1389.8	349.4	4184.7	296.2	1743.1	124.4	5414.2	288.2	494.7	70.3	599.5	81.2	4825.9	411.8
1961	6912.0	502.3	594.3	66.7	2817.3	240.7	1708.7	272.7	3655.0	322.3	1256.4	127.9	3676.0	265.8	319.1	40.8	427.6	63.7	5335.3	459.6
1962	5139.4	271.7	846.3	77.0	1882.0	142.8	700.3	131.4	2940.2	190.0	1182.5	88.5	3395.4	199.2	503.3	69.1	353.7	41.3	5240.3	404.2
1963	6723.2	418.4	1092.0	91.0	1705.9	142.7	1155.3	199.7	3680.5	307.1	1278.3	120.1	3621.9	205.5	413.0	59.8	499.4	73.1	5396.4	393.2
1964	5740.2	368.6	825.1	61.6	2494.7	311.7	1505.0	256.6	3960.8	306.6	1608.1	233.8	3013.3	184.2	526.5	70.3	649.1	127.1	5057.9	387.4
1965	5101.2	246.1	1269.7	112.7	2312.3	192.6	1237.2	126.6	3569.6	253.7	1372.2	84.8	3549.4	186.8	599.0	76.2	520.2	50.0	4651.5	396.2
1966	6679.7	302.3	1672.3	130.1	2281.9	134.4	1579.6	185.0	3718.3	218.7	2102.8	154.8	4763.7	242.9	712.8	76.5	658.3	76.7	4431.8	320.6
1967	7470.4	334.5	1384.6	97.8	2320.0	139.5	1588.1	164.5	4509.2	310.9	2291.0	155.8	5270.4	327.5	734.2	78.9	500.2	45.0	4931.7	453.8
1968	7018.5	328.0	1947.0	213.7	2281.5	154.4	1405.3	144.3	3459.0	383.2	1645.6	165.7	3469.7	224.7	492.5	51.3	561.3	100.5	4360.3	323.9
1969	7536.0	274.6	1573.0	100.2	2918.6	170.2	1467.5	94.4	4132.7	239.4	2145.2	114.8	5900.2	280.2	632.5	53.5	500.8	53.4	5130.6	360.8
1970	9960.0	616.1	1606.1	123.5	3447.0	317.6	2171.0	133.4	4858.1	372.4	2220.1	116.3	6369.3	395.6	624.2	64.4	577.7	90.3	5633.9	397.4
1971	9305.9	438.2	1602.5	122.9	3281.3	182.3	1881.3	126.6	4606.5	316.9	2005.2	121.4	5873.7	369.3	534.4	56.7	443.8	48.6	5063.1	332.0
1972	9254.9	363.0	1620.5	120.1	3172.4	192.6	1894.9	189.0	4276.5	229.8	2441.4	182.0	7018.1	367.2	550.7	49.4	426.2	46.0	7932.0	721.7
1973	8060.2	372.9	1246.5	90.4	2863.7	200.0	1935.9	132.3	3333.8	220.4	1624.3	111.5	4351.1	266.9	498.2	57.8	617.0	89.3	6221.5	532.6
1974	6681.0	309.5	1591.8	128.1	2665.1	155.9	1839.9	129.8	4968.2	389.8	2006.3	128.6	6583.0	342.8	626.6	70.6	504.2	50.6	5720.4	408.8
1975	7494.0	306.8	1641.0	108.9	2692.0	185.9	1666.5	142.9	5828.8	335.6	1962.1	107.3	5878.1	267.3	828.7	93.3	591.3	49.6	6426.9	481.3
1976	7894.4	306.8	1244.7	85.5	2476.1	145.2	1535.8	131.9	4746.6	288.0	1755.8	106.9	5475.1	299.0	668.4	66.1	609.5	65.0	5778.7	341.0
1977	7395.8	366.4	1311.5	126.8	2559.8	180.9	1290.6	84.9	4589.0	347.9	1475.1	85.9	3935.2	246.7	637.1	79.7	667.0	70.3	6246.8	355.9
1978	7353.4	273.2	1560.5	92.2	3285.5	205.3	2193.9	215.4	4747.0	288.7	1977.6	115.6	5105.5	267.5	737.8	63.4	369.1	32.1	5935.8	399.3
1979	7815.5	295.1	1750.5	121.1	3087.3	193.5	2018.9	198.5	4860.5	291.8	2385.5	134.7	5382.2	274.2	694.7	63.6	572.8	53.5	7540.3	567.5
1980	7570.0	267.9	1390.6	98.7	3557.6	207.6	1993.7	137.5	4884.1	290.8	1901.9	119.3	4513.8	228.5	753.1	118.7	726.7	79.1	6314.2	415.6
1981	6367.1	274.1	1401.5	119.9	2923.5	167.5	1851.4	138.6	3725.9	236.5	2324.7	177.4	3472.3	260.5	595.7	61.8	610.3	52.3	5917.6	410.0
1982	6253.5	262.0	1637.3	126.4	2440.4	160.8	1542.9	143.1	3656.8	193.0	2140.6	121.6	3708.5	226.5	616.8	74.0	510.3	43.6	5468.1	371.8
1983	6312.9	249.8	1517.0	144.2	2605.9	176.9	1835.7	146.2	3366.4	188.1	1870.2	105.2	3506.1	178.0	708.7	83.0	522.7	52.6	7135.6	477.8
1984	5246.6	209.8	1531.6	126.0	2987.0	169.2	1361.0	84.9	3956.2	260.7	1619.5	91.8	2968.7	166.6	673.0	71.7	520.1	51.2	6909.1	477.3
1985	4754.2	184.8	1304.4	98.1	2039.7	137.8	1435.3	95.9	3459.1	231.6	1696.7	125.6	2511.4	142.7	578.6	66.8	373.0	34.0	5038.1	324.0
1986	6835.6	333.6	1539.6	107.5	1731.7	110.4	1681.7	137.1	4463.4	237.8	2117.7	112.4	2736.5	152.1	559.9	60.5	436.8	41.6	5204.3	354.1
1987	5612.8	209.6	1310.8	97.4	1982.3	131.3	2003.1	180.7	3517.6	221.7	1951.1	118.8	2629.2	159.4	502.3	54.9	450.5	77.9	4837.4	305.1
1988	6331.3	311.8	1349.2	120.6	2194.4	140.1	2057.9	189.2	3975.4	292.4	1680.2	210.5	2011.2	163.9	441.1	66.2	436.2	40.6	4683.8	309.1
1989	5649.7	245.8	1415.9	106.9	1973.9	106.1	1842.7	166.5	3128.3	230.7	1539.5	97.0	2112.5	181.3	510.9	58.6	477.9	48.5	4344.3	291.5
1990	5452.1	238.5	1672.0	135.8	1860.2	108.3	1789.7	172.8	2776.4	178.7	1759.4	118.6	2256.7	183.3	480.9	48.2	539.3	60.3	4293.7	265.0
1991	5444.4	206.6	1583.6	111.8	2254.1	139.5	1557.9	111.3	3763.7	270.7	1716.2	104.6	1803.4	131.3	445.6	42.1	491.2	66.4	5255.4	364.7
1992	5976.1	241.0	2032.8	143.4	2208.4	131.9	1773.1	123.7	4333.1	263.2	1954.4	132.1	2098.1	161.0	595.6	69.7	481.5	97.3	4639.2	291.9
1955-91 Avg.	7179		1294		2627		1659		4154		1786		4565		581		537		5584	
Percent change in 1992 from:																				
1991	+10		+28		-2		+14		+15		+14		+16		+34		-2		-12	
1955-91 Avg.	-17		+57		-16		+7		+4		+9		-54		+2		-10		-17	

^a All duck indexes adjusted for visibility bias.

* 95% CI = $N \pm 1.96 * SE$ Example: for 1992, the Mallard breeding population is estimated to be in a range between 5503.7 - 6448.5, or $5976.1 \pm 1.96 \times 241.0$.

90% CI = $N \pm 1.645 * SE$

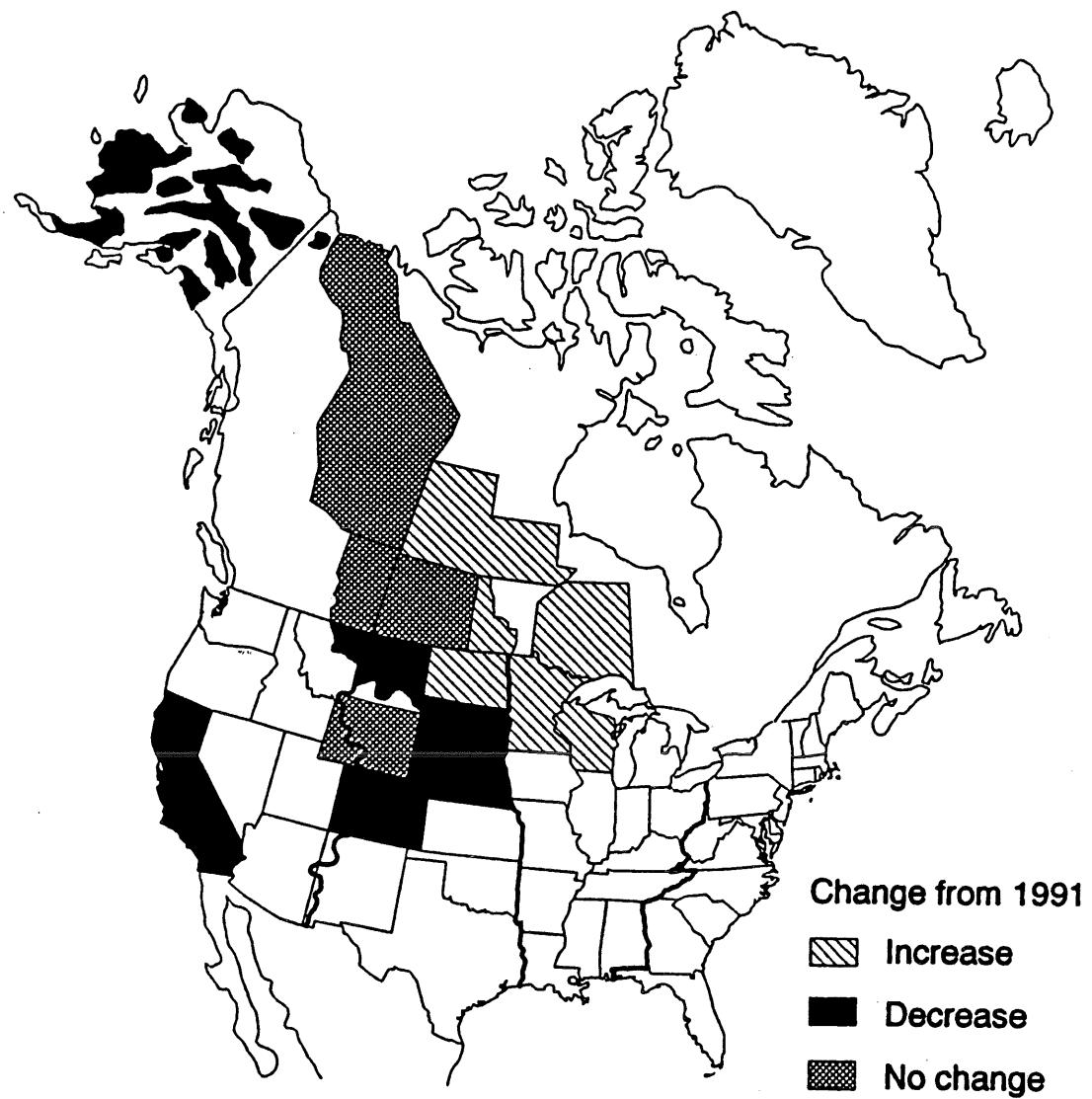


Figure 26. Fall 1992 duck flight forecast for Canada and the U.S., change from 1991, FORECAST: No Change (+3%) (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service 1992. 1992 Status of waterfowl and fall flight forecast; July 1992. 42pp).

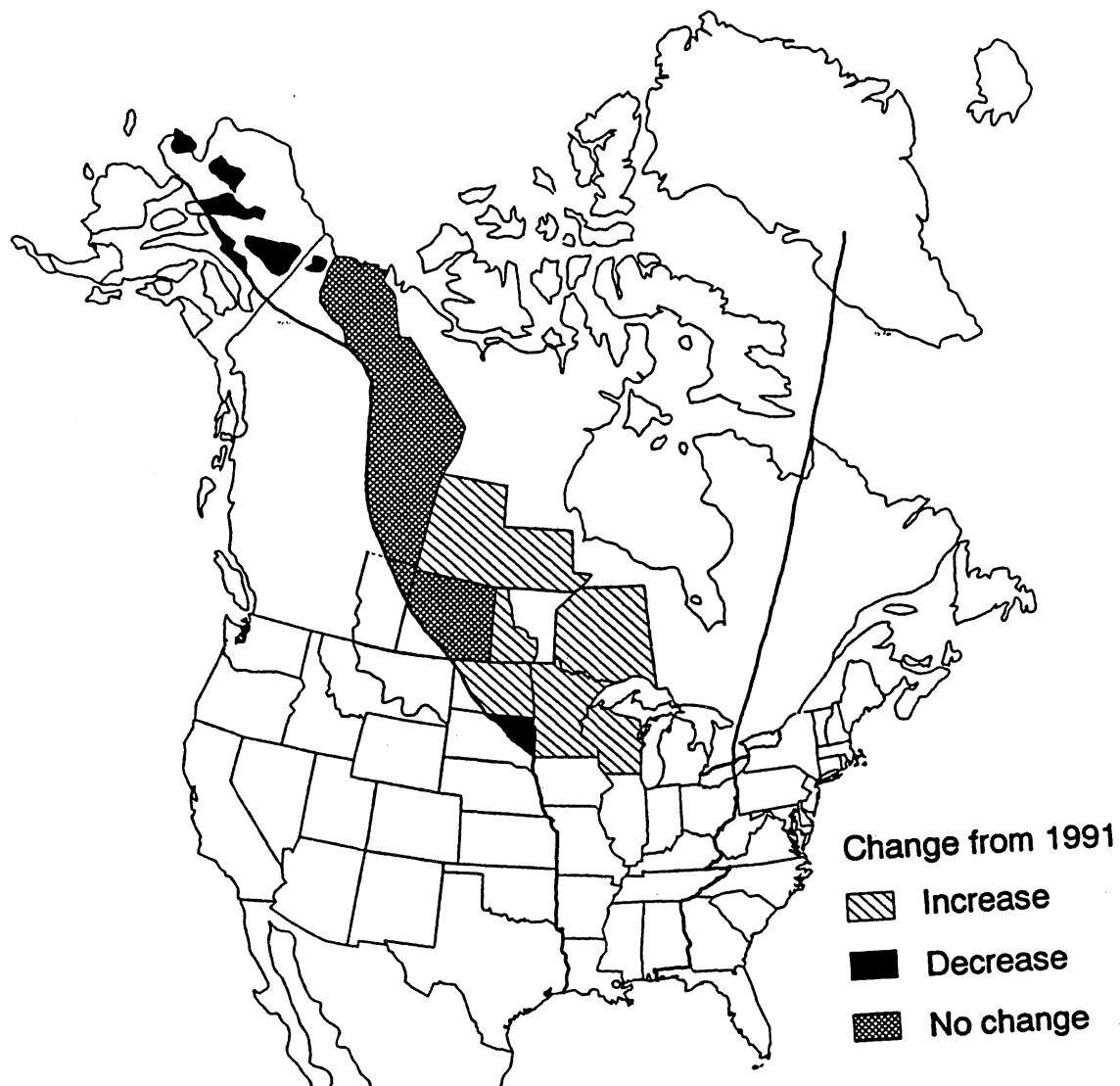


Figure 27. Fall 1992 duck flight forecast for the Mississippi Flyway, change from 1991, FORECAST: No Change (+10%) (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service 1992. 1992 Status of waterfowl and fall flight forecast; July 1992. 42pp).

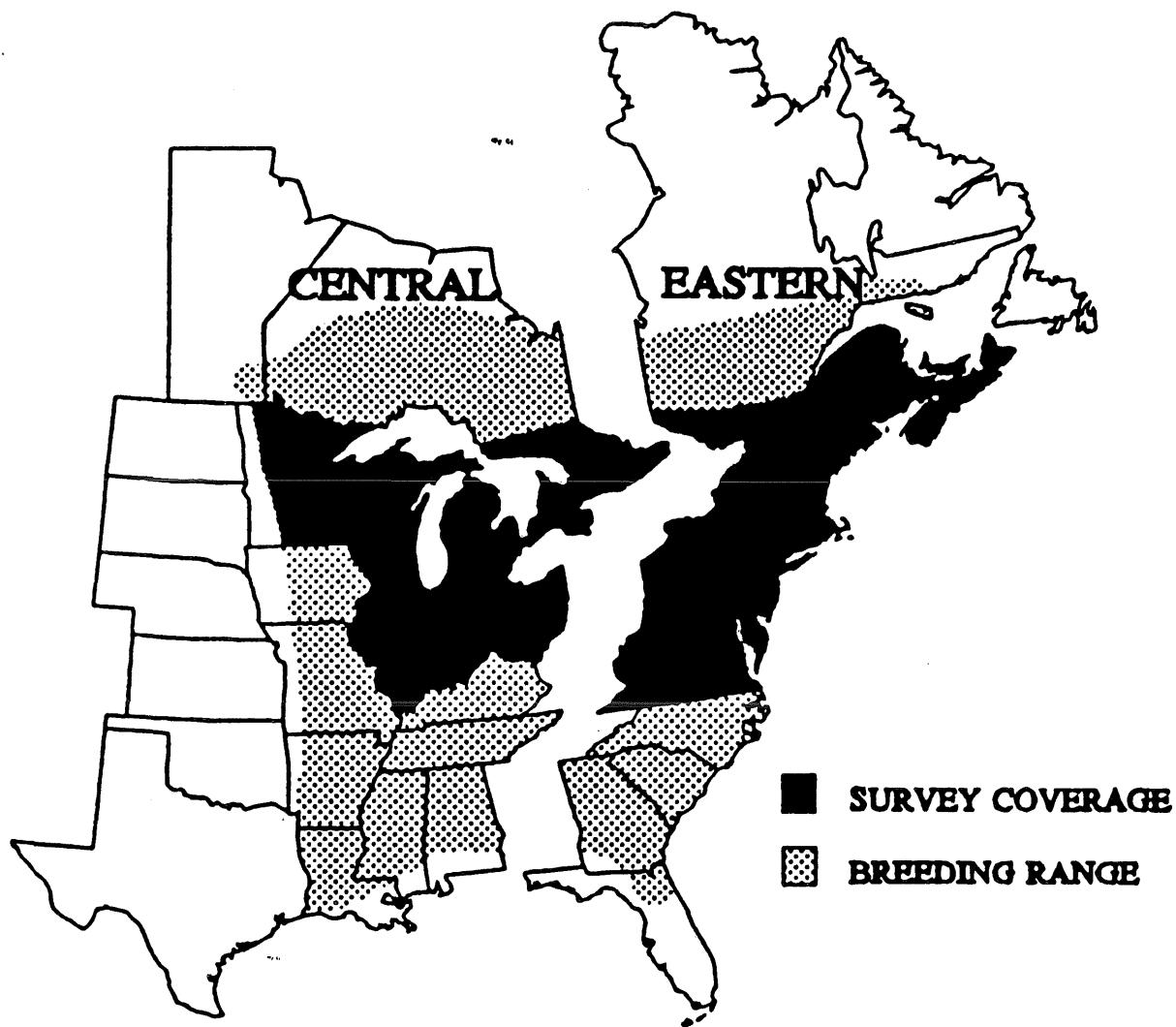


Figure 28. Woodcock breeding range, singing ground survey coverage, and woodcock management regions (from: Straw, Jr., J. Ashley 1992. American woodcock harvest and breeding population status, 1992. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp.).

Table 32. Trends (% change per year^a) as determined by route regression in numbers of American woodcock heard by management region, state, and province. (from: Straw, Jr., J. Ashley 1992. American woodcock harvest and breeding population status, 1992. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp).

Management Unit/State	2 year N ^b	(1991-92) % Change	Routes Run ^c	8 year N	(1985-92) % Change	25 year N	(1968-92) % Change
CENTRAL	278	-16.8*** ^d	416	484	- 0.7	651	- 0.8
IL	4	-10.3	19	17	-19.0	38	- 2.4
IN	6	-16.1	22	20	10.3*	51	- 1.3
MI	89	-21.6***	120	127	0.1	138	- 0.6
MN	43	-14.4**	67	78	0.4	107	0.3
OH	20	- 4.4	34	33	- 3.9	69	- 4.3*
ON	61	- 9.3*	79	124	- 1.4	137	- 0.4
WI	55	-23.2***	75	85	- 2.5**	111	- 1.7**

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

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

^c Total number of routes which were run and received prior to 6/1/92.

^d * P ≤ 0.10; ** P ≤ 0.05; *** P ≤ 0.01.

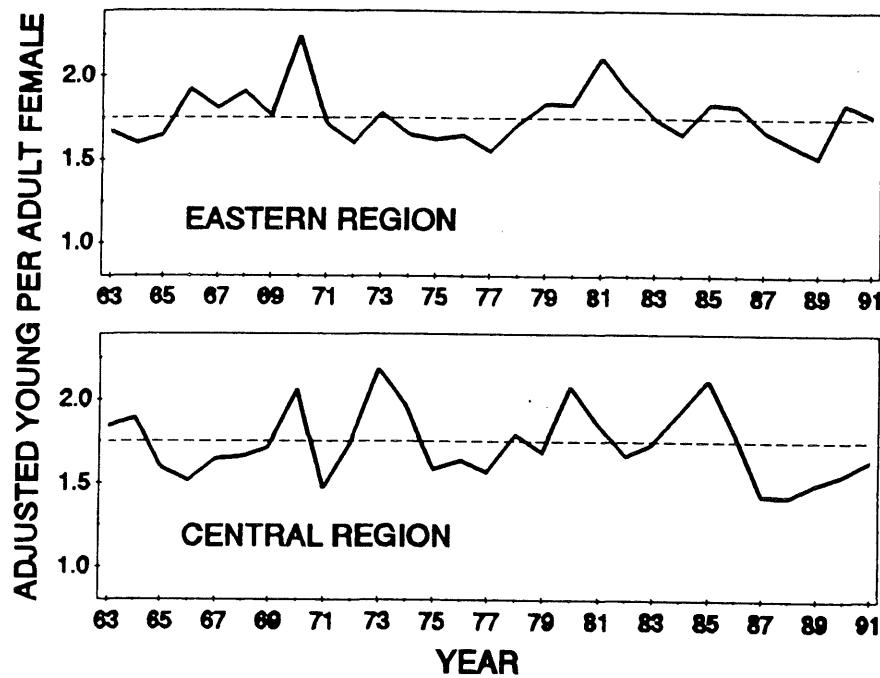


Figure 29. Adjusted index of American woodcock recruitment, 1963-91. Dashed line is the index based on all years, 1963-91. (from: Straw, Jr., J. Ashley 1992. American woodcock harvest and breeding population status, 1992. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp).

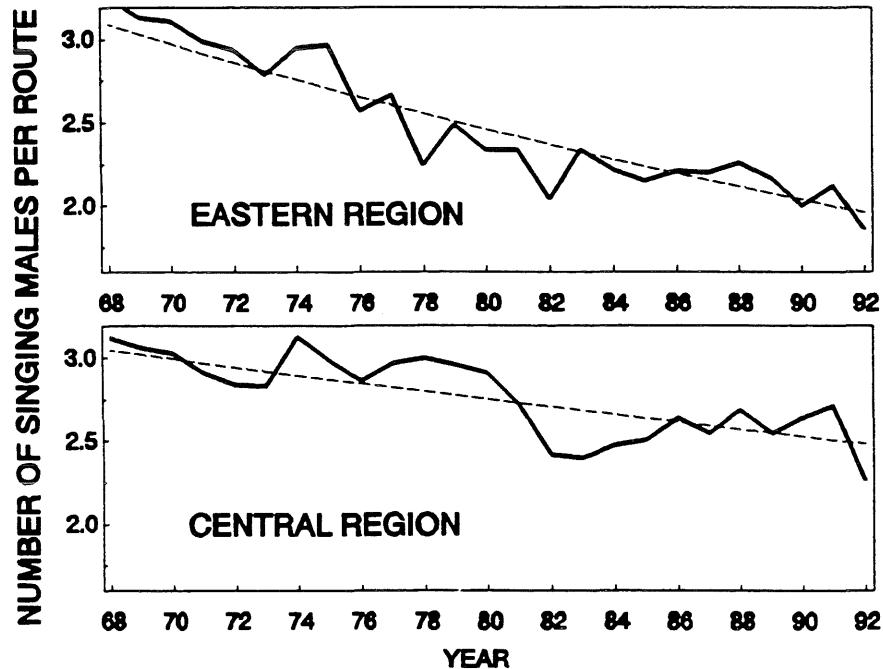


Figure 30. American woodcock singing ground survey long term trends and annual indices, 1968-92. (from: Straw, Jr., J. Ashley 1992. American woodcock harvest and breeding population status, 1992. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp).

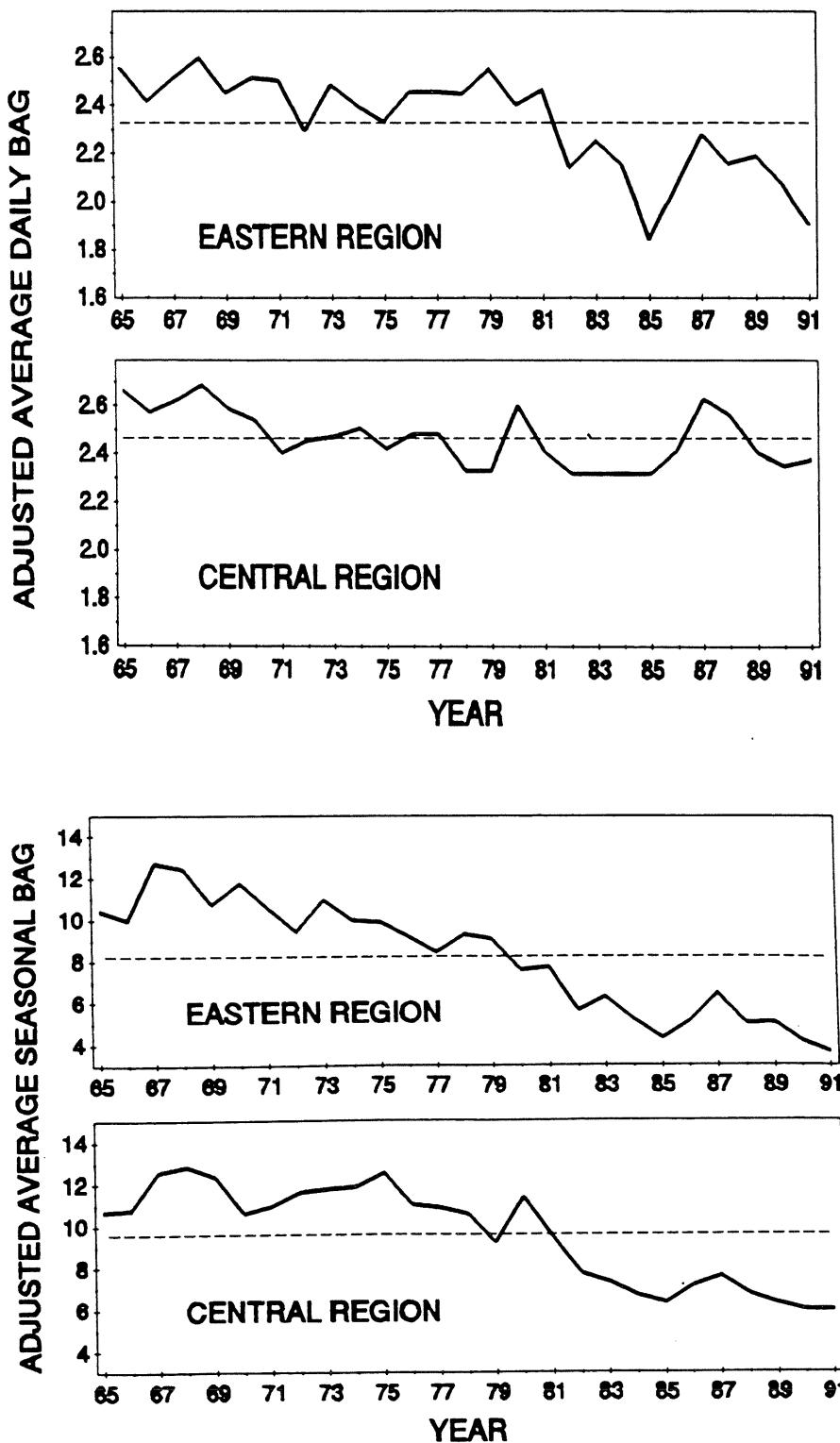


Figure 31. Adjusted indices of daily and seasonal hunting success of American woodcock, 1965-91, Base year is 1969. Dashed line is 1965-90 average. (from: Straw, Jr., J. Ashley 1992. American woodcock harvest and breeding population status, 1992. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp).

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Table 33. Minnesota Bald Eagle Nesting Activity in Three Survey Areas¹, 1991.

Survey Area	Occupied Breeding Areas	Successful Breeding Areas	Percent Successful	Number of Young	Young/Occupied Breeding Area	Average Brood Size
Chippewa NF	160	100	62	160	1.00	1.6
Superior NF	101	67	66	100	.99	1.5
"Other Areas"	216	144	67	222	1.03	1.5
Minnesota Total	477	311	65	482	1.01	1.5

¹ This year's results do not include Voyageurs National Park's population figures which were not available for inclusion in this report. The park has averaged 22.4 occupied breeding areas over the past 5 years while producing an average total of 16.4 young per year. If trends at the Park continued in 1991, Minnesota's actual total occupied breeding areas is 500 with 500 young produced. This represents a 14% increase over the 1990 breeding population.

Table 34. Minnesota Bald Eagle Nesting Data, 1973-1991.

Year	Breeding Areas			Young		
	Occupied ^a	Number Successful	Percent Successful	Total	Per Occupied Breeding Area	Average Brood size
1973	115	71	62	113	0.98	1.59
1974	127	77	61	96	0.76	1.25
1975	120	87	73	145	1.21	1.67
1976	122	93	76	163	1.34	1.75
1977	156	114	73	179	1.15	1.57
1978	168	115	68	188	1.12	1.63
1979	159	111	70	196	1.23	1.77
1980	181	133	73	239	1.32	1.80
1981	190	132	69	242	1.27	1.83
1982	207	145	70	245	1.18	1.69
1983	229	170	74	321	1.40	1.89
1984	245	165	67	274	1.12	1.66
1985	250	161 ^b	71 ^b	275 ^b	1.21 ^b	1.71 ^b
1986	266	187 ^c	72 ^c	312 ^c	1.21 ^c	1.67 ^c
1987	350	227	65	360	1.03	1.59
1988	372	250	67	412	1.11	1.65
1989	390	261	67	430	1.10	1.65
1990	437	300	69	467	1.07	1.56
1991	447 ^d	311 ^d	65 ^d	482 ^d	1.01 ^d	1.55

^a Number of occupied breeding areas regardless of outcome.^b These figures do not include data from 23 occupied nesting areas of unknown outcome in the Boundary Waters Canoe Area.^c These figures do not include data from 9 occupied nesting areas of unknown outcome in the Boundary Waters Canoe Area.^d These figures do not include data from Voyageurs National Park.

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Table 35. Small game hunter response to mail surveys, 1979-80 through 1991-92.

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 ^a	10,893	735	7,790	76.7
1990-91 ^a	5,000	394	3,467	75.3
1991-92 ^a	5,050	387	3,541	75.9

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

Table 36. Use of small game hunter licenses, 1981-82 through 1991-92.

		Returns from mail survey	Projections from license sales
1981-82	Hunted	4,461 (82.3%)	306,843
	Did not hunt	<u>958</u> (17.7%)	<u>65,992</u>
		5,419 (100.0%)	372,835
1982-83	Hunted	3,908 (81.6%)	257,546
	Did not hunt	<u>884</u> (18.4%)	<u>58,258</u>
		4,792 (100.0%)	315,804
1983-84	Hunted	2,805 (84.4%)	232,973
	Did not hunt	<u>520</u> (15.6%)	<u>43,061</u>
		3,325 (100.0%)	276,034
1984-85	Hunted	2,663 (81.2%)	211,740
	Did not hunt	<u>617</u> (18.8%)	<u>49,024</u>
		3,280 (100.0%)	260,764
1985-86	Hunted	2,132 (82.8%)	213,883
	Did not hunt	<u>442</u> (17.2%)	<u>44,342</u>
		2,574 (100.0%)	258,225
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	2,575 (75.8%)	240,793
	Did not hunt	<u>823</u> (24.2%)	<u>76,875</u>
		3,398 (100.0%)	317,668

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

Table 37. Estimated number of hunters and estimated take per hunter for various species, 1982-83 through 1991-92.

	Estimated number of hunters (thousands)										Estimated take per hunter									
	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Ducks	134	117	134	122	132	114	77	83	80	87	8.1	10.6	10.8	9.1	9.0	8.2	6.9	7.6	7.9	8.9
Canada goose	52	41	51	55	58	56	47	49	51	48	1.6	1.6	1.6	1.9	1.8	1.9	2.4	2.8	3.3	3.7
Other geese	11	10	9	9	7	9	5	7	6	6	0.7	0.7	0.8	1.2	0.5	1.1	0.9	2.2	3.2	2.2
American coot	11	12	9	11	11	8	3	4	4	4	4.3	4.7	4.9	4.4	5.3	3.6	2.6	3.7	4.9	4.0
Common snipe	4	6	5	5	5	6	4	5	4	4	3.2	2.8	4.0	3.2	3.9	3.4	3.3	2.9	3.2	4.1
Rails/gallinules	1	2	1	1	1	1	1	1	<1	<1	3.1	1.2	1.4	2.3	1.1	3.6	1.8	7.2	2.5	3.3
Crow*							9	11	11									6.8	6.1	7.5
American woodcock	20	16	17	19	21	27	26	30	27	25	2.7	3.9	4.3	4.3	4.3	4.5	4.0	4.3	4.2	4.1
Ring-necked pheasant	125	86	65	72	62	86	84	89	97	107	2.1	3.5	2.3	3.0	2.6	3.2	3.9	4.7	5.9	5.9
Ruffed grouse	115	78	87	94	107	132	139	162	148	127	2.6	2.4	3.7	3.8	4.2	6.3	6.6	8.5	8.3	8.5
Spruce grouse	13	9	12	12	12	16	15	20	18	15	1.1	1.1	1.7	2.1	1.7	2.3	2.6	3.4	3.6	3.0
Sharp-tailed grouse	14	9	9	10	9	10	12	14	13	13	1.2	1.1	0.8	1.9	1.5	2.4	2.5	3.6	3.9	3.8
Gray partridge	21	15	20	17	23	25	23	23	28	24	3.6	2.1	4.3	3.3	3.1	3.8	4.6	4.6	4.6	5.1
Gray squirrel	53	38	39	38	41	40	37	35	37	30	5.1	5.3	5.3	5.2	5.7	5.6	5.8	6.1	6.3	5.6
Fox squirrel	39	28	26	29	29	26	26	23	26	20	4.2	4.5	4.1	5.0	5.1	4.7	5.2	5.5	5.7	5.6
Eastern cottontail	36	29	22	22	24	26	27	24	29	27	3.8	3.4	2.8	3.8	4.2	4.0	4.3	4.5	5.1	4.9
White-tailed jack rabbit	11	7	6	6	4	5	5	6	7	5	2.6	1.9	1.9	3.0	3.4	2.2	1.8	3.0	2.0	1.9
Snowshoe hare	15	9	7	7	8	10	9	10	13	10	4.2	2.3	2.3	2.3	3.2	2.6	3.7	5.7	5.1	7.1
Raccoon	13	11	12	10	11	13	9	7	9	8	6.3	8.0	9.4	9.4	10.9	13.1	11.4	8.2	10.6	7.8
Red fox	12	11	11	12	11	13	13	9	15	17	1.5	2.0	2.3	4.2	1.5	2.5	3.3	3.0	5.2	4.9
Gray fox	3	2	3	2	2	3	3	2	3	2	0.9	0.9	1.4	2.0	0.8	1.3	0.9	2.3	2.8	2.4
Coyote	3	3	3	5	4	5	6	4	8	9	0.8	0.8	1.8	3.1	1.6	1.1	1.2	2.5	2.7	3.2
Badger	1	1	1	1	1	1	1	<1	1	<1	1.9	0.3	3.9	1.8	1.0	1.6	1.5	1.6	1.9	2.2

* Crow season added in 1989.

Table 38. Statewide small game hunting license sales and estimated hunter harvest, 1982-83 through 1991-92.

	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Small game license sales ^a	314,477	276,034	260,764	258,225	262,053	286,270	285,685	306,307	311,104	317,669
Federal duck stamp sales	134,803	138,161	138,820	134,594	139,391	125,831	92,772	97,939	103,971	108,796
State duck stamp sales ^b	123,834	125,212	131,394	125,559	146,747	120,235	89,228	97,659	102,151	104,051
Pheasant stamp sales ^b	-	114,189	81,587	85,252	81,027	102,944	100,478	108,124	122,260	133,384
Estimated harvest ^c (thousands)										
Ducks ^d	1,071	1,235	1,443	1,029	1,172	928	531	539	559	688
Canada geese ^d	81	62	82	86	101	106	114	103	118	127
Other geese ^d	7	8	8	9	3	11	5	9	7	6
American coot ^d	49	55	48	41	59	29	9	10	13	12
Common snipe	14	17	20	16	21	19	13	12	13	15
Rails/gallinules	3	2	1	2	1	5	1	3	<1	1
Crow							53	60	66	
American woodcock	54	58	70	70	87	113	104	117	100	89
Ring-necked pheasant	265	299	148	179	159	277	332	321	447	512
Ruffed grouse	302	183	320	315	442	817	917	1,205	1,052	884
Spruce grouse	14	10	21	21	20	36	39	55	42	31
Sharp-tailed grouse	17	10	7	14	13	24	29	35	30	30
Gray partridge	52	74	31	77	54	69	95	86	101	96
Gray squirrel	271	199	208	186	235	222	217	193	213	147
Fox squirrel	162	126	107	140	145	122	134	113	134	97
Eastern cottontail	135	98	61	75	102	102	118	90	130	113
White-tailed jack rabbit	27	13	11	17	14	12	10	12	9	6
Snowshoe hare	61	21	16	12	25	26	32	48	59	63
Raccoon	80	87	114	85	122	170	102	51	87	57
Red fox	19	21	26	44	15	33	43	18	51	59
Gray fox	2	2	4	4	2	4	2	3	3	2
Coyote	2	3	5	11	7	6	7	6	13	16
Badger	2	2	<1	2	2	<1	2	<1	1	<1

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

^a Duplicate licenses not included.

^b Excluded stamps sold with an issuing fee, many of which probably were purchased by collectors.

^c Estimates based upon response of hunters to questionnaires.

^d U.S. Fish and Wildlife Service harvest estimates for 1991 are:

Ducks	474,845	Other geese	000
Canada geese	95,898	American coot	8,158

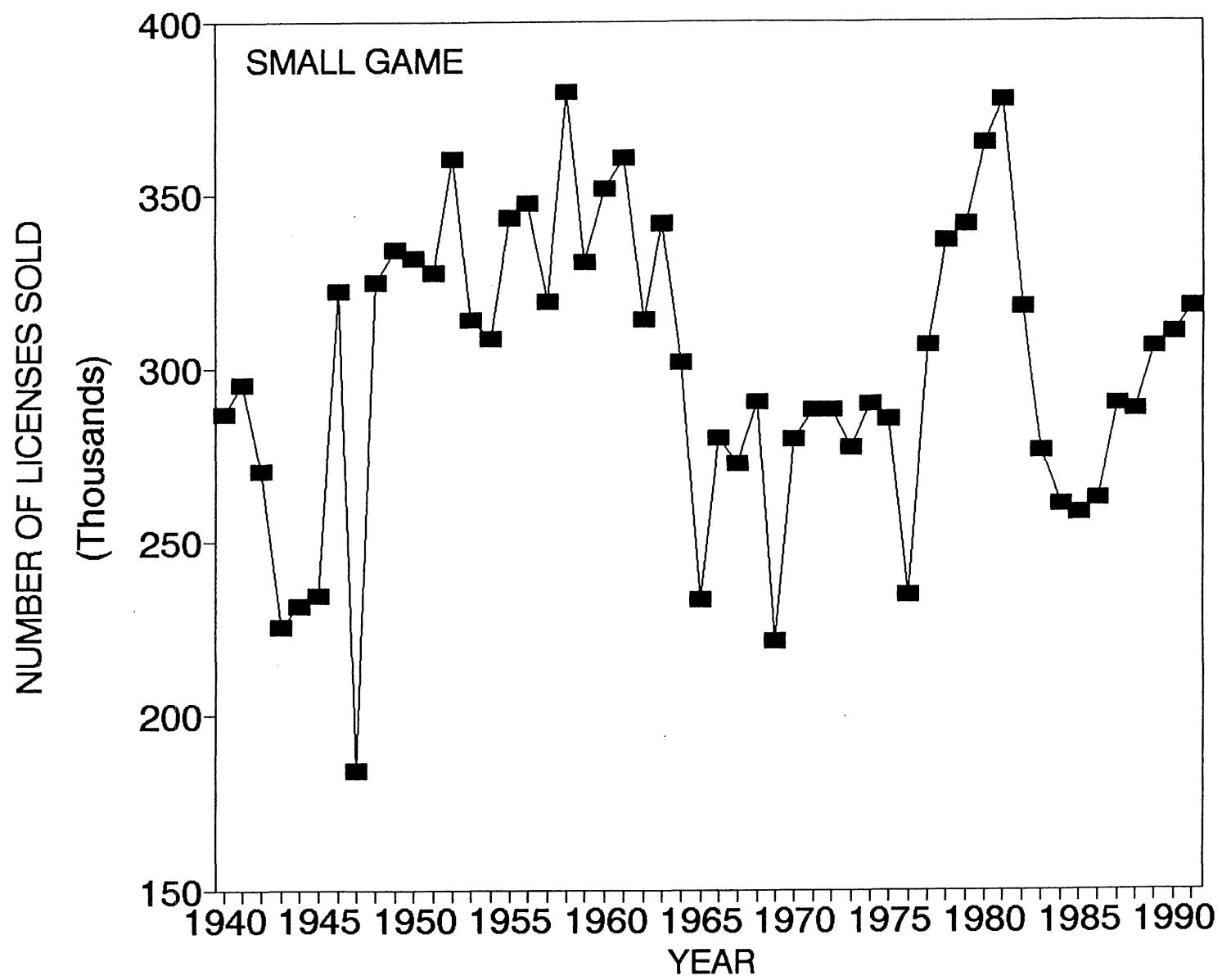


Figure 32. Numbers of Minnesota small game licenses sold, 1940 - 91.

Table 39. Mail survey results of nonresident small game hunters, 1982-83 through 1991-92.

	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Nonresident licenses issued ^a	3,187	2,911	3,060	3,271	3,078	3,596	3,462	4,624	4,932	4,852
Questionnaires										
Number mailed	361	384	237	338	406	429	436	553	82	114
Number not delivered	21	25	13	25	42	19	33	52	7	8
Number (percent) returned	281 (82.6)	280 (78.0)	192 (86.0)	246 (78.6)	290 (79.7)	328 (80.0)	327 (81.1)	396 (79.0)	54 (72.0)	89 (83.2)
Estimated nonresidents and percent (in paren) of all nonresidents hunting:										
Ducks	1,840 (58)	1,500 (52)	2,090 (68)	1,900 (58)	1,810 (59)	990 (28)	1,130 (33)	1,521 (33)	1,342 (27)	1,254 (26)
Canada goose	830 (26)	580 (20)	820 (27)	800 (24)	850 (28)	515 (14)	700 (20)	866 (19)	1,074 (22)	600 (12)
Ruffed grouse	960 (30)	620 (21)	1,000 (33)	1,090 (33)	1,000 (32)	1,000 (28)	1,960 (57)	2,610 (56)	1,789 (36)	1,799 (37)
Ring-necked pheasant	680 (21)	500 (17)	390 (13)	720 (22)	510 (17)	400 (11)	690 (20)	1,042 (23)	895 (18)	1,472 (30)
Raccoon ^b	100 (3)	170 (6)	130 (4)	70 (2)	85 (3)	80 (2)	42 (1)	59 (1)	0 (0) ^c	55 (1)
Estimated nonresident take:										
Ducks	15,000	17,500	24,000	14,400	14,600	6,300	8,000	9,901	5,816	7,087
Canada goose	1,500	1,300	1,300	1,400	1,400	900	1,500	1,744	4,205	1,308
Ruffed grouse	3,000	1,700	4,200	3,500	3,800	6,100	12,300	20,739	14,852	15,592
Ring-necked pheasant	1,500	2,200	1,500	1,900	1,100	1,100	2,600	4,424	3,221	1,417
Raccoon	700	1,400	1,100	1,400	600	1,200	700	667	0	327

^a Excludes duplicate licenses and nonresident shooting preserve licenses.

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

^c In 1990 small game hunter survey no non-residents reported hunting/harvesting raccoons.

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

Table 40. Species composition of the Minnesota waterfowl harvest, 1990 and 1991 (from: Martin, E.M., P.H. Geissler, and A.N. Novara. 1991. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1990 hunting season. U.S. Fish and Wildlife Service Adm. Rep., Office of Migratory Bird Management, Laurel, Maryland. June 1991. 34pp.).

Species	1990		1991		Percent change
	Harvest	Pct of harvest	Harvest	Pct of harvest	
Mallard	109,538	29.91	169,600	35.71	+55
Domestic mallard	700	0.18	0	0.00	-100
American black duck	500	0.13	700	0.15	+40
Black x mallard	0	0.00	800	0.17	-
Gadwall	10,200	2.79	16,600	3.49	+63
American wigeon	13,200	3.60	20,800	4.39	+58
Green-winged teal	41,100	11.23	32,100	6.75	-22
Blue-winged/cinnamon teal	23,200	7.16	20,100	4.23	-23
Northern shoveler	1,400	0.39	10,000	2.11	+614
Northern pintail	6,100	1.67	5,100	1.08	-16
Wood duck	62,800	17.16	91,500	19.26	+46
Redhead	5,000	1.36	10,700	2.26	+114
Canvasback	0	0.00	0	0.00	0
Greater scaup	2,300	0.62	1,400	0.29	-39
Lesser scaup	24,900	6.79	29,700	6.26	+19
Ring-necked duck	42,200	11.51	46,500	9.80	+10
Goldeneyes	5,600	1.52	4,100	0.87	-27
Bufflehead	8,700	2.38	11,100	2.33	+28
Ruddy duck	1,100	0.29	500	0.11	-55
Scoters	0	0.00	0	0.00	0
Hooded merganser	4,700	1.29	3,200	0.68	-32
Other mergansers	0	0.00	0	0.00	0
Total	366,226 ^a	100.00	474,845 ^a	100.00 ^a	+16

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

Table 41. Top 10 states in number of adult waterfowl hunters, 1991, and number of hunter-days and retrieved duck kill, in each (from: Martin, E.M., P.H. Geissler, and A.N. Novara. 1992. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1991 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, Maryland. June 1992. 34pp.).

State	Number of active adult waterfowl hunters	Number of hunter-days	Retrieved duck kill	Ducks retrieved per hunter-day
Minnesota	92,487	663,635	474,845	0.72
Wisconsin	77,654	617,262	292,849	0.47
Texas	60,005	432,176	293,979	0.68
Louisiana	55,952	509,824	549,086	1.08
California	54,061	502,479	653,565	1.30
Illinois	43,896	469,838	230,102	0.49
Michigan	43,855	366,571	201,065	0.55
Pennsylvania	36,119	255,919	77,700	0.30
New York	34,295	234,831	169,387	0.72
Arkansas	29,033	327,183	358,160	1.09
Mississippi Flyway	466,060	4,125,884	2,787,793	0.68
United States	1,033,397	8,652,244	6,085,456	0.70

Table 42. Spring turkey hunting summary, 1978-92.

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

^a Calculated with total permits available to be given, and not adjusting for undersubscribed zones and time periods.

^b For 1978-82, based on a post-hunt mail survey. Number actually hunting in 1983-89 was estimated at 80% (from last year survey results were tabulated). Number actually hunting in 1991 was estimated at 90% (from preliminary results of 1991 survey).

^c Registered turkey harvest divided by number actually hunting, expressed as %.

^d Legislation allows NON-RESIDENT hunters.

** Computerized preference drawing began spring 1990.

Table 43. Synopsis of fall wild turkey hunt, Minnesota 1990-1991.

	1990	1991
# of zones	3	4
# of permits available	1000	2200
# of permits issued	951	2020
# turkeys registered		
Female - juvenile	85	211
- adult	91	140
Male - juvenile	67	121
- adult	83	80
Total	326	552
Hunter success (%) ^a	38%	30%

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

Table 44. Deer hunting license sales, 1957-91^a.

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 ^b	396,074	4,307	400,381	61,576	583	62,159	462,540
1985 ^b	416,474	4,983	421,457	66,687	589	67,276	488,733
1986 ^b	413,542	4,476	418,018	68,689	547	69,236	487,254
1987 ^b	414,426	4,931	419,357	70,195	604	70,799	490,156
1988 ^b	406,727	5,623	412,350	68,196	716	68,912	481,262
1989 ^b	406,234	6,137	412,371	68,217	714	68,931	481,302
1990 ^b	418,284	6,455	424,739	68,457	742	69,199	493,938
1991 ^b	432,686	6,861	439,547	74,576	800	75,376	514,923

^a Duplicate licenses not included. Leech Lake licenses are included during years they were issued.
Estimates as of 7/14/92.

^b Numbers include the following bonus deer licenses:

Year	1985	1986	1987	1988	1989	1990	1991
Resident firearms (regular quota areas)	8,418	1,192	2,044	721	436	4,375	7,280
Resident firearms (state parks)	-	271	254	107	325	620	927
Non-resident firearms (regular quota area)	23	3	1	1	-	1	7
Resident archery	-	-	-	-	-	-	3,418 ^c
Resident archery (state parks)	-	27	-	-	-	-	-
Resident archery (metro)	-	917	1,380	1,013	1,223	1,412	-
Resident archery (orchard zone) ^d	-	-	56	-	-	-	-
Totals	8,441	2,410	3,733	1,842	1,984	6,408	11,632

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

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

Table 45. Registered deer harvest and hunter success rates, 1974-91.

	Registered Harvest				Percent Success	
	Regular firearms	Archery	Special Muzzleloader		Regular firearms and special muzzleloader seasons	Archery
				season ^a		
1974	64,997	2,176	-	67,173	21.8	6.9
1975	63,604	2,265	-	65,869	19.3	6.9
1976	28,613	1,167	-	29,780	10.8	5.3
1977	45,918	2,609	32	48,559	15.9	8.8
1978	47,372	2,608	346	50,326	15.4	7.9
1979	44,340	2,577	318	47,235	14.2	7.1
1980	68,539	3,641	294	72,474	19.8	8.7
1981	93,027	5,535	385	98,947	25.1	10.9
1982	93,045	5,566	441	99,052	25.1	10.1
1983	132,457	5,977	652	139,086	33.6	10.6
1984	132,042	6,390	532	138,941	33.0	10.3
1985	138,065	7,575	563	146,203	33.4	11.3
1986	129,770	7,610	593	137,923	31.2	11.1
1987	135,003	7,535	535	143,073	32.4	10.9
1988	138,946	8,262	686	148,394	33.6	12.0
1989	129,551	9,307	622	139,480	31.4	13.5
1990	166,589	11,106	730	178,425	39.4	16.4
1991	206,275	12,968	961	220,200	49.0	17.3

^a No special muzzleloader seasons were held before 1977.

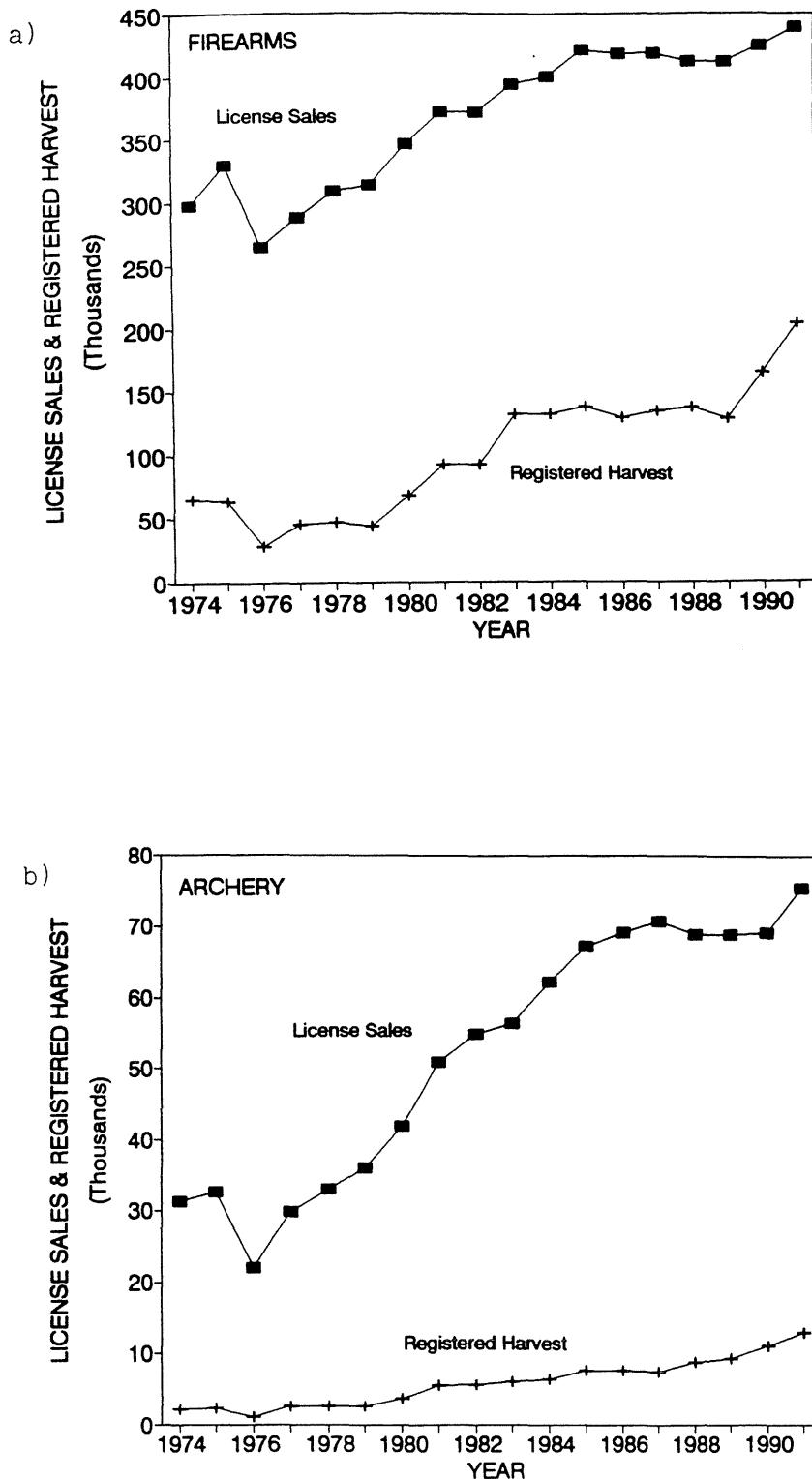


Figure 33. Numbers of Minnesota deer hunting licenses sold and registered harvest by (a) firearm and (b) archery hunters, 1974-91.

Table 46. White-tailed deer harvest and hunter success rates by DMU and Sub-DMU, 1991.

Unit	Permits Issued ^a	Antlerless Registered	Permit Success	Bucks Registered	Total Reg. Kill
Red River West	942	510	54.1%	520	1,030
Red River East	6,030	3,258	54.0%	2,938	6,196
RED RIVER Total	6,972	3,768	54.0%	3,458	7,226
AGASSIZ Total	8,719	4,541	52.1%	5,496	10,037
Rainy River West	1,100	676	61.5%	1,865	2,541
Rainy River Central	1,700	1,020	60.0%	1,819	2,839
Rainy River East	2,500	1,367	54.7%	1,604	2,971
RAINY RIVER Total	5,300	3,063	57.8%	5,288	8,351
Superior West	4,000	1,881	47.0%	1,580	3,461
Superior Wilderness	0	12	.0%	184	196
Superior Central	2,000	1,063	53.2%	1,019	2,082
Grand Portage I.R.	0	0	.0%	3	3
Superior East	800	496	62.0%	979	1,475
SUPERIOR Total	6,800	3,452	50.8%	3,765	7,217
Itasca NW	5,000	3,120	62.4%	3,507	6,627
Itasca SW	7,500	5,273	70.3%	5,395	10,668
Itasca NE	4,500	2,579	57.3%	3,395	5,974
Itasca SE	8,000	4,103	51.3%	3,643	8,417
Leech Lake Ind. Res.	1,000	525	52.5%	957	1,482
Bemidji	7,500	4,268	56.9%	4,074	8,342
ITASCA Total	33,500	19,868	59.3%	20,971	41,510
Mille Lacs West	8,600	4,729	55.0%	3,574	8,303
Mille Lacs Central	13,500	8,172	60.5%	5,577	13,749
Mille Lacs East	22,927	14,900	65.0%	7,070	21,970
White Earth Ind. Res.	300	162	54.0%	808	970
MILLE LACS Total	45,327	27,963	61.7%	17,029	44,992
Big Woods North	23,740	14,253	60.0%	12,517	26,770
Big Woods Central	8,150	5,201	63.8%	4,541	9,742
Big Woods Metro N	2,947	1,562	53.0%	1,067	2,629
Big Woods Metro S	2,261	1,115	49.3%	1,105	2,220
Big Woods SE	14,261	7,658	53.7%	7,089	14,747
BIG WOODS Total	51,359	29,789	58.0%	26,319	56,108
Prairie North	6,649	3,592	54.0%	3,855	7,447
Prairie River	4,134	2,002	48.4%	2,027	6,009
Prairie Southwest	10,241	6,496	63.4%	5,188	11,684
Prairie Southeast	4,744	2,893	61.0%	2,408	5,301
PRAIRIE Total	25,768	14,983	58.2%	13,478	30,441
Unknown	0	1,368	.0	1,685	394
Total	183,745	108,795	59.2%	97,489	206,275

^a Does not include bonus permits.

Table 47. Archery deer harvest by county, 1979-91.

County	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Aitkin	34	68	110	107	94	88	140	130	137	146	184	213	277
Anoka	74	105	169	147	156	168	258	247	278	288	288	375	464
Becker	10	33	46	52	65	63	67	62	55	88	94	87	108
Beltrami	29	63	97	130	109	108	126	101	135	141	120	148	172
Benton	6	7	18	28	29	25	35	36	36	54	43	80	97
Big Stone	10	25	38	38	42	56	49	39	32	44	39	49	62
Blue Earth	35	73	80	78	116	94	116	95	123	147	148	177	190
Brown	27	36	46	48	47	50	38	66	60	74	76	92	101
Carlton	6	24	30	31	20	30	45	22	26	38	30	40	59
Carver	9	24	30	34	49	50	65	53	77	111	132	159	140
Cass	30	48	108	131	118	147	141	151	125	132	172	197	253
Chippewa	71	114	138	78	92	90	92	82	84	128	96	133	115
Chisago	31	38	68	78	95	103	142	135	121	140	161	216	261
Clay	19	44	75	84	94	123	111	132	109	135	147	170	152
Clearwater	3	17	21	21	27	20	22	29	30	40	27	27	27
Cook	0	1	12	7	5	9	29	12	8	14	14	17	30
Cottonwood	60	71	87	73	99	54	90	75	70	82	87	100	95
Crow Wing	32	47	123	105	99	156	177	159	165	180	197	254	330
Dakota	21	20	46	51	64	99	124	167	174	173	180	231	298
Dodge	17	19	26	22	45	76	52	63	77	80	103	99	93
Douglas	31	32	64	53	77	68	86	79	72	87	87	124	127
Faribault	31	51	46	49	57	47	58	73	53	78	66	88	84
Fillmore	22	46	50	64	75	81	108	83	109	143	120	174	171
Freeborn	38	37	47	34	69	60	61	67	87	99	104	103	95
Goodhue	34	57	63	69	71	69	113	112	111	120	123	154	153
Grant	10	19	18	22	27	27	33	26	19	33	44	33	27
Hennepin	35	78	69	44	97	78	105	156	176	138	190	217	259
Houston	25	46	55	70	58	67	79	75	92	89	114	123	158
Hubbard	42	56	97	130	102	98	126	138	127	129	128	144	187
Isanti	32	46	83	83	82	83	97	102	82	116	146	161	228
Itasca	36	98	171	146	113	127	155	169	140	175	169	220	271
Jackson	34	26	47	44	46	42	59	54	61	74	94	97	120
Kanabec	7	11	35	66	51	49	76	61	76	80	131	174	237
Kandiyohi	41	41	95	96	111	116	108	111	127	168	197	197	222
Kittson	1	8	12	10	28	32	24	23	47	40	66	95	129
Koochiching	23	28	33	18	21	29	20	29	27	31	35	34	60
Lac Qui Parle	38	53	87	82	78	108	141	107	96	122	120	142	144
Lake	8	18	40	46	30	39	50	40	40	54	42	48	67
Lake of the Woods	9	12	13	13	14	22	24	22	21	30	31	38	39
LeSueur	13	27	38	31	39	52	37	62	42	77	77	78	91
Lincoln	57	50	72	56	74	35	68	54	44	69	69	71	76
Lyon	36	84	94	74	110	72	104	104	82	113	107	102	137
McLeod	63	32	40	28	2	33	35	55	45	72	74	74	99
Mahnomen	1	5	4	7	5	6	9	8	4	2	12	13	5
Marshall	18	38	39	45	66	82	79	75	75	70	69	81	122
Martin	25	40	35	38	56	33	41	55	64	64	57	80	72
Meeker	37	43	44	43	37	54	59	61	76	102	119	129	122
Mille Lacs	8	21	40	57	35	63	51	40	64	55	70	114	170
Morrison ^a	19	30	66	158	127	108	114	66	104	118	110	186	220
Mower	27	46	55	42	80	64	113	121	105	123	117	155	138
Murray	49	81	130	83	61	39	90	71	86	88	89	94	85
Nicollet	40	61	80	67	65	52	64	88	50	75	105	94	121
Nobles	34	43	79	33	54	18	43	48	55	55	56	52	50
Norman	11	15	20	34	35	45	43	39	51	47	34	58	62
Olmsted	25	24	55	51	85	84	86	108	96	109	117	150	213

Table 47. Continued.

County	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Ottertail	60	98	133	153	175	178	234	223	237	237	253	302	363
Pennington	3	9	12	18	15	19	12	19	15	6	9	17	16
Pine	73	123	166	171	134	166	229	186	201	262	330	417	542
Pipestone	34	32	40	30	67	1	42	53	55	57	53	52	56
Polk	32	42	50	78	70	102	98	102	110	136	93	118	97
Pope	31	49	49	64	57	56	63	70	67	96	82	105	136
Ramsey	0	1	2	1	0	21	14	33	2	6	12	8	17
Red Lake	4	2	1	3	4	13	8	6	7	6	11	11	10
Redwood	38	50	81	63	82	63	72	68	63	75	77	85	93
Renville	20	35	55	63	59	32	62	60	66	61	78	80	71
Rice	31	38	45	51	39	54	56	59	93	77	108	113	117
Rock	16	14	38	31	14	22	51	39	51	44	42	49	43
Roseau	32	62	77	90	112	98	94	86	81	95	82	103	232
St. Louis	42	87	180	149	120	127	180	209	159	197	186	228	236
Scott	41	44	50	37	50	72	87	136	192	134	210	268	327
Sherburne	60	89	128	116	113	115	131	128	116	86	145	170	209
Sibley	22	33	41	30	32	43	43	44	46	46	70	67	91
Stearns	49	81	134	143	122	159	241	239	226	268	303	410	462
Steele	7	14	19	27	29	30	41	41	46	65	56	65	73
Stevens	13	9	11	21	27	26	25	20	26	28	19	30	37
Swift	23	42	67	49	67	59	68	67	84	94	96	101	96
Todd	45	52	95	109	103	126	169	141	127	147	162	185	239
Traverse	7	12	21	13	21	32	22	19	33	32	41	39	31
Wabasha	20	15	18	30	61	57	50	61	50	64	87	98	121
Wadena	14	21	45	69	70	64	43	62	43	60	68	76	92
Waseca	20	26	46	35	55	42	27	36	42	46	44	61	48
Washington	15	39	75	91	88	154	174	196	189	283	336	431	506
Watonwan	16	31	34	30	35	20	39	39	45	39	51	52	57
Wilkin	2	15	26	34	39	34	34	32	29	38	26	43	57
Winona	72	96	116	138	117	151	234	196	224	221	254	266	270
Wright	29	45	71	78	83	95	92	115	112	140	209	191	206
Yellow Medicine	34	35	47	38	54	47	47	44	49	70	92	79	76
Unknown	40	20	25	63	23	34	37	70	17	22	14	25	56
Camp Ripley	148	b	153	129	237	387	278	257	284	241	215	301	219
Totals	2577	3641	5535	5566	5977	6390	7575	7610	7715	8759	9541	11106	12968 ^a

^a Camp Ripley not included.^b No archery hunt.

Table 48. Special Muzzleloader Season harvest by block, 1991.
 (Includes Special Permit Areas)

Block Number	Adult		Fawns		Total
	Male	Female	Male	Female	
110	1	0	0	0	1
119	0	1	0	0	1
152	2	20	8	5	35
157	2	8	4	2	16
159	0	2	2	0	4
169	5	13	3	2	23
173	0	1	4	2	7
175	0	1	0	0	1
179	1	2	0	0	3
180	2	4	1	3	10
182	0	5	5	0	10
184	0	2	2	0	4
201	5	0	0	0	5
202	2	1	0	0	3
205	1	0	0	1	2
211	7	29	9	6	51
212	3	6	0	0	9
225	3	9	4	2	18
235	6	17	8	6	37
245	14	17	7	8	46
246	1	4	0	0	5
247	1	2	0	3	6
341	3	2	1	0	6
342	0	6	3	1	10
343	2	3	1	2	8
344	15	59	15	17	106
345	1	0	0	1	2
348	0	1	0	1	2
349	1	0	0	0	1
416	0	4	0	1	5
417	0	0	0	1	1
424	5	5	3	3	16
427	0	2	0	0	2
431	4	4	7	1	16
433	32	134	39	45	250
435	1	4	1	0	6
438	2	0	0	0	2
442	0	0	1	0	1
446	5	5	1	1	12
447	1	0	0	0	1
449	1	2	1	1	5

Continued

Table 48. Continued.

Block Number	Adult		Fawns		Total
	Male	Female	Male	Female	
453	1	0	0	1	2
454	0	17	12	4	33
455	4	8	11	5	28
456	1	2	5	2	10
457	0	3	0	1	4
459	10	8	10	5	33
461	0	0	1	0	1
462	5	17	11	12	45
464	1	1	1	0	3
466	2	17	11	10	40
467	3	13	6	7	29
Total	156	444	198	163	961

Table 49. Muzzleloader Special Permit Area Data, 1991.

Area	Dates	Permits Issued		Applications	Harvest			Total
		Regular	Bonus		Bucks	Antlerless	Total	
Carlos Avery WMA (Sanctuary)	11/30-12/06	23	0	82	3	8	11 ^a	
	12/07-12/15	20	0	42	2	8	10 ^a	
Garvin County Park	11/30-12/06	7	0	7	0	0	0	
Nerstrand Woods SP	11/30-12/03	50	33	186	5	40	45	
Lake Shetek SP ^b	11/30-12/01	40	0	83	0	27	27	
Helmer-Myre SP ^b	11/30-12/03	40	21	75	2	38	40	
Lake Louise SP	11/30-12/01	25	16	33	3	26	29	

^a Harvest for Carlos Avery Sanctuary was determined from a hunter questionnaire.

^b Lake Shetek and Helmer-Myre State Park hunters were restricted to shooting antlerless deer only.

Table 50. Special Muzzleloader Season Harvests, 1981-1991.

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Aurora WMA	--	--	--	--	--	--	--	--	--	--	3
Boyd/Faribault WMA	--	--	--	--	--	--	--	--	--	--	1
Brainerd Airport	--	--	--	--	--	--	--	--	--	--	6
Carlos Avery WMA	53	31	57	22	23	41	*	*	*	12	5
Carlos Avery WMA (Sanctuary)	--	--	--	--	16	6	31	57	30	17	--
Cedar Rock WMA	--	--	--	--	--	--	--	--	2	--	--
Chengwatana SF	--	--	1	1	4	5	5	8	19	19	15
Cloquet Valley SF	--	--	--	2	1	0	2	4	5	3	13
Dalbo WMA	--	--	--	--	--	--	--	--	--	2	3
Danvers WMA	--	3	1	7	7	9	3	4	1	--	--
Elm Lake & Eckvoll WMA	--	--	--	--	--	--	--	3	--	2	--
Forestville SP	--	--	--	--	--	--	10	--	--	--	--
Fort Snelling SP	--	--	--	--	--	--	4	--	--	--	--
George Washington SF	--	--	5	14	16	17	4	11	15	23	24
Glacial Lake SP	--	--	--	--	--	--	--	18	6	--	--
Gores Pool WMA	--	--	5	5	1	2	3	3	3	3	0
Helmer Myre SP	--	--	--	--	--	--	--	--	41	--	--
Kabetogama SF	--	--	--	--	--	--	--	--	--	0	2
Kunkel WMA	--	--	--	--	--	--	--	--	--	2	0
Lac qui Parle WMA and											
Big Stone NWR	91	130	168	151	199	146	112	185	179	--	--
Lake Bronson SP	--	--	--	--	--	--	--	1	--	--	--
Lake Shetek SP	19	36	35	30	25	28	25	34	28	--	--
Land-O-Lakes SF	--	--	--	--	--	--	--	--	1	0	7
Lost River SF	--	--	--	--	--	--	--	--	--	1	2
McCarthy Lake WMA	1	0	1	0	0	2	5	6	8	9	10
Meadowbrook WMA	3	4	11	6	6	1	4	2	3	5	5
Mille Lacs WMA	54	25	5	14	13	13	21	28	25	32	35
Nemadji SF	--	--	1	1	0	3	2	3	4	1	4
Nerstrand Woods SF	--	--	--	--	--	--	--	45	--	--	--
Paul Bunyan Game Refuge	--	--	19	33	27	28	27	38	39	34	46
Red Lake WMA and											
Beltrami Island SF	14	14	29	11	21	27	14	25	17	25	60
Red Lake SF	--	--	--	--	--	--	--	--	--	--	1
R.J. Dorer Memorial SF/Thorpe WMA	7	32	10	6	1	2	0	1	3	11	19
Roseau River WMA	4	1	3	5	3	4	2	3	7	3	5
Rum River SF	--	--	3	1	7	5	6	24	24	20	16

Continued.

Table 50. Continued.

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Savanna SF	--	--	2	2	6	6	0	4	5	0	10
Southwest Areas	--	--	--	--	--	--	--	--	--	--	401
Sturgeon River SF	--	--	--	--	--	--	--	--	--	2	0
Talcot Lake WMA	16	61	137	13	43	19	29	45	31	--	--
Thief Lake WMA	12	6	5	7	8	2	6	3	2	1	3
Whitewater WMA	90	80	150	139	97	143	117	121	115	141	106
Whitewater Sanctuary	--	--	--	45	--	--	96	--	--	--	--
Walnut Lake WMA	5	0	4	6	5	6	7	10	10	--	--
 Totals	 385	 441	 652	 532	 563	 593	 535	 686	 622	 351	 802

* Harvest totals from Carlos Avery WMA and Carlos Avery WMA (sanctuary) were combined for those years.

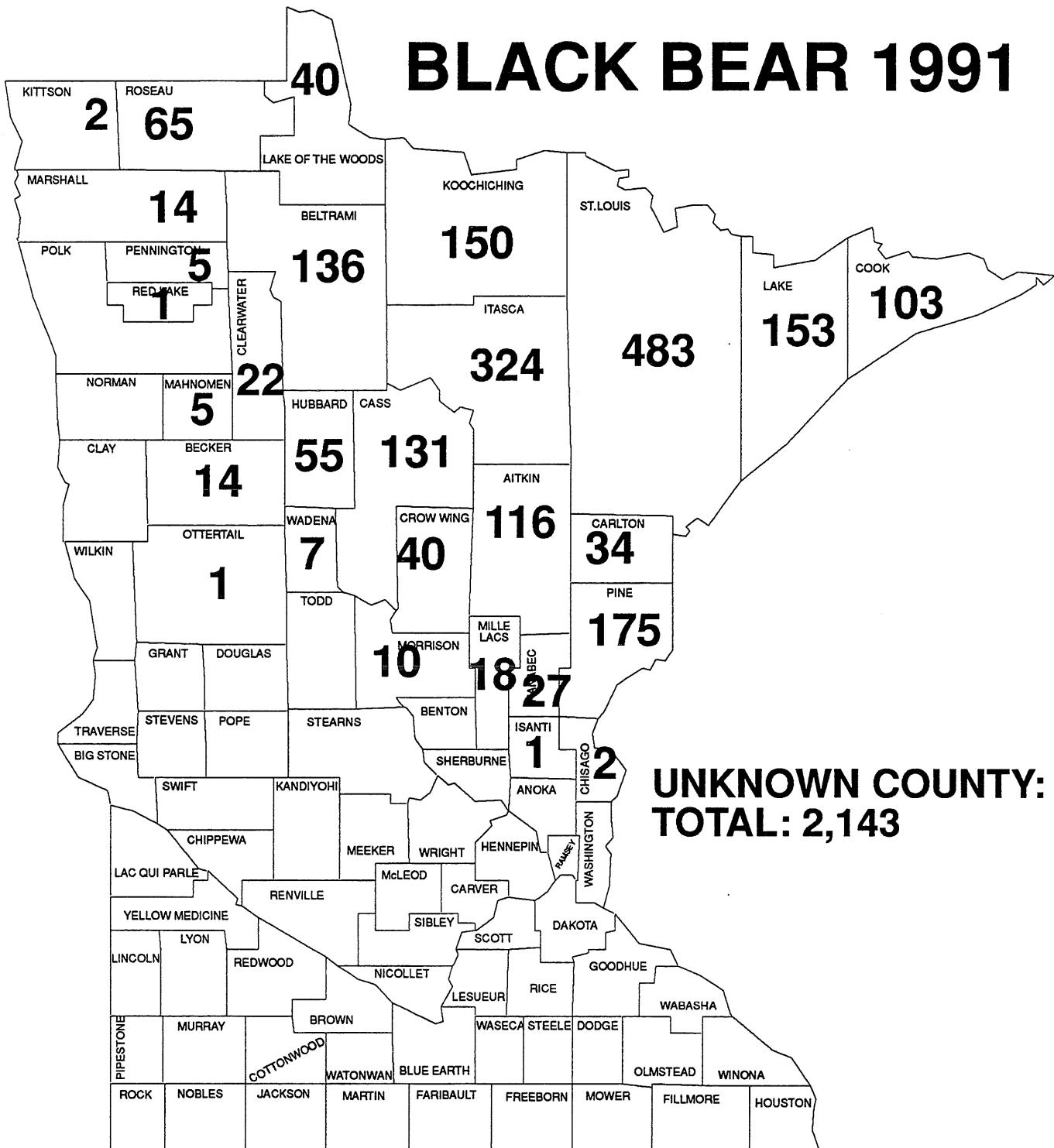


Figure 34. Black bear registered harvest by county, 1991 season.

Table 51. Registered bear harvest by county, 1980-1991.

County	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Total
Aitkin	92	128	39	102	96	118	153	149	157	226	271	116	1,805
Anoka	0	0	0	0	0	0	0	1	0	0	0	0	1
Becker	7	9	1	14	9	10	3	9	8	17	24	14	150
Beltrami	28	79	24	78	60	58	53	55	58	79	112	136	906
Benton	0	0	0	0	0	0	0	1	2	0	0	0	3
Carlton	17	18	3	9	19	34	39	21	28	31	44	34	318
Cass	69	110	29	93	73	114	89	134	96	173	192	131	1,411
Chisago	0	1	0	0	0	0	1	2	2	3	3	2	14
Clearwater	3	18	4	8	7	17	12	22	14	25	60	22	226
Cook	148	79	7	46	30	62	65	98	45	127	120	103	1,100
Crow Wing	9	33	8	26	21	36	22	37	34	47	94	40	428
Hubbard	15	19	11	25	45	41	36	37	30	42	57	55	452
Isanti	1	3	0	0	0	1	2	1	0	0	3	1	12
Itasca	212	172	50	121	128	170	183	242	179	245	264	324	2,556
Kanabec	12	18	8	19	19	18	36	34	52	48	104	27	433
Kittson	0	0	0	1	8	0	2	2	7	3	2	2	28
Koochiching	137	149	66	105	89	95	113	126	87	111	129	150	1,537
Lake	74	80	17	42	28	60	79	83	60	119	112	153	1,025
Lake of the Woods	30	43	25	32	41	29	32	27	48	51	40	40	466
Mahnomen	0	1	2	2	5	1	4	2	2	3	6	5	36
Marshall	2	3	1	9	17	12	5	14	24	14	21	14	137
Mille Lacs	5	12	3	11	11	28	14	16	21	17	22	18	190
Morrison	1	1	1	10	5	4	8	11	6	6	10	10	80
Ottertail	0	0	0	0	0	0	0	0	0	0	0	1	1
Pennington	0	1	0	3	2	1	1	12	4	3	8	5	40
Pine	62	73	20	55	52	98	113	115	208	157	226	175	1,443
Polk	1	0	0	0	0	1	0	0	1	0	7	0	10
Red Lake	3	2	0	0	0	0	0	1	0	1	1	1	9
Rice	0	0	0	0	0	0	0	1	0	0	0	0	1
Roseau	18	18	7	23	32	19	28	29	28	36	36	65	351
St. Louis	289	284	64	197	122	302	317	290	305	325	371	483	3,707
Wadena	0	1	0	0	0	0	0	0	1	1	4	7	15
Unknown	13	4	22	7	0	11	6	5	2	1	5	9	98
Total	1,248	1,359	412	1,038	919	1,340	1,416	1,577	1,509	1,911	2,350	2,143	18,993

Table 52. Number of bear permits, licenses, hunters, and hunter-days, 1981-91.

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Permit applications	-- ^a	9,260	13,617	17,886	22,954	20,694	19,687	25,879	24,096	24,861	25,890
Permits available	--	1,960	3,550	3,880	4,290	4,730	4,810	5,310	5,520	6,370	7,140
Licenses purchased:											
Quota areas	--	1,921	3,471	3,489	3,948	4,188	4,213	4,297	4,628	5,568	6,257
No-quota areas	11,429	--	--	--	--	--	1,789	1,297	1,145	1,472	1,384
% Permit-holders buying license	--	98.0	97.8	89.9	92.0	88.5	87.6	80.9	83.8	87.4	87.6
% License-holders hunting	93.3	92.5	90.4	90.0	92.7	93.3	91.8	91.0	93.6	93.0	92.6
Estimated number hunters	10,700	1,800	3,100	3,100	3,700	3,900	5,500	5,100	5,400	6,500	7,100 ^b
Mean hunting-days per hunter	5.4	6.8	6.3	6.1	5.9	5.8	6.1	6.3	6.0	5.9	6.1
Estimated total hunting-days	57,900	12,000	19,800	19,200	21,700	22,600	33,400	31,800	32,600	38,700	43,100 ^b

^a License sales not limited by permit in 1981.

^b No-quota hunters were not surveyed in 1991, so percent license-holders hunting and days/hunter from quota areas were applied to no-quota area to calculate total number of hunters and hunting days; however, in previous years, both % license-holders hunting and days/hunter were higher in the no-quota area than the quota areas, so 1991 estimates of hunters and hunting-days are likely low.

Table 53. Percent hunting success of those Minnesota bear hunters that hunted^a, 1983-91.

Area	1983	1984	1985	1986	1987	1988	1989	1990	1991
11 ^b	33	54	21	41	29	30	33	27	-- ^c
12	38	42	32	25	32	37	39	38	51
13	27	38	49	35	52	38	45	35	31
22	36	25	13	19	19	8	23	20	23
24	29	22	49	33	29	48	44	32	41
25	51	30	42	51	41	44	39	37	46
26	34	32	32	45	57	37	47	42	47
31	47	21	52	46	41	31	44	50	48
41	36	24	30	27	46	49	44	47	25
43	29	34	40	37	41	35	48	39	28
51	30	30	42	41	31	35	37	46	28
52 ^b	27	32	37	41	12	30	24	31	--
Statewide	35	31	40	40	31	34	38	39	38

^a From a bear hunter survey conducted by the Forest Wildlife Populations and Research Group.

^b Area numbers not officially recognized, but used herein to designate no-quota hunting areas established in 1987 (see figure below). Hunting licenses were controlled by a quota in these areas during 1982-86.

^c No-quota hunters were not surveyed in 1991, thus estimates of hunter success were not available.

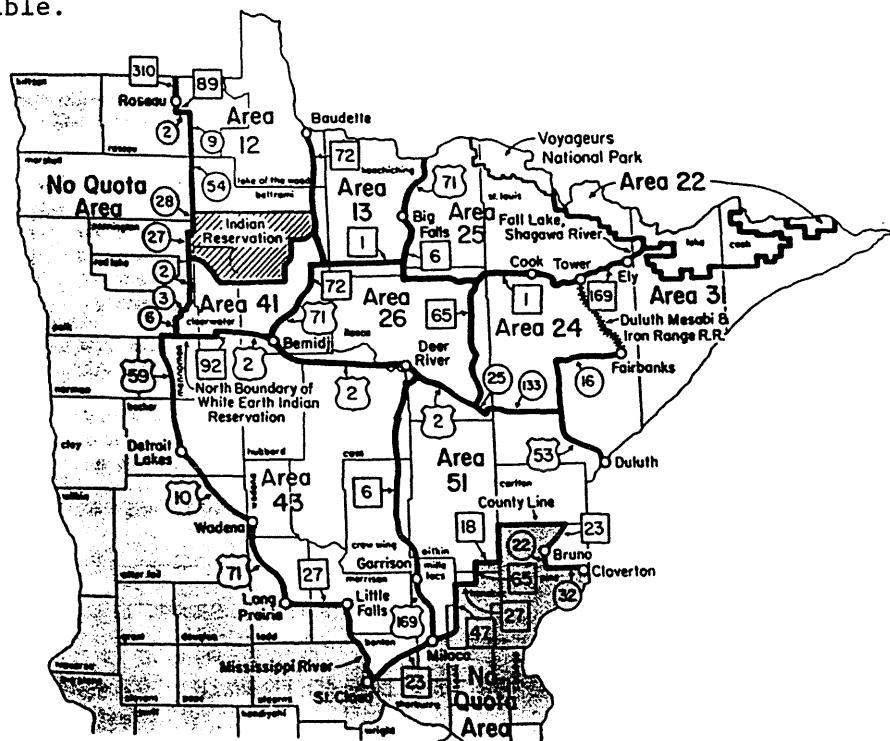


Figure 35. Boundaries of bear management units, 1991.

Table 54. Percent of Minnesota bear hunters using bows, baits, and guides^a, 1981-91.

Method	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Bow	17	14	19	21	16	19	23	21	20	20	21
Bait	3	55	62	61	66	69	75	75	75	74	78
Guide	7	6	5	6	5	6	6	7	6	6	11

^a From a bear hunter survey conducted by the Forest Wildlife Populations and Research Group.

104

Table 55. Percent hunting success of Minnesota bear hunters by method of hunt^a, 1981-91.

Method	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Firearm	15	23	36	32	39	41	32	34	39	39	38
Bow only	22	19	34	27	42	33	31	33	35	42	35
Bait	21	25	37	33	42	42	32	37	41	41	40
No bait	11	21	32	26	34	33	30	25	31	27	31
Guide	19	33	50	57	36	48	56	51	50	44	51
No guide	16	22	34	30	39	39	30	33	38	39	36

^a From a bear hunter survey conducted by the Forest Wildlife Populations and Research Group.

Table 56. Moose hunt quota and harvest statistics, 1971-91.

Year	Area	Number of	Number of	Chances	Harvest	Party	Sex of Moose	
		4-person licenses issued	4-person license applications				M	F
1971	NW	250	9,264	1:23	240	96	159 (66%)	81 (34%)
	NE	150			134	89	87 (65%)	47 (35%)
1973	NW	335	13,560	1:26	306	91	213 (76%)	91 (24%)
	NE	185			159	86	131 (83%)	24 (13%)
1975	NW	475	15,792	1:20	449	94	259 (58%)	188 (42%)
	NE	275			227	82	147 (65%)	80 (35%)
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			-	-	-	-

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

Table 57. Trapper response to mail surveys, 1979-80 through 1991-92.

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	498	2,804	84.9
1990-91	2,294	102	1,875	85.5
1991-92	2,643	149	2,060	77.9

Table 58. Use of trapper licenses, 1979-80 through 1991-92.

		Return from mail survey	Projections from license sales
1979-80	Trapped	760 (85.6%)	15,512
	Did not trap	<u>128</u> (14.4%)	<u>2,609</u>
		888 (100.0%)	18,121
1980-81	Trapped	918 (85.6%)	20,548
	Did not trap	<u>154</u> (14.4%)	<u>3,457</u>
		1,072 (100.0%)	24,005
1981-82	Trapped	972 (83.3%)	19,725
	Did not trap	<u>195</u> (16.7%)	<u>3,954</u>
		1,167 (100.0%)	23,679
1982-83	Trapped	688 (86.6%)	17,526
	Did not trap	<u>106</u> (13.4%)	<u>2,700</u>
		794 (100.0%)	20,226
1983-84	Trapped	549 (82.8%)	13,862
	Did not trap	<u>114</u> (17.2%)	<u>2,879</u>
		663 (100.0%)	16,741
1984-85	Trapped	445 (89.9%)	15,136
	Did not trap	<u>50</u> (10.1%)	<u>1,700</u>
		495 (100.0%)	16,836
1985-86	Trapped	420 (83.0%)	12,201
	Did not trap	<u>86</u> (17.0%)	<u>2,498</u>
		506 (100.0%)	14,699
1986-87	Trapped	442 (86.0%)	13,240
	Did not trap	<u>72</u> (14.0%)	<u>2,155</u>
		514 (100.0%)	15,395
1987-88	Trapped	512 (84.6%)	15,777
	Did not trap	<u>93</u> (15.4%)	<u>2,866</u>
		605 (100.0%)	18,643
1988-89	Trapped	582 (80.1%)	9,789
	Did not trap	<u>145</u> (19.9%)	<u>2,432</u>
		727 (100.0%)	12,221
1989-90	Trapped	2,251 (80.3%)	7,314
	Did not trap	<u>553</u> (19.7%)	<u>1,794</u>
		2,804 (100.0%)	9,108
1990-91	Trapped	1,399 (80.6%)	4,972
	Did not trap	<u>337</u> (19.4%)	<u>1,197</u>
		1,736 (100.0%)	6,169 ^a
1991-92	Trapped	1,491 (76.6%)	3,999
	Did not trap	<u>455</u> (23.4%)	<u>1,221</u>
		1,946 (100.0%)	5,220 ^a

^a excludes duplicates.

Table 59. Estimated number of trappers and estimated take per trapper of various furbearers, 1981-82 through 1991-92.

	Estimated number of trappers (thousands)												Estimated take per trapper reporting that species											
	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92		
Muskrat	16	12	11	13	9	11	15	7	4	2	2	62.5	48.4	75.8	7.51	51.8	72.9	68.7	28.3	26.5	24.3	20.3		
Mink	13	10	8	9	8	9	13	7	5	3	2	5.7	5.6	6.8	8.0	7.6	8.7	8.5	8.9	8.8	9.5	8.5		
Short-tailed weasel	1	1	<1	1	<1	1	1	1	<1	<1	<1	3.2	2.2	4.6	3.5	2.6	4.2	4.7	4.2	4.6	3.2	4.4		
Long-tailed weasel	1	1	<1	1	<1	1	2	1	1	<1	<1	2.8	1.6	4.0	2.1	2.0	5.2	4.4	5.0	4.6	2.8	5.4		
Raccoon	12	9	9	9	8	8	11	6	4	2	2	6.2	6.4	7.8	8.3	11.3	11.4	11.9	12.8	11.6	15.8	14.1		
Striped skunk	7	5	4	5	4	4	5	3	2	1	1	8.1	6.4	8.5	9.4	10.3	10.2	10.2	10.1	9.5	11.8	8.8		
Eastern spotted skunk	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	1.6	6.7	2.5	1.4	2.5	2.5	1.8	2.0	4.8	7.3	2.7		
Badger	2	1	1	1	1	1	1	1	<1	<1	<1	1.8	1.7	2.1	1.6	2.1	1.7	1.9	2.0	1.8	2.4	2.2		
Opossum	<1	<1	<1	<1	1	1	2	1	1	1	1	2.1	1.8	3.1	2.8	8.7	13.8	6.7	8.2	8.6	10.7	8.6		
Red fox	8	6	6	6	5	5	6	4	2	2	2	6.8	6.3	6.9	9.2	6.1	7.5	8.7	13.3	10.1	18.3	13.6		
Gray fox	2	2	2	2	2	2	2	1	1	<1	<1	2.7	2.7	2.5	2.9	3.5	2.9	2.6	4.1	3.1	3.0	1.8		
Coyote	1	2	2	2	1	2	2	1	1	1	1	2.4	3.2	4.8	5.3	4.5	3.8	3.3	3.7	4.3	3.4	3.7		
Beaver (fall)	4	2	4	5	4	6	8	4	3	2	2	7.5	4.4	7.3	10.0	9.8	11.5	16.3	11.2	14.6	13.2	15.5		
Beaver (spring)	1	3	4	3	4	4	2	2	1	1	1	12.6	25.5	25.4	30.3	21.7	21.7	22.7	14.1	19.9	18.8	27.1		

Table 60. Minnesota trapper license sales and estimated annual harvest, 1981-82 through 1991-92^a.

	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Trapper license sales ^b	23,679	20,196	16,741	16,836	14,699	15,395	18,643	12,221	9,108	6,163	5,220
Beaver license sales ^c	6,602	1,971	-	-	-	-	-	-	-	-	-
Estimated harvest^d (thousands)											
Muskrat	989	570	865	963	477	826	1,007	185	118	55	41
Mink	76	57	58	75	57	77	110	59	40	25	20
Short-tailed weasel	3	1 ^e	2	3	1	3	7	3	2	1	1
Long-tailed weasel	4	1	1	1	1	3	7	3	2	1	1
Raccoon	72	60	69	78	89	95	134	74	41	34	28
Striped skunk	54	34	36	47	41	42	54	31	17	15	9
Eastern spotted skunk	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Badger	3	2	2	2	2	2	3	2	1	1	1
Opossum	1	<1	2	1	7	14	10	9	6	6	4
Red fox	53	41	42	58	29	40	57	53	25	33	23
Gray fox	5	5	5	5	6	6	5	5	2	1	1
Coyote	3	5	9	10	7	7	7	3	4	3	3
Beaver (fall season)	30	24	30	51	43	71	132	47	48	24	23
Beaver (spring season)	10	76	101	103	92	101	26	-	31	20	24
Registered harvest											
Otter	485	385	408	529	559	777	1,386	922	1,294	888	855
Lynx ^f	17	28	9	closed							
Bobcat ^f	260	274	208	280	119	160	214	140	129	84	106
Fisher	862	912	631	1,289	678	1,068	1,642	1,025	1,243	746	528
Marten	closed	closed	closed	closed	430	798	1,363	2,072	2,119	1,349	656

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

^b Separate licenses were issued for juveniles (13-17 years old) and adults (18 and older), beginning in 1982. As of July 14, 1992, 5,220 trapping licenses were sold in 1991, 538 (10.3%) were juvenile licenses and 4,682 (89.7%) were adult licenses. Duplicate licenses excluded.

^c Beginning in fall 1982, beaver could be trapped with only a general trapping license; the separate beaver trapping license was dropped.

^d Based upon trappers' responses to mail surveys.

^e 1 is any number which rounds to 1.
<1 is <0.5.

^f Registered harvest for lynx and bobcat includes animals taken by hunting.

Table 61. Average price per pelt paid to hunters and trappers in Minnesota, 1977-78 through 1991-92.

Species	Average pelt prices paid hunters and trappers in Minnesota (dollars)														
	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Muskrat	4.25	4.56	5.90	5.62	3.47	2.19	2.24	2.81	1.85	2.89	3.12	2.07	0.80	0.75	1.55
Mink (male)	22.15	36.69	42.83	37.55	34.35	24.43	30.33	28.40	25.29	35.75	40.54	39.76	30.38	23.06	27.30
Mink (female)	8.86	14.80	18.61	16.04	17.22	10.63	14.55	14.04	13.37	18.43	20.25	22.70	17.26	14.73	17.36
S.T. Weasel	0.44	0.47	0.56	0.64	0.59	0.56	0.56	0.77	0.98	0.98	0.89	1.11	1.20	1.55	0.77
L.T. Weasel	0.85	1.01	0.94	0.84	0.96	0.80	0.93	1.10	1.06	1.28	1.02	1.04	1.25	0.58	1.21
Raccoon	22.30	45.83	36.42	27.44	32.35	17.95	12.66	19.91	15.51	21.81	16.67	7.53	4.88	4.19	8.57
Striped Skunk	2.78	4.13	4.14	4.74	3.46	2.58	2.77	2.74	1.58	2.06	2.47	1.90	1.31	1.84	1.47
Eastern Spotted Skunk	5.42	7.37	3.48	6.06	2.58	1.75	N.A.	3.00	6.17	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Badger	21.07	39.55	24.02	18.39	18.14	9.04	10.96	9.18	6.45	5.43	5.74	2.99	2.91	4.33	3.51
Opossum	2.11	2.10	2.12	2.52	1.58	0.87	0.71	1.14	0.62	0.97	0.91	0.62	0.76	3.51	0.96
Red Fox	52.97	72.21	55.43	50.81	51.48	31.10	32.81	29.07	17.51	22.07	16.69	9.89	8.58	7.17	10.81
Gray Fox	25.51	45.44	42.51	37.87	26.74	23.48	22.95	21.58	15.00	22.60	22.56	11.45	7.39	5.16	5.22
Coyote	34.03	56.62	39.76	31.37	41.28	25.41	18.79	19.06	18.19	22.03	18.35	8.43	6.42	8.95	14.85
Lynx	137.86	269.44	199.19	94.91	180.33	94.17	125.00	-	-	-	-	-	-	-	-
Bobcat	73.98	163.76	117.74	78.55	73.35	66.40	61.40	75.81	70.00	120.15	101.10	68.31	48.50	42.50	37.44
Beaver ^a (fall-winter)	13.45	17.64	32.74	17.88	14.48	10.69	9.52	12.51	15.03	20.32	16.75	13.84	12.49	9.44	9.00
Beaver ^a (spring)	17.64	28.71	19.58	16.52	12.55	11.60	12.24	16.11	17.90	-	17.12	12.62	10.99	9.66	9.25
Otter	41.23	58.85	63.37	32.78	29.80	25.65	24.79	21.56	20.81	24.15	22.85	22.02	22.01	24.21	24.74
Fisher ^a (male)	131.89	107.67	89.51	94.42	69.91	70.59	70.26	73.55	84.32	84.36	53.83	26.15	34.85	21.46	
Fisher ^a (female)	(71.23)	147.23	127.79	104.29	110.08	99.08	121.08	121.76	130.47	162.29	170.31	99.63	52.92	46.25	47.93
Marten (male)	No Open Season								30.29	35.68	43.13	50.08	47.90	43.89	39.59
Marten (female)									27.61	26.58	39.20	43.46	46.88	40.84	27.24

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

REGISTERED FURBEARER HARVEST STATISTICS
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Grand Rapids, MN 55744
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Table 62. Registered furbearer harvests and total permits issued, 1985-91^a.

Year	Bobcat		Fisher		Marten		Otter	
	Permits	Harvest	Permits	Harvest	Permits	Harvest	Permits	Harvest
1985	--	119	--	678	746	430	--	559
1986	--	160	3,302	1,607	2,171	798	3,198	777
1987	--	214	4,952	1,642	3,025	1,363	4,708	1,386
1988	--	140	4,419	1,025	3,369	2,072	4,070	922
1989	--	129	3,712	1,243	3,074	2,119	3,549	1,294
1990	--	84	2,385	746	2,090	1,349	2,199	888
1991 ^b	--	106	2,360	528	2,020	686	2,282	855

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

^b Confiscation and 1854 Authority removed.

BOBCAT 1991-1992

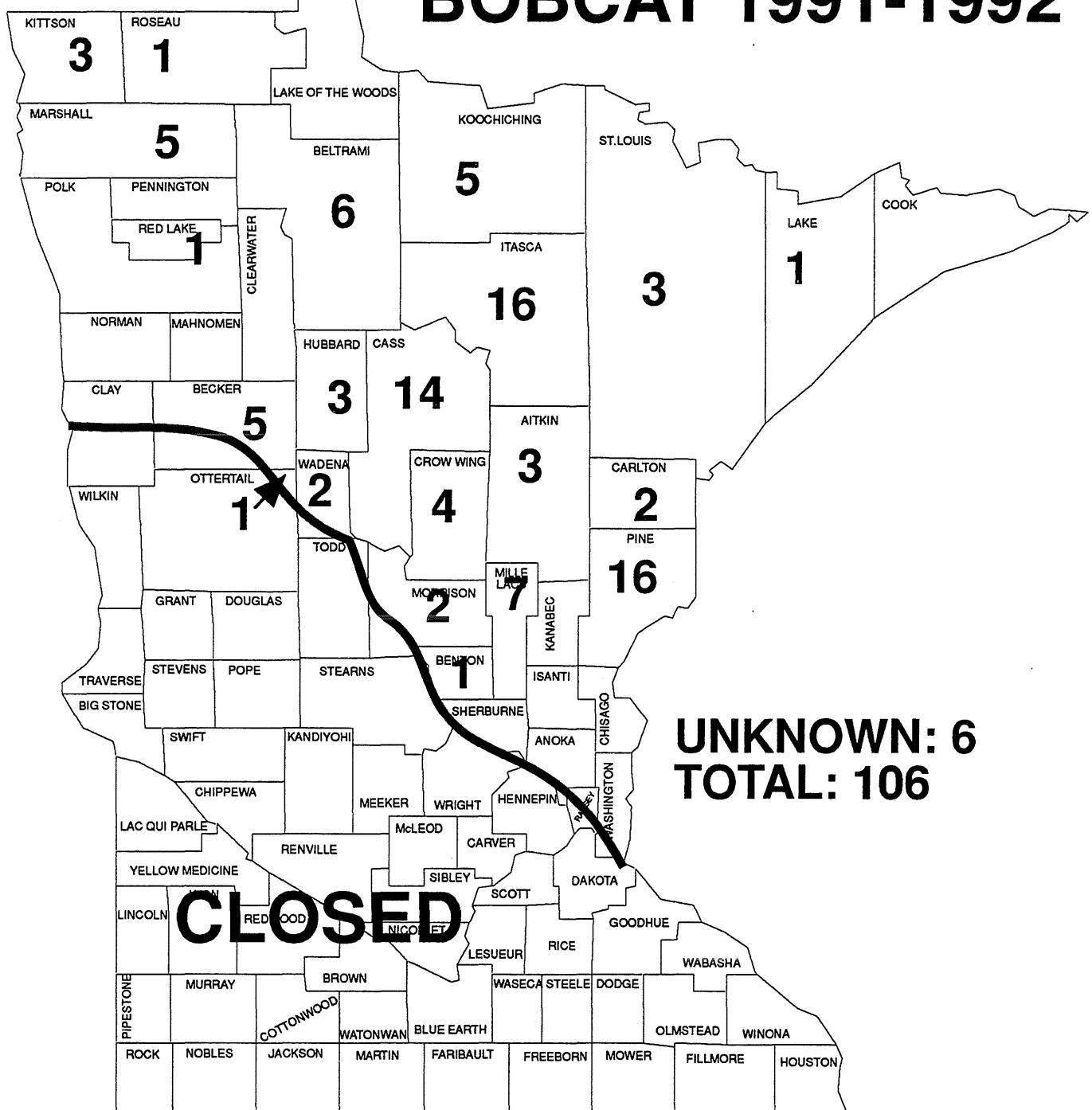


Figure 36. Bobcat harvest by county, 1991-1992.

Table 63. Time distribution of bobcat harvest by 5-day increments, 1991-92 season.

Interval	Sex		U	Total	% of Known Total ^a	Cumulative Percent
	M	F				
Nov. 30-Dec. 4	7	3	0	10	10.5	10.5
Dec. 5-9	4	8	1	13	13.7	24.2
Dec. 10-14	3	6	1	10	10.5	34.7
Dec. 15-19	7	5	0	12	12.6	47.3
Dec. 20-24	12	8	1	21	22.1	69.4
Dec. 25-29	4	8	0	12	12.6	82.0
Dec. 30-Jan. 3	5	8	0	13	13.7	95.7
Jan. 4-5	1	3	0	4	4.2	99.9
Unknown	10	1	0	11	-	-
Total	53	50	3	106	99.9	99.9

^a Sum of percentages does not equal 100.0 because of rounding error.

Table 64. Distribution of bobcat harvest among takers, 1983-84 thru 1991-92.

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
Total	723 (72.4)	171 (17.1)	61 (6.1)	31 (3.1)	12 (1.2)	998

Table 65. Bobcat harvest by method of take, 1979-1991.

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

* Sum of method totals is not equal to total harvest due to incomplete method data.

Table 66. Comparison of bobcat harvest by county, 1981-82 through 1991-92.

County	1981-82 ^a	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Aitkin	45	28	20	25	14	12	25	18	31	4	3
Becker	1	6	8	9	1	1	3	2	1	3	5
Beltrami	2	18	17	24	5	7	15	7	8	4	6
Benton											1
Carlton	15	15	4	20	6	9	9	4	1	1	2
Cass	26	30	13	42	20	34	28	13	27	11	14
Chisago	0	1	0	0	1	0	0	1	0	0	0
Clearwater	0	1	1	0	0	3	0	1	2	0	0
Cook	Closed	2	0	1	0	1	2	4	2	3	0
Crow Wing	2	4	4	5	6	5	1	2	0	5	4
Douglas	1	0	0	0	0	Closed	Closed	Closed	Closed	Closed	Closed
Hubbard	3	4	1	1	0	0	2	3	1	1	3
Isanti	0	0	0	0	0	1	0	0	1	0	0
Itasca	32	46	36	50	15	28	44	20	19	11	16
Kanabec	2	2	2	6	2	3	0	1	6	1	0
Kittson	5	5	3	0	0	3	6	2	0	3	3
Koochiching	0	3	12	8	8	6	9	13	1	0	5
Lake	4	8	3	1	1	3	4	2	1	0	1
Lake of the Woods	3	3	1	1	1	0	2	4	0	0	0
Marshall	6	2	3	1	1	3	4	0	0	1	5
Mille Lacs	4	0	6	0	4	3	8	2	0	3	7
Morrison	0	5	7	5	4	4	4	2	2	2	2
Ottertail	3	2	1	1	3	2	1	2	1	0	1
Pennington	1	0	0	0	0	0	0	0	0	0	0
Pine	21	29	24	29	14	11	15	23	15	18	16
Polk	0	0	0	1	0	0	0	1	0	0	0
Red Lake	0	0	0	0	1	0	0	0	0	0	0
Renville	0	0	0	1	0	Closed	Closed	Closed	Closed	Closed	Closed
Roseau	4	9	9	14	2	2	2	0	2	1	
St. Louis	78	59	32	43	8	19	26	10	7	8	3
Wadena	2	0	1	1	2	0	2	2	2	2	2
Unknown	0	1	0	1	0	2	0	0	1	1	6
Total	260	274	208	280	119	160	214	140	129	84	106

^a Northeast zone closed to taking of bobcat and lynx included: Cook county; most of Koochiching and Lake counties; and portions of Beltrami, Itasca, Lake of the Woods, and St. Louis counties.

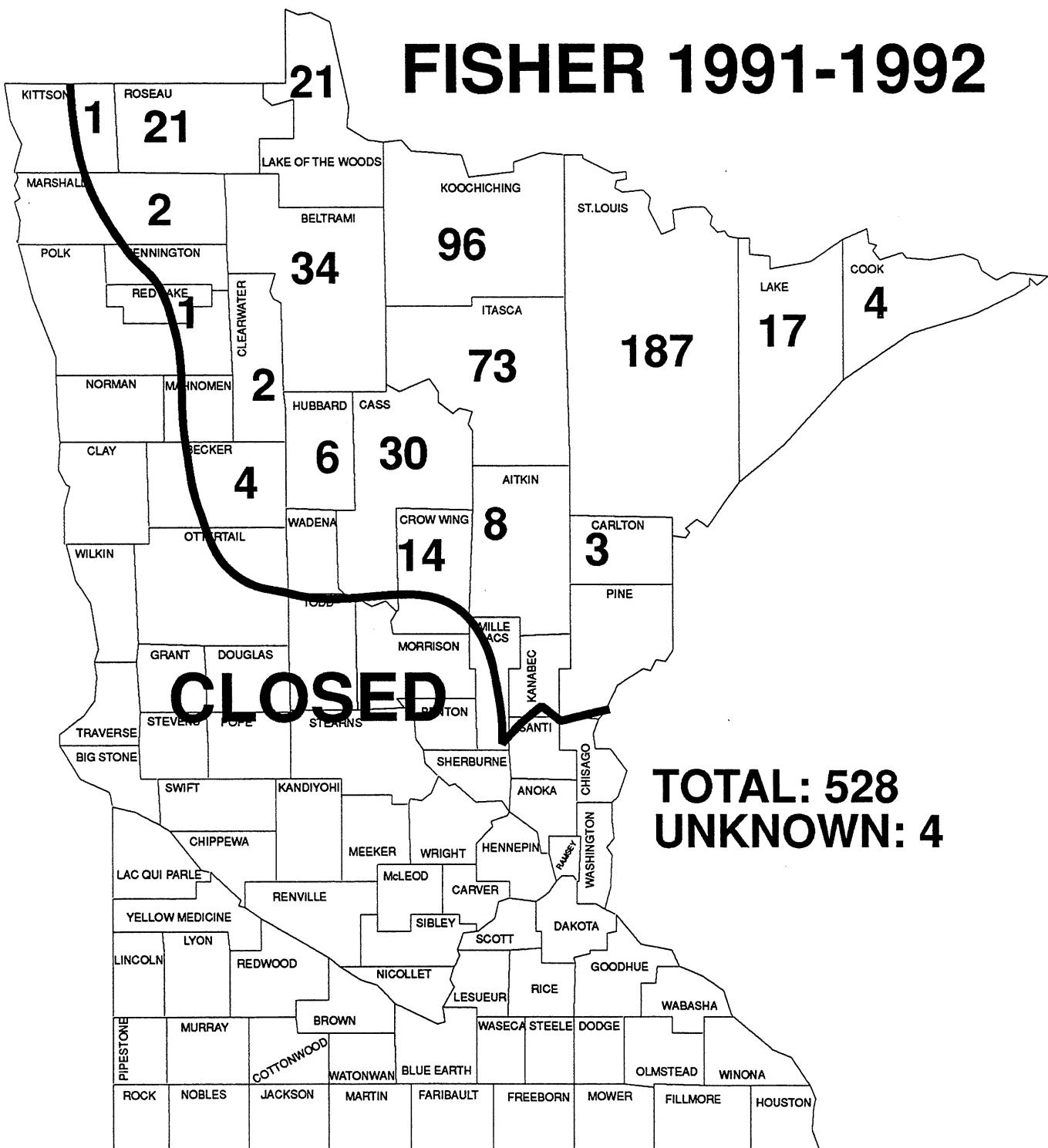


Figure 37. Fisher harvest by county, 1991-92.

Table 67. Fisher harvest by date and sex, 1991-92 season.

Date	Sex			Total	% of known		Cumulative Percent
	Male	Female	Unknown		Total ^a	Percent	
Nov. 30	1	0	0	1	0.2	0.2	
Dec. 1	10	14	0	24	5.3	5.5	
Dec. 2	3	13	0	16	3.5	9.0	
Dec. 3	16	14	0	30	6.6	15.6	
Dec. 4	21	12	0	33	7.3	22.9	
Dec. 5	21	16	0	37	8.2	31.1	
Dec. 6	13	13	0	26	5.8	36.9	
Dec. 7	29	25	0	54	12.0	48.9	
Dec. 8	15	20	0	35	7.7	56.6	
Dec. 9	15	15	0	30	6.6	63.2	
Dec. 10	18	19	0	37	8.2	71.4	
Dec. 11	11	13	0	24	5.3	76.7	
Dec. 12	9	10	0	19	4.2	80.9	
Dec. 13	10	11	0	21	4.7	85.6	
Dec. 14	18	15	0	33	7.3	92.9	
Dec. 15	20	12	0	32	7.1	100.0	
Unknown	42	33	1	76	--	--	
Total	272	255	1	528	100	100	

^a Sum of percentages does not equal 100.0 because of rounding error.

Table 68. Fisher harvest by county and sex, 1991-92 season.

County	Sex			Total
	Male	Female	Unknown	
Aitkin	3	5	0	8
Becker	3	1	0	4
Beltrami	18	16	0	34
Carlton	1	2	0	3
Cass	20	10	0	30
Clearwater	1	1	0	2
Cook	1	3	0	4
Crow Wing	11	3	0	14
Hubbard	2	4	0	6
Itasca	52	21	0	73
Kittson	0	1	0	1
Koochiching	55	41	0	96
Lake	7	10	0	17
Lake of the Woods	8	13	0	21
Marshall	0	2	0	2
Pine	0	0	0	0
Red Lake	0	1	0	1
Roseau	10	11	0	21
St. Louis	78	108	1	187
Unknown	2	2	0	4
Total	272	255	1	528

Table 69. Comparison of fisher harvest by county, 1981-91.

County	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Aitkin	9	15	5	10	8	8	24	14	26	17	8
Becker	3	2	4	3	1	4	2	4	4	5	4
Beltrami	44	41	25	96	27	71	115	68	78	34	34
Carlton	0	4	4	3	0	3	6	3	2	3	3
Cass	6	6	3	19	17	32	60	24	43	34	30
Clearwater	3	1	3	6	4	4	3	1	3	3	2
Cook	36	21	18	16	9	15	29	29	10	14	4
Crow Wing	8	6	2	11	6	11	14	3	12	12	14
Hubbard	1	0	0	7	1	7	9	6	8	4	6
Itasca	64	139	72	228	84	183	247	135	184	99	73
Kanabec	0	0	0	0	0	0	0	1	0	0	0
Kittson	0	0	6	2	1	1	4	2	1	2	1
Koochiching	142	182	123	255	157	195	303	128	211	77	96
Lake	121	115	37	80	49	81	114	78	80	78	17
Lake of the Woods	41	52	32	85	46	58	91	66	58	27	21
Mahnomen	1	0	0	0	0	0	0	5	0	0	0
Marshall	3	6	13	10	5	2	19	7	4	3	2
Norman	-----closed-----					1 ^a	1 ^a	closed	-----		
Pennington	0	0	0	0	0	0	0	1	0	0	0
Pine	0	0	1	1	0	0	1	1	3	2	0
Polk	0	0	0	0	0	1	0	1	0	0	0
Red Lake	0	0	0	0	0	0	1	0	0	0	1
Roseau	32	36	86	111	68	75	90	68	53	32	21
St. Louis	258	286	197	345	195	316	509	377	463	279	187
Unknown	90	0	0	1	0	0	0	3	0	21	4
Total	862	912	631	1,289	678	1,068	1,642	1,025	1,243	746	528

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

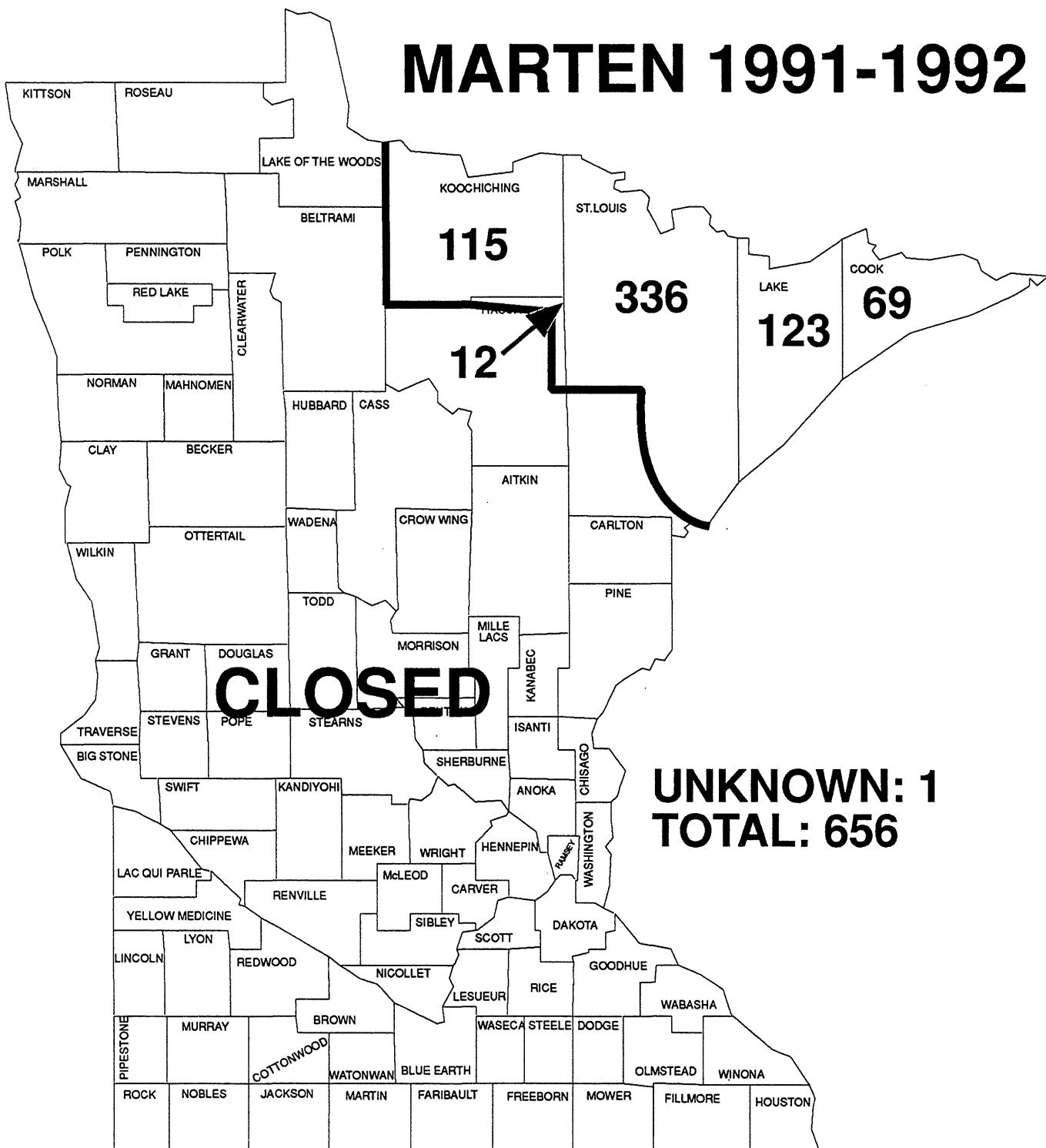


Figure 38. Pine marten harvest by county, 1991-92.

Table 70. Marten harvest by date and sex, 1990-91 season.

Date	Sex			Total	% of Known Total ^a		Cumulative Percent
	Male	Female	Unknown		Total ^a	Percent	
Nov. 30	0	0	0	0	0	0	0
Dec. 1	45	21	0	66	11	11	
Dec. 2	38	6	0	44	7.3	18.3	
Dec. 3	38	13	0	51	8.5	26.8	
Dec. 4	34	8	0	42	7.0	33.8	
Dec. 5	28	10	0	38	6.3	40.1	
Dec. 6	24	6	0	30	5.0	45.1	
Dec. 7	55	17	0	72	12.0	57.1	
Dec. 8	54	15	0	69	11.5	68.6	
Dec. 9	13	8	0	21	3.5	72.1	
Dec. 10	34	14	0	48	8.0	80.1	
Dec. 11	11	4	0	15	2.5	82.6	
Dec. 12	17	10	0	27	4.5	87.1	
Dec. 13	19	5	0	24	4.0	91.1	
Dec. 14	30	2	0	32	5.4	96.5	
Dec. 15	15	6	0	21	3.5	100.0	
Unknown	33	22	1	56	-	-	

Table 71. Marten harvest by county and sex, 1991-92 season.

County	Sex			Total
	Male	Female	Unknown	
Cook	52	17	0	69
Itasca	7	5	0	12
Koochiching	81	34	0	115
Lake	91	32	0	123
St. Louis	256	79	1	336
Unknown	0	0	1	1
Total	487	167	2	656

Table 72. Comparison of marten harvest by county, 1986-91.^a

County	1986	1987	1988	1989	1990	1991
Cook	75	143	305	288	178	69
Itasca	----closed----		11	18	16	12
Koochiching	159	275	266	204	123	115
Lake	160	270	457	481	446	123
Lake of the Woods	----closed----		1	0	0	0
St. Louis	401	675	1,032	1,123	567	336
Unknown	3	0	0	5	19	1
Total	798	1,363	2,072	2,119	1,349	656

^a No open season on marten prior to 1985.

OTTER 1991-1992

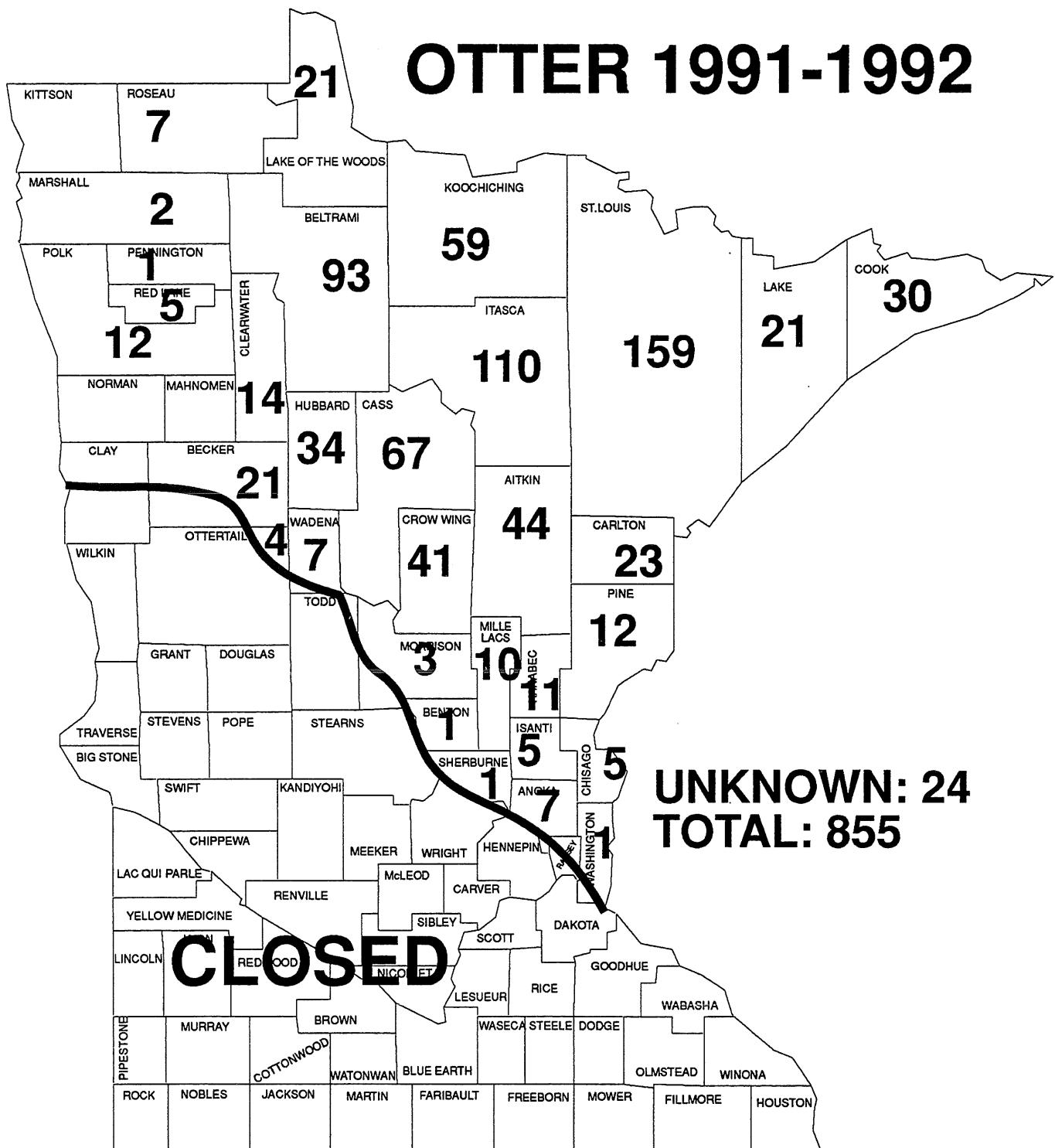


Figure 39. Otter harvest by county, 1991-1992.

Table 73. Otter harvest by 5-day interval and sex, 1991-92 season.

Interval	Sex			Total	% of Known Total ^a	
	Male	Female	Unknown		Cumulative Percent	
Oct. 26-30	41	44	5	90	11.6	11.6
Oct. 31-Nov. 4	48	42	0	90	11.6	23.2
Nov. 5-9	45	31	0	76	9.8	33.0
Nov. 10-14	33	33	2	68	8.8	41.8
Nov. 15-19	37	28	0	65	8.4	50.2
Nov. 20-24	28	20	0	48	6.2	56.4
Nov. 25-29	40	22	0	62	8.0	64.4
Nov. 30-Dec. 4	36	29	2	67	8.7	73.1
Dec. 5-9	23	23	0	46	6.0	79.1
Dec. 10-14	26	15	0	41	5.3	84.4
Dec. 15-19	18	17	1	36	4.7	89.1
Dec. 20-24	16	13	0	29	3.8	92.9
Dec. 25-29	11	17	0	28	3.6	96.5
Dec. 30-Jan. 3	10	8	0	18	2.3	98.8
Jan. 4-5 ^b	5	4	0	9	1.2	100.0
Unknown	53	27	2	82	-	-
Total	465	369	12	855	100	100

^a Sum of percentages does not equal 100.0 because of rounding error.

^b 2-day interval.

Table 74. Otter harvest by county and sex, 1991-92 season.

County	Sex			Total
	Male	Female	Unknown	
Aitkin	23	21	0	44
Anoka	5	2	0	7
Becker	15	6	0	21
Beltrami	51	41	1	93
Benton	0	1	0	1
Carlton	8	15	0	23
Cass	42	25	0	67
Chisago	2	3	0	5
Clearwater	9	5	0	14
Cook	15	15	0	30
Crow Wing	27	14	0	41
Hubbard	16	18	0	34
Isanti	1	4	0	5
Itasca	49	52	9	110
Kanabec	7	4	0	11
Koochiching	36	23	0	59
Lake	8	13	0	21
Lake of the Woods	12	9	0	21
Mahnomen	0	0	0	0
Marshall	2	0	0	2
Mille Lacs	4	6	0	10
Morrison	0	3	0	3
Norman	0	0	0	0
Ottertail	2	2	0	4
Pennington	1	0	0	1
Pine	6	6	0	12
Polk	7	5	0	12
Ramsey	0	0	0	0
Red Lake	3	2	0	5
Roseau	3	4	0	7
St. Louis	101	58	0	159
Sherburne	0	1	0	1
Todd	0	0	0	0
Wadena	3	4	0	7
Washington	1	0	0	1
Unknown	11	11	2	24
Total	470	373	12	855

Table 75. Comparison of otter harvest by county, 1982-91.

County	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Aitkin	20	25	34	17	43	55	57	62	49	44
Anoka	-----closed-----				4	2	8	21	14	7
Becker	8	15	18	24	34	41	55	49	32	21
Beltrami	39	23	33	46	66	125	87	92	74	93
Benton	-----closed-----				0	0	1	0	1	1
Carlton	4	5	13	10	13	24	12	13	25	23
Cass	36	33	49	59	67	147	84	130	73	67
Chisago	-----closed-----				4	11	9	8	10	5
Clearwater	9	6	11	6	17	19	5	13	6	14
Cook	17	4	16	5	20	33	25	31	24	30
Crow Wing	15	13	15	26	27	57	31	65	40	41
Hubbard	21	15	22	25	27	36	19	39	45	34
Isanti	-----closed-----				12	24	12	17	7	5
Itasca	56	69	94	96	123	199	141	207	108	110
Kanabec	4	9	9	4	14	28	31	30	18	11
Kittson	0	0	0	0	1	0	0	0	0	0
Koochiching	23	26	34	38	45	77	48	59	31	59
Lake	15	20	18	25	47	61	33	40	26	21
Lake of the Woods	9	11	13	5	9	39	16	11	6	21
Mahnomen	2	2	3	14	6	5	8	13	8	0
Marshall	0	2	0	1	0	1	1	3	0	2
Mille Lacs	2	8	8	4	0	28	17	12	7	10
Morrison	-----closed-----				3	17	9	13	12	3
Norman	-----closed-----				0	1	6	1	1	0
Ottertail	1	1	1	1	4	1	1	3	5	4
Pennington	0	0	0	1	0	1	0	1	1	1
Pine	21	14	29	20	21	70	41	64	49	12
Polk	3	4	5	6	5	7	8	10	7	12
Ramsey	0	0	0	0	0	0	0	0	1	0
Red Lake	3	0	0	0	0	1	0	4	0	5
Roseau	3	3	5	5	7	12	9	13	6	7
St. Louis	69	96	96	119	145	256	135	248	180	159
Sherburne	-----closed-----				1	1	4	5	0	1
Todd	0	0	0	0	0	0	0	3	0	0
Wadena	4	4	2	2	1	4	1	7	5	7
Washington	-----closed-----				0	3	3	4	3	1
Unknown	1	1	2	0	2	0	5	3	12	24
Total	385	408	529	559	777	1,386	922	1,294	888	855

