# Status of Wildlife Populations, Fall 1993 and 1981-1992 Hunting and Trapping Harvest Statistics

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

Status of Wildlife Populations, Fall 1993

and

1981-92 Hunting and Trapping Harvest Statistics

This is the 17th year that the Wildlife Populations and Research Unit has compiled this booklet; it is primarily an administrative document intended for DNR personnel. (Since 1984 we have also generated a companion volume containing annual summaries of activities and findings from each ongoing research project in the Unit).

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

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

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

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FARMLAND WILDLIFE POPULATIONS
Wildlife Research Group
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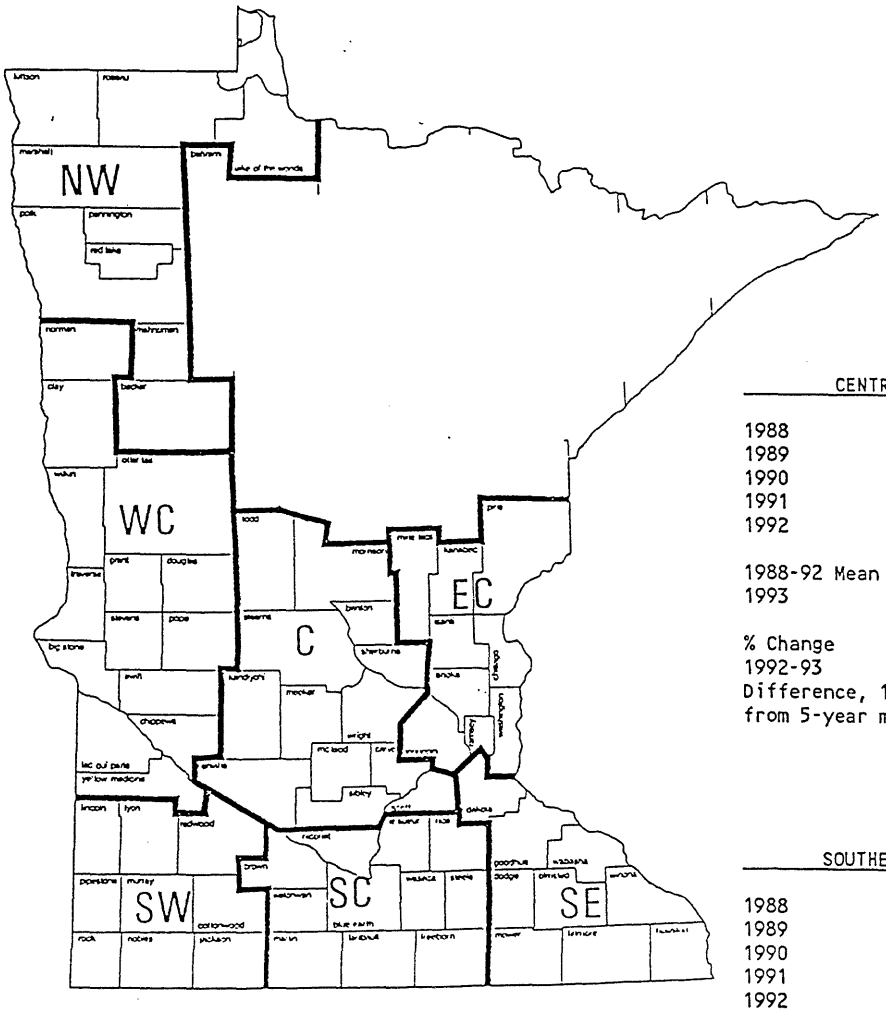
| WEST CENTRAL | |
|---|---|
| 1988 | 45 |
| 1989 | 33 |
| 1990 | 46 |
| 1991 | 78 |
| 1992 | 30 |
| 1988-92 Mean | 46 |
| 1993 | 11 |
| % Change 1992-93 | -63% |
| Difference, 1993 from 5-year mean | -76% |

| STATEWIDE | |
|---|---|
| 1988 | 35 |
| 1989 | 40 |
| 1990 | 58 |
| 1991 | 77 |
| 1992 | 44 |
| 1988-92 Mean | 51 |
| 1993 | 24 |
| % Change 1992-93 | -44% |
| Difference, 1993 from 5-year mean | -53% |

| EAST CENTRAL | |
|---|---|
| 1988 | 40 |
| 1989 | 54 |
| 1990 | 72 |
| 1991 | 88 |
| 1992 | 51 |
| 1988-92 Mean | 61 |
| 1993 | 20 |
| % Change 1992-93 | -61% |
| Difference, 1993 from 5-year mean | -67% |




| SOUTH CENTRAL | |
|---|---|
| 1988 | 32 |
| 1989 | 40 |
| 1990 | 62 |
| 1991 | 79 |
| 1992 | 47 |
| 1988-92 Mean | 52 |
| 1993 | 31 |
| % Change 1992-93 | -28% |
| Difference, 1993 from 5-year mean | -40% |

| CENTRAL | |
|---|---|
| 1988 | 31 |
| 1989 | 42 |
| 1990 | 61 |
| 1991 | 80 |
| 1992 | 47 |
| 1988-92 Mean | 52 |
| 1993 | 23 |
| % Change 1992-93 | -50% |
| Difference, 1993 from 5-year mean | -56% |

| SOUTHWEST | |
|---|---|
| 1988 | 25 |
| 1989 | 32 |
| 1990 | 60 |
| 1991 | 84 |
| 1992 | 37 |
| 1988-92 Mean | 48 |
| 1993 | 16 |
| % Change 1992-93 | -58% |
| Difference, 1993 from 5-year mean | -67% |

| SOUTHEAST | |
|---|---|
| 1988 | 30 |
| 1989 | 43 |
| 1990 | 54 |
| 1991 | 51 |
| 1992 | 63 |
| 1988-92 Mean | 48 |
| 1993 | 52 |
| % Change 1992-93 | -18% |
| Difference, 1993 from 5-year mean | +8% |

Figure 1. Ring-necked pheasants seen per 100 miles of August roadside count route, 1988-93, and percent change 1992-93 for routes surveyed both years.

Table 1. County, regional, and statewide August roadside count indices for ring-necked pheasants in Minnesota, 1988-1993.

| Region and County | Miles surveyed 1993 | Pheasants seen per 100 miles | | | | | | | Percent change[a] |
|---|---|---|---|---|---|---|---|---|---|
| | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1988-92 Mean | 1992-93 |
| West Central | 925 | 45.3 | 33.1 | 45.6 | 78.0 | 29.5 | 11.0 | 46.3 | -63 |
| Big Stone | 75 | 96 | 36 | 136 | 125 | 19 | 17 | | |
| Chippewa | 50 | 48 | 52 | 64 | 80 | 58 | 10 | | |
| Clay | 75 | 9 | 11 | 0 | 13 | 12 | 1 | | |
| Douglas | 50 | 14 | 0 | 38 | 32 | 52 | 0 | | |
| Grant | 50 | 0 | 18 | 8 | 18 | 30 | 24 | | |
| Lac Qui Parle | 75 | 200 | 73 | 73 | 252 | 45 | 36 | | |
| Norman | 50 | 0 | 0 | 0 | 0 | 0 | 2 | | |
| Otter Tail | 50 | 44 | 2 | 18 | 22 | 10 | 0 | | |
| Pope | 75 | 61 | 49 | 96 | 156 | 57 | 16 | | |
| Stevens | 75 | 29 | 97 | 103 | 128 | 36 | 3 | | |
| Swift | 75 | 17 | 77 | 37 | 108 | 79 | 33 | | |
| Traverse | 75 | 53 | 4 | 0 | 31 | 9 | 0 | | |
| Wilkin | 75 | 0 | 0 | 1 | 9 | 3 | 0 | | |
| Yellow Medicine | 75 | 21 | 12 | 31 | 39 | 4 | 5 | | |
| Central | 775 | 31.2 | 42.3 | 60.5 | 80.0 | 46.6 | 23.1 | 52.1 | -50 |
| Benton | 50 | 28 | 74 | 24 | 36 | 56 | 8 | | |
| Carver | 50 | 44 | 14 | 54 | 38 | 28 | 54 | | |
| Kandiyohi | 75 | 60 | 71 | 51 | 207 | 123 | 44 | | |
| McLeod | 50 | 20 | 154 | 88 | 74 | 52 | 2 | | |
| Meeker | 75 | 28 | 65 | 133 | 272 | 88 | 33 | | |
| Morrison | 50 | 2 | 28 | 36 | 68 | 0 | 38 | | |
| Renville | 50 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Scott | 50 | 48 | 42 | 140 | 28 | 62 | 28 | | |
| Sherburne | 50 | 0 | 0 | 0 | 42 | 12 | 2 | | |
| Sibley | 75 | 26 | 17 | 63 | 79 | 49 | 0 | | |
| Stearns | 100 | 14 | 2 | 16 | 39 | 20 | 41 | | |
| Todd | 50 | 80 | 100 | 78 | 88 | 12 | 8 | | |
| Wright | 50 | 58 | 38 | 116 | 28 | 70 | 20 | | |
| East Central | 425 | 40.0 | 53.6 | 72.0 | 88.2 | 51.3 | 20.2 | 61.0 | -61 |
| Anoka | 50 | 20 | 16 | 108 | 76 | 6 | 0 | | |
| Chisago | 75 | 33 | 115 | 131 | 164 | 136 | 77 | | |
| Hennepin | 25 | 120 | 44 | 164 | 0 | 36 | 4 | | |
| Isanti | 75 | 57 | 48 | 45 | 105 | 5 | 1 | | |
| Kanabec | 50 | 18 | 0 | 40 | 8 | 2 | 6 | | |
| Mille Lacs | 50 | 18 | 138 | 102 | 190 | 104 | 34 | | |
| Pine | 50 | 70 | 0 | 8 | 66 | 36 | 12 | | |
| Washington | 50 | 18 | 36 | 8 | 6 | 58 | 0 | | |

Table 1. Continued.

| Region and County | Miles surveyed 1993 | Pheasants seen per 100 miles | | | | | | | Percent change[a] 1992-93 |
|---|---|---|---|---|---|---|---|---|---|
| | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1988-92 Mean | |
| Southwest | 475 | 24.7 | 32.0 | 59.6 | 83.6 | 37.5 | 15.6 | 47.5 | -58 |
| Cottonwood | 50 | 32 | 14 | 26 | 58 | 26 | 24 | | |
| Jackson | 50 | 8 | 32 | 90 | 22 | 12 | 4 | | |
| Lincoln | 50 | 0 | 18 | 60 | 390 | 174 | 20 | | |
| Lyon | 50 | 28 | 48 | 32 | 48 | 0 | 0 | | |
| Murray | 50 | 40 | 40 | 52 | 10 | 32 | 44 | | |
| Nobles | 75 | 12 | 16 | 33 | 47 | 31 | 7 | | |
| Pipestone | 50 | 40 | 20 | 64 | 86 | 20 | 38 | | |
| Redwood | 50 | 22 | 0 | 22 | 8 | 32 | 2 | | |
| Rock | 50 | 48 | 108 | 170 | 102 | 14 | 6 | | |
| South Central | 800 | 31.6 | 39.6 | 61.8 | 79.0 | 47.2 | 30.8 | 51.8 | -28 |
| Blue Earth | 75 | 43 | 37 | 16 | -- | 11 | 3 | | |
| Brown | 75 | 35 | 52 | 41 | 47 | 5 | 4 | | |
| Faribault | 75 | 13 | 21 | 15 | 7 | -- | 1 | | |
| Freeborn | 75 | 31 | 37 | 60 | 52 | 23 | 45 | | |
| LeSueur | 75 | 47 | 32 | 145 | 323 | 224 | 111 | | |
| Martin | 75 | 35 | 3 | 41 | 19 | 19 | 16 | | |
| Nicollet | 75 | 7 | 52 | 72 | 37 | 5 | 1 | | |
| Rice | 75 | 27 | 71 | 87 | 127 | 76 | 73 | | |
| Steele | 50 | 34 | 12 | 86 | 116 | 72 | 34 | | |
| Waseca | 75 | 96 | 73 | 95 | 36 | 43 | 49 | | |
| Watonwan | 75 | 4 | 36 | 29 | 25 | 3 | 1 | | |
| Southeast | 500 | 30.1 | 43.4 | 53.6 | 51.0 | 63.4 | 52.2 | 48.3 | -18 |
| Dakota | 50 | 0 | 14 | 6 | 6 | 56 | 10 | | |
| Dodge | 50 | 48 | 94 | 62 | 34 | 94 | 18 | | |
| Fillmore | 50 | 4 | 56 | 16 | 48 | 134 | 162 | | |
| Goodhue | 50 | 12 | 10 | 38 | 16 | 22 | 0 | | |
| Houston | 50 | 10 | 0 | 26 | 52 | 14 | 6 | | |
| Mower | 75 | 44 | 65 | 88 | 59 | 25 | 15 | | |
| Olmsted | 75 | 65 | 83 | 128 | 131 | 151 | 180 | | |
| Wabasha | 50 | 22 | 20 | 36 | 70 | 28 | 34 | | |
| Winona | 50 | 26 | 18 | 28 | 0 | 22 | 0 | | |
| Statewide | 3900 | 34.8 | 39.8 | 57.5 | 76.9 | 44.2 | 24.3 | 50.6 | -44 |

[a] Percent change for 1992-93 calculated only for routes surveyed both years.

Table 2. Statewide pheasant population parameters calculated from August roadside count results, 1988-93.

| Population Parameter | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1988-92 Mean | Percent change[a] 1992-93 |
|---|---|---|---|---|---|---|---|---|
| Cocks/100 Miles | 2.8 | 2.9 | 4.9 | 5.9 | 3.8 | 2.6 | 4.1 | -32 |
| Hens/100 Miles | 3.8 | 4.6 | 7.8 | 10.6 | 6.5 | 2.6 | 6.7 | -59 |
| Broods/100 Miles | 4.7 | 5.2 | 7.9 | 12.1 | 6.3 | 3.3 | 7.2 | -48 |
| Mean Brood Size | 6.0 | 6.2 | 5.7 | 5.0 | 5.4 | 5.9 | 5.7 | +10 |
| Broods/100 Hens | 123.6 | 113.0 | 101.0 | 114.6 | 98.0 | 126.0 | 110.0 | +28 |
| Median Hatch Date | May 31 | Jun 6 | Jun 9 | Jun 2 | Jun 8 | Jun 4 | Jun 6[b] | |

[a] Percent change for 1992-93 calculated only for routes surveyed both years.

[b] Median hatch date, 1988-92.

Table 3. Regional and statewide August roadside count indices for gray (Hungarian) partridge, 1988-93.

| Agricultural Region | Miles Surveyed 1993 | Partridges seen per 100 miles | | | | | | | Percent change[a] |
|---|---|---|---|---|---|---|---|---|---|
| | | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1988-92 Mean | 1992-93 |
| Northwest | 475 | 3.8 | 24.8 | 20.4 | 15.3 | 1.7 | 0.0 | 13.2 | -100 |
| West Central | 925 | 25.9 | 20.0 | 14.8 | 15.5 | 6.3 | 0.8 | 16.5 | -88 |
| Central | 775 | 18.2 | 13.1 | 19.5 | 11.6 | 5.5 | 1.9 | 13.6 | -65 |
| East Central | 425 | 3.1 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.8 | 0 |
| Southwest | 475 | 110.7 | 93.5 | 101.5 | 66.5 | 11.8 | 3.2 | 76.8 | -73 |
| South Central | 800 | 63.6 | 84.1 | 62.7 | 23.9 | 10.1 | 1.0 | 48.9 | -89 |
| Southeast | 500 | 40.4 | 42.0 | 34.6 | 18.4 | 10.4 | 11.8 | 27.2 | +13 |
| Statewide[b] | 4375 | 37.3 | 39.7 | 35.2 | 20.9 | 6.7 | 2.4 | 28.0 | -64 |

[a] Percent change 1992-93 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, 1988-93.

| Population Parameter | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1988-92 Mean | Percent change[a] 1992-93 |
|---|---|---|---|---|---|---|---|---|
| Adults/100 Miles | 7.5 | 9.9 | 11.8 | 8.0 | 2.4 | 0.8 | 7.9 | -64 |
| Broods/100 Miles | 3.1 | 3.3 | 3.3 | 2.1 | 0.7 | 0.1 | 2.5 | -81 |
| Mean Brood Size | 9.7 | 9.1 | 7.1 | 6.1 | 6.0 | 11.2 | 7.6 | +85 |
| Broods/100 Adults | 40.6 | 33.3 | 28.0 | 26.1 | 30.1 | 16.2 | 31.6 | -46 |
| Median Hatch Date | Jun 15 | Jun 21 | Jun 21 | Jun 23 | Jun 23 | Jun 29 | Jun 21[b] | |

[a] Percent change 1992-93 for routes surveyed both years only.

[b] Median hatch date, 1988-92.

Table 5. August roadside count indices for selected farmland wildlife species and percent change 1992-93 by agricultural region.

| Agricultural Region | Miles Surveyed 1993 | Animals seen per 100 miles | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Eastern Cottontail | | | White-tailed Jackrabbit | | | Mourning dove | | | White-tailed deer | | |
| | | 1992 | 1993 | Percent change[a] | 1992 | 1993 | Percent change[a] | 1992 | 1993 | Percent change[a] | 1992 | 1993 | Percent change[a] |
| Northwest | 475 | 0.4 | 0.4 | 0 | 0.4 | 0.6 | +50 | 202.1 | 82.1 | -59 | 18.9 | 15.8 | -17 |
| West Central | 925 | 3.0 | 1.1 | -64 | 0.3 | 0.0 | -100 | 261.2 | 175.4 | -33 | 10.7 | 11.4 | +6 |
| Central | 775 | 6.1 | 3.1 | -49 | 0.8 | 0.3 | -67 | 241.2 | 179.5 | -26 | 4.1 | 5.2 | +25 |
| East Central | 425 | 8.5 | 8.5 | 0 | 0.0 | 0.0 | 0 | 134.8 | 86.8 | -36 | 11.8 | 8.0 | -32 |
| Southwest | 475 | 4.0 | 2.1 | -47 | 1.1 | 0.2 | -80 | 198.3 | 92.8 | -53 | 6.1 | 10.1 | +65 |
| South Central | 800 | 4.7 | 5.7 | +29 | 0.8 | 0.2 | -67 | 222.3 | 100.2 | -56 | 5.5 | 2.9 | -43 |
| Southeast | 500 | 7.2 | 7.8 | +8 | 0.4 | 0.4 | 0 | 236.6 | 165.2 | -30 | 13.4 | 15.6 | +16 |
| Statewide[b] | 4375 | 4.7 | 3.8 | -18 | 0.6 | 0.2 | -58 | 222.2 | 133.5 | -40 | 9.5 | 9.2 | -1 |

[a] Percent change 1992-93 calculated only for routes surveyed both years.

[b] Statewide means include the Northwest agricultural region.

Table 6. Statewide August roadside count indices for selected farmland wildlife species, 1989-93.

| Species | Animals seen per 100 miles driven | | | | | Percent change[a] |
|---|---|---|---|---|---|---|
| | 1989 | 1990 | 1991 | 1992 | 1993 | 1992-93 |
| Ring-necked pheasant[b] | 39.8 | 57.5 | 76.9 | 44.2 | 24.3 | -44 |
| Gray partridge (Hun) | 39.7 | 35.2 | 20.9 | 6.7 | 2.4 | -64 |
| Mourning dove | 283.4 | 255.6 | 248.3 | 222.2 | 133.5 | -40 |
| Eastern cottontail | 5.4 | 6.7 | 5.3 | 4.7 | 3.8 | -18 |
| White-tailed jack rabbit | 1.6 | 1.4 | 0.8 | 0.6 | 0.2 | -58 |
| White-tailed deer | 6.4 | 7.2 | 10.9 | 9.5 | 9.2 | -1 |
| Sharp-tailed grouse | 0.00 | 0.05 | 0.29 | 0.09 | 0.02 | -75 |
| Greater prairie-chicken | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0 |
| Sandhill crane | 2.44 | 6.19 | 2.87 | 3.19 | 2.58 | -20 |
| Badger | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 0 |
| Gray & fox squirrel | 1.20 | 0.85 | 1.38 | 0.93 | 1.30 | +43 |
| Gray & red fox | 0.74 | 0.91 | 0.56 | 0.67 | 0.43 | -34 |
| Striped & spotted skunk | 0.30 | 0.55 | 0.22 | 0.09 | 0.16 | +50 |

[a] Percent change 1992-93 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, 1955-1993.[a]

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

[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.

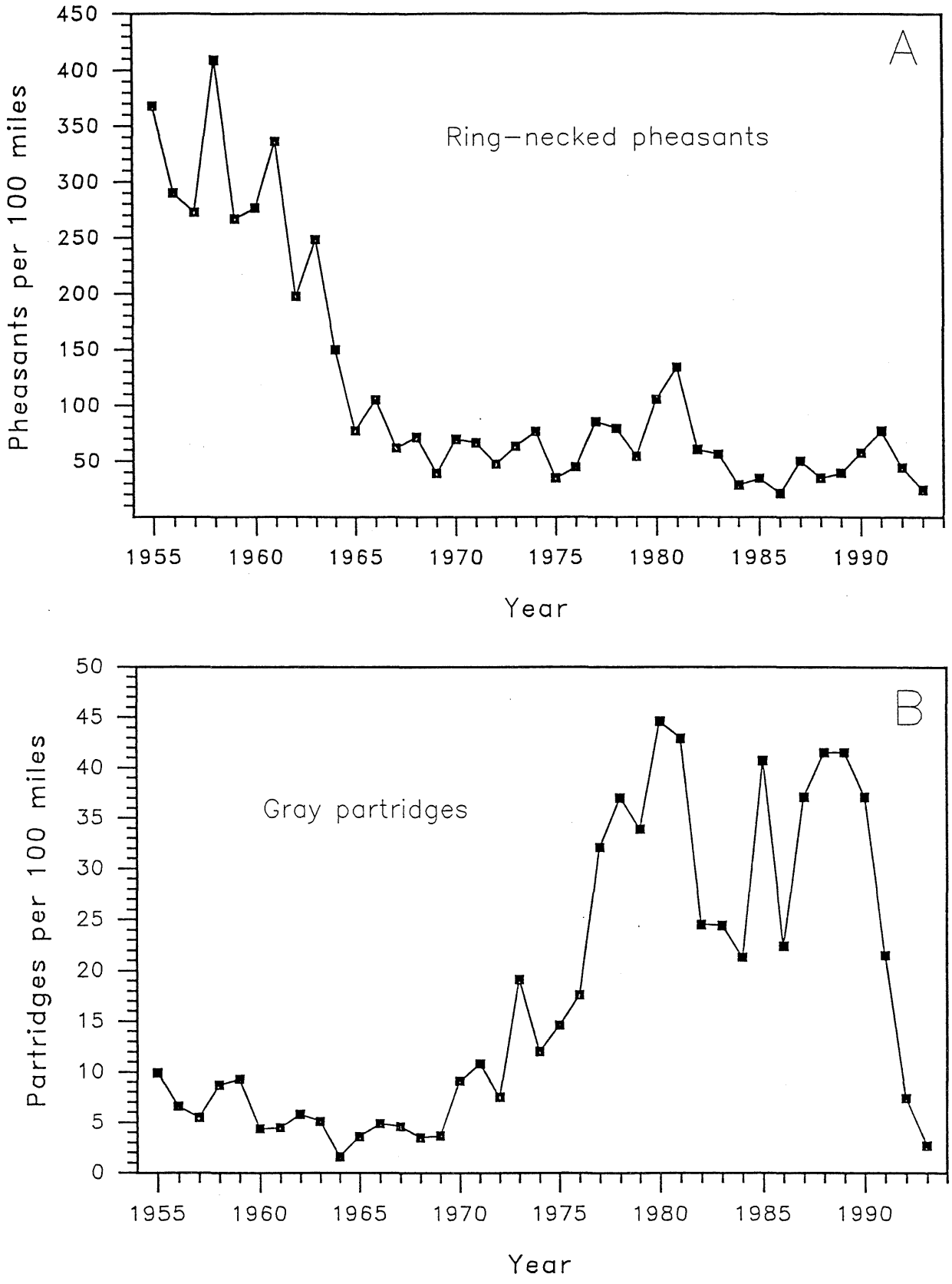



Fig. 2. August roadside count indices (birds seen per 100 miles driven) for (A) Ring-necked pheasants and (B) Gray partridges, 1955-1993. Gray partridge means do not include the Northwest agricultural region.

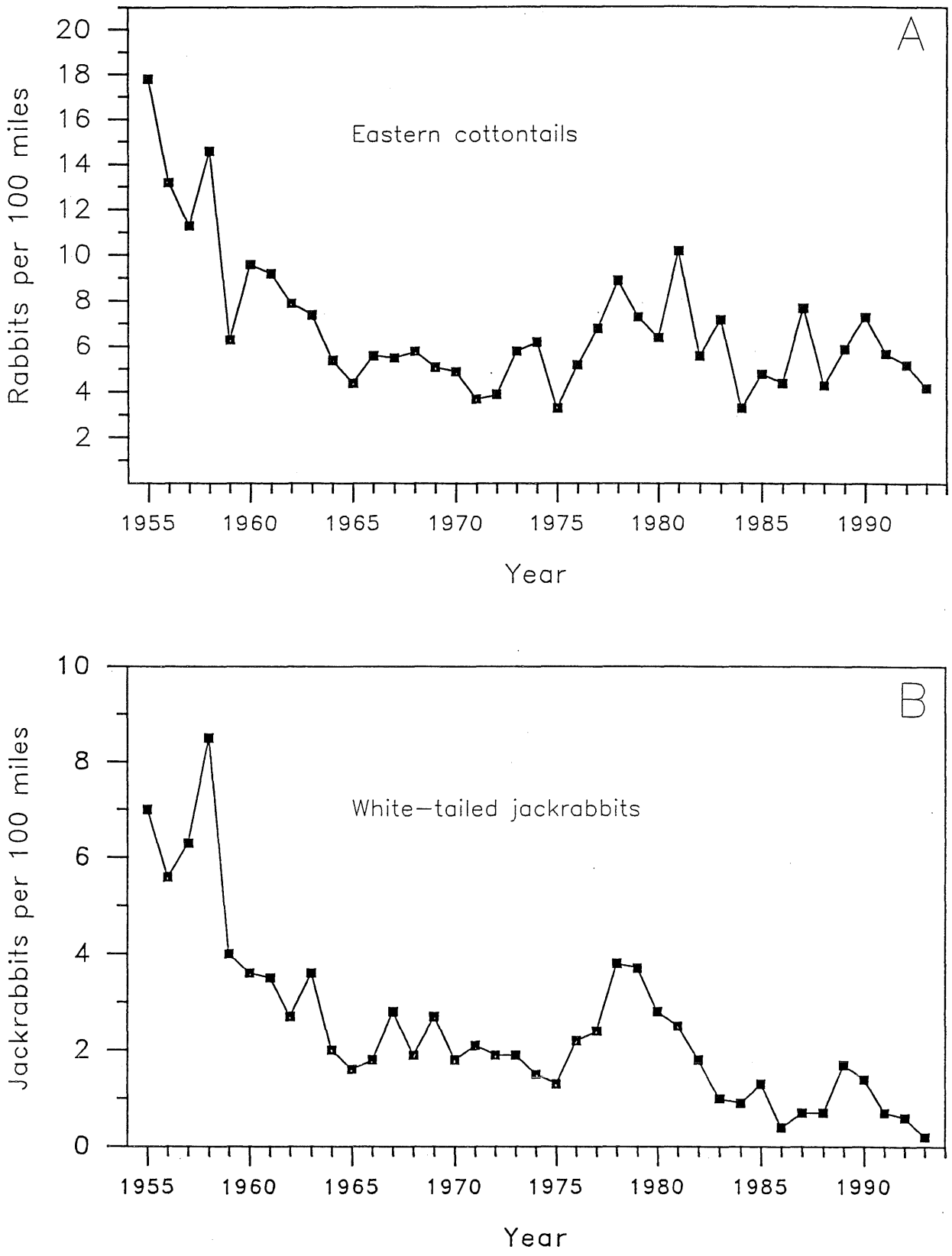



Fig. 3. August roadside count indices (animals seen per 100 miles driven) for (A) Eastern cottontails, and (B) White–tailed jackrabbits, 1955–1993. Means do not include the Northwest agricultural region.

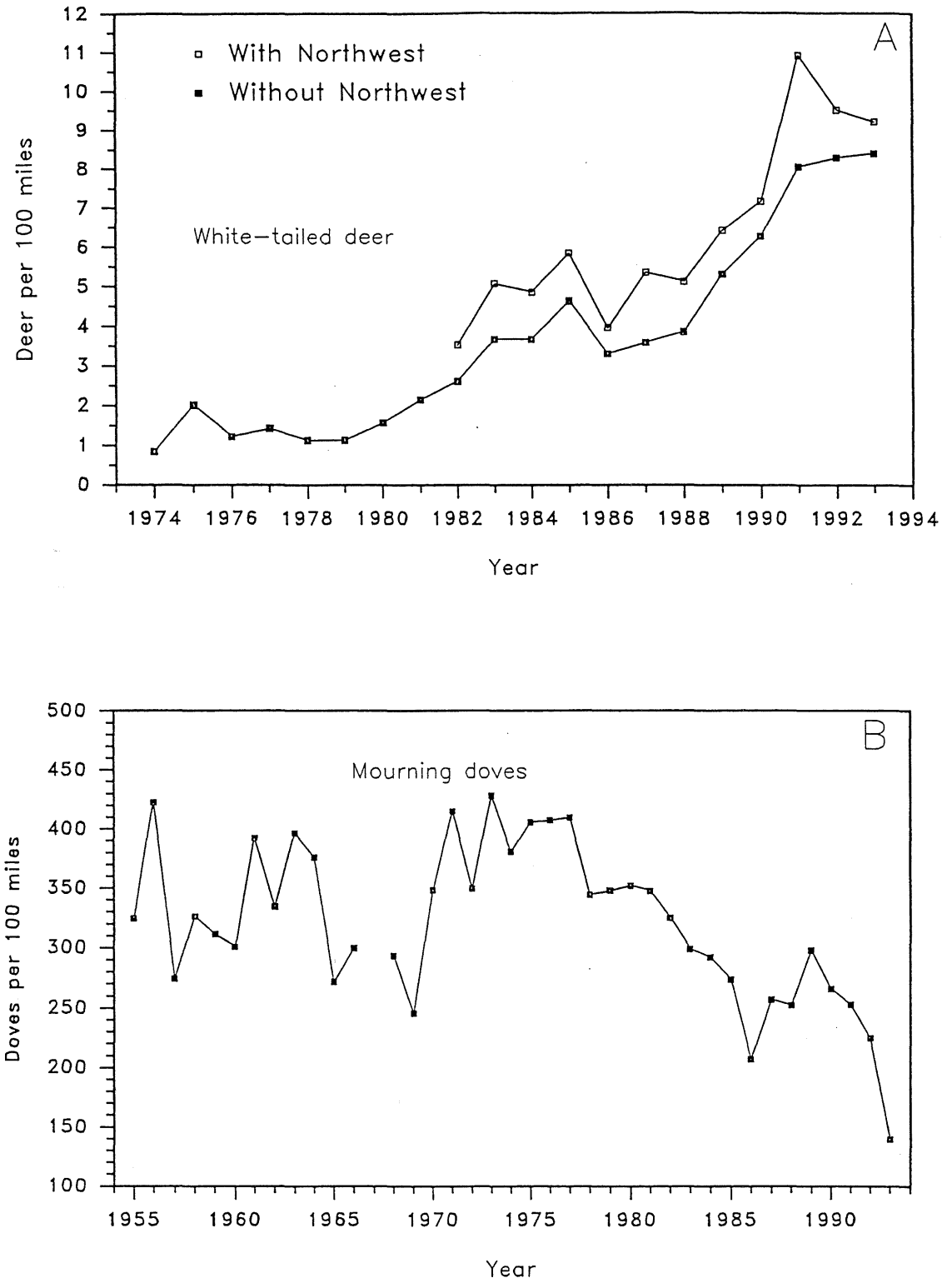



Fig. 4. August roadside count indices (animals seen per 100 miles driven) for (A) White–tailed deer, including and excluding the Northwest agricultural region, 1974–1993; and (B) mourning doves, 1955–1993. Dove means do not include the Northwest agricultural region. Doves were not counted in 1967.

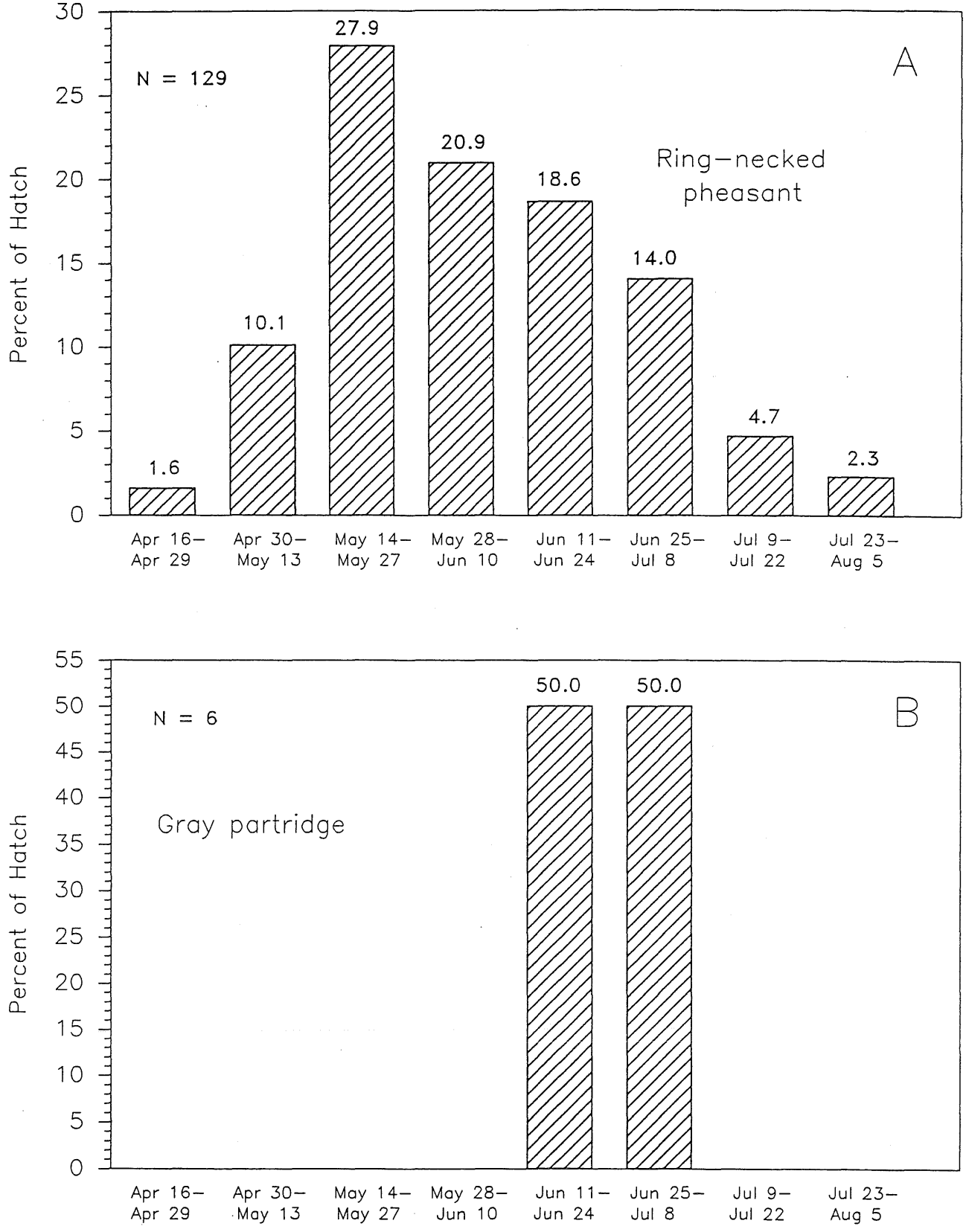



Fig. 5. Biweekly distribution of (A) Ring–necked pheasant, and (B) Gray partridge hatch, 1993.

Table 8. Ring-necked pheasants seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1993.

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

[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, 1955-1993.

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

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

Table 10. Eastern cottontails seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1993.

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

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

Table 11. White-tailed jackrabbits seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1993.

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

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

Table 12. Mourning doves seen per 100 miles of August roadside count in Minnesota, by agricultural region, 1955-1993.

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

[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 | 1993 |
| Becker | 133 (13) | 174 (17) | 96 ( 9) | 41 ( 3) | 99 (11) | 53 ( 7) | 19 ( 3) | 18 ( 3) | 69 ( 7) | 30 ( 3) | 69 ( 6) | DATA not |
| 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) | Available at |
| Chippewa | 0 | 2 ( 1) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | time of publication |
| 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 | 0 | 1 ( 1) | 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) | 3 ( 1) | 0 | 0 | 0 | 0 | 9 ( 1) | 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 | 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) | |
| males/ground | 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.

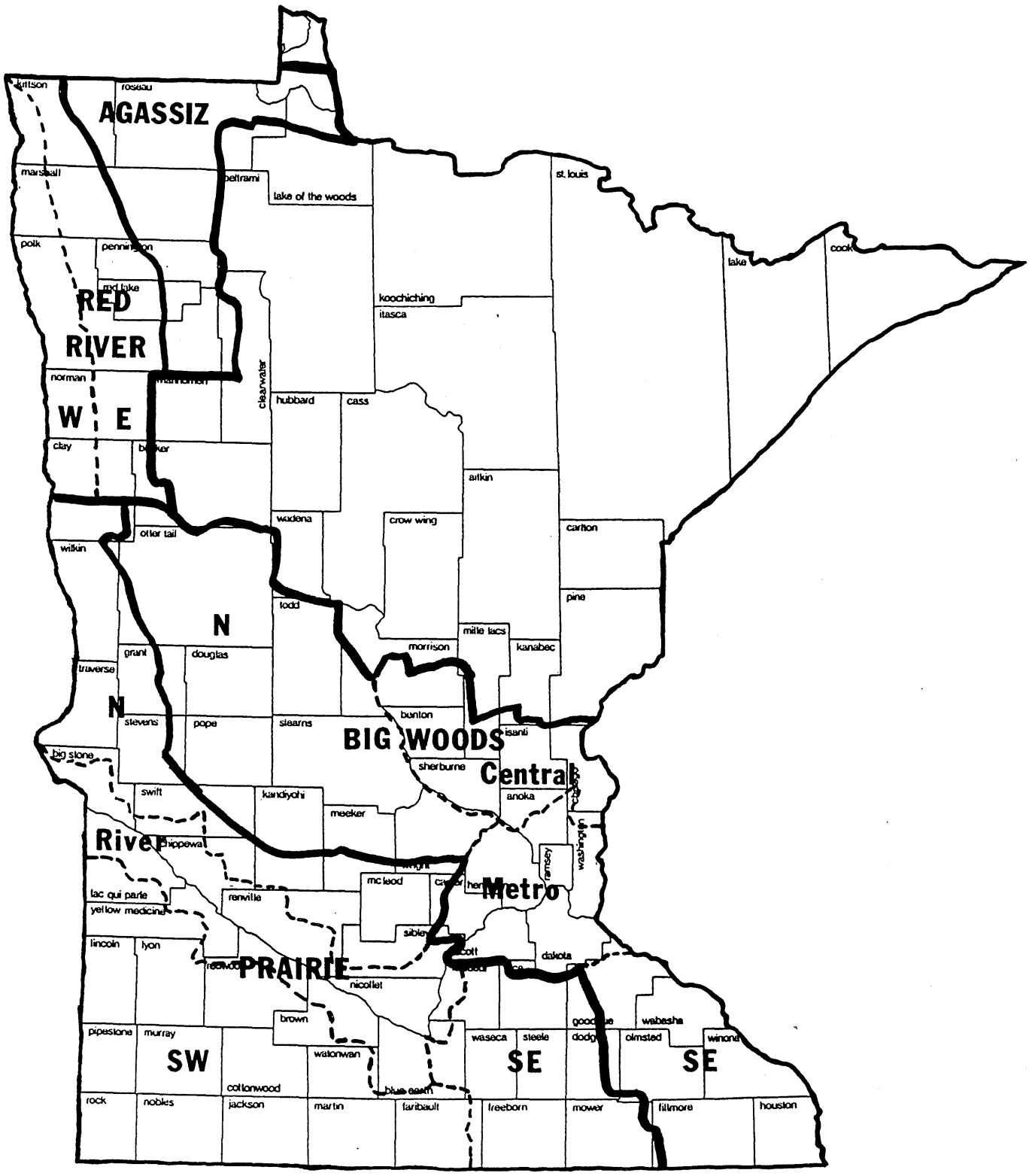



Figure 6. Deer Management Units (DMU) and sub-units in the Farmland Zone.

Table 14. Deer productivity data for the Northwest[a] Deer Management Unit (DMU), 1989-1993. The baseline mean values (1978-1987) are provided as references.

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

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

Table 15. Deer productivity data for the Big Woods Deer Management Unit, 1989-1993. The baseline mean values (1978-1987) are provided as references.

| | Fawns | | | Adults | | |
|---|---|---|---|---|---|---|
| Year Subunit | n | Percent pregnant | Fetuses/ doe | n | Percent pregnant | Fetuses/ doe |
| 1993 | 45 | 38 | 0.40 | 92 | 93 | 1.71 |
| North | 13 | 31 | 0.38 | 31 | 100 | 1.84 |
| Central | 2 | 0 | 0.00 | 8 | 100 | 1.75 |
| Metro | 26 | 38 | 0.38 | 30 | 80 | 1.50 |
| SE | 4 | 75 | 0.75 | 23 | 100 | 1.78 |
| 1992 | 65 | 22 | 0.25 | 96 | 95 | 1.82 |
| 1991 | 50 | 20 | 0.22 | 71 | 96 | 1.76 |
| 1990 | 96 | 32 | 0.33 | 125 | 95 | 1.82 |
| 1989 | 51 | 31 | 0.31 | 85 | 96 | 1.85 |
| Baseline mean (1978-1987) | | 44 | 0.51 | | 94 | 1.74 |

Table 16. Deer productivity data for the Prairie Deer Management Unit, 1989-1993. The baseline mean values (1978-1987) are provided as references.

| Year Subunit | Fawns n | Fawns Percent pregnant | Fawns Fetuses/ doe | Adults n | Adults Percent pregnant | Adults Fetuses/ doe |
|---|---|---|---|---|---|---|
| 1993 | 39 | 38 | 0.41 | 74 | 93 | 1.74 |
| North | 3 | 67 | 0.67 | 10 | 60 | 1.20 |
| River | 14 | 29 | 0.29 | 30 | 100 | 1.90 |
| SW | 16 | 38 | 0.44 | 24 | 96 | 1.75 |
| SE | 6 | 50 | 0.50 | 10 | 100 | 1.80 |
| 1992 | 37 | 19 | 0.22 | 44 | 93 | 1.93 |
| 1991 | 30 | 20 | 0.20 | 67 | 94 | 1.82 |
| 1990 | 43 | 42 | 0.45 | 62 | 97 | 1.84 |
| 1989 | 37 | 38 | 0.38 | 54 | 89 | 1.65 |
| Baseline mean (1978-1987) | | 46 | 0.54 | | 93 | 1.78 |

Table 17. Estimated pre-fawning deer density[a] (deer/mi$^2$), permit[b] and harvest summaries, and pre-fawning deer population goals (deer/mi$^2$) by deer management unit (DMU), sub-unit (DMSU) and permit area (PA) of Minnesota's farmland zone, 1992-93.

| DMU<br>DMSU<br>PA | 1992<br>Density | 1992<br>Total permits issued | 1992<br>Total harvest | 1993<br>Density | Pre-fawning population goal |
|---|---|---|---|---|---|
| RED RIVER | | | | | |
| West | | | | | |
| 401 | 1.5 | 562 | 582 | 1.8 | 0.8- 1.2 |
| 402 | 1.9 | 710 | 846 | 2.5 | 1.7- 2.3 |
| Total | 1.7 | 1272 | 1428 | 2.1 | |
| East | | | | | |
| 403 | 5.3 | 892 | 759 | 4.6 | 2.2- 2.8 |
| 404 | 5.7 | 1496 | 1418 | 5.5 | 2.7- 3.3 |
| 405 | 4.1 | 1528 | 1244 | 4.5 | 2.2- 2.8 |
| 406 | 6.4 | 1541 | 1208 | 7.1 | 2.7- 3.3 |
| 407 | 4.2 | 1445 | 1642 | 5.6 | 3.6- 4.4 |
| 408 | 5.0 | 1184 | 1162 | 5.2 | 3.6- 4.4 |
| Total | 5.0 | 8086 | 7433 | 5.4 | |
| RED RIVER TOTAL | 3.7 | 9358 | 8861 | 4.1 | |
| AGASSIZ | | | | | |
| 201 | 10.8 | 979 | 567 | 7.9 | 9.0-11.0 |
| 202 | 12.2 | 1000 | 749 | 14.1 | 10.0-12.0 |
| 203 | 17.1 | 1008 | 777 | 19.3 | 13.5-16.5 |
| 204 | 10.0 | 2252 | 1888 | 8.5 | 5.0- 6.0 |
| 205 | 10.0 | 1500 | 1735 | 9.2 | 6.2- 7.4 |
| 206 | 9.0 | 1816 | 1385 | 6.7 | 5.3- 6.3 |
| 207 | 10.3 | 1389 | 1003 | 8.6 | 7.7- 9.2 |
| 208 | 4.5 | 879 | 703 | 5.1 | 2.7- 3.3 |
| 209 | 5.7 | 1508 | 1100 | 4.7 | 2.3- 2.7 |
| 210 | 8.2 | 1800 | 1363 | 7.2 | 2.3- 2.7 |
| AGASSIZ TOTAL | 8.8 | 14131 | 11270 | 7.9 | |
| BIG WOODS | | | | | |
| North | | | | | |
| 409 | 17.3 | 4349 | 3522 | 17.8 | 5.6- 6.8 |
| 410 | 9.1 | 5426 | 4489 | 7.3 | 5.5- 6.5 |
| 411 | 12.1 | 5022 | 4335 | 13.5 | 5.0- 6.0 |
| 412 | 7.2 | 3567 | 3655 | 6.3 | 3.6- 4.4 |
| 413 | 9.0 | 2509 | 2548 | 7.4 | 5.0- 6.0 |
| 414 | 13.0 | 2501 | 2630 | 11.1 | 8.5-10.0 |
| 415 | 7.2 | 1800 | 1864 | 5.9 | 4.5- 5.5 |
| 416 | 7.5 | 1700 | 2160 | 7.3 | 3.6- 4.4 |
| 417 | 7.4 | 3201 | 3971 | 6.7 | 3.5- 4.5 |
| 418 | 6.0 | 2968 | 3112 | 5.4 | 3.6- 4.4 |
| 419[c] | 6.9 | 3072 | 2991 | --- | 3.0- 4.0 |
| 429[d] | --- | --- | --- | --- | 3.0- 4.0 |
| Total | 8.7 | 36115 | 35277 | 8.1[e] | |
| Central | | | | | |
| 221 | 9.9 | 2000 | 1853 | 9.7 | 9.0-11.0 |
| 222 | 17.2 | 2500 | 2015 | 15.6 | 10.8-13.2 |
| 223 | 11.2 | 1800 | 1403 | 11.9 | 7.0- 9.0 |
| 224 | 24.5 | 150 | 181 | 25.3 | 18.0-22.0 |
| 225[c] | 14.2 | 4350 | 3617 | --- | 7.2- 8.8 |
| 226[c] | 10.5 | 2550 | 2250 | --- | 5.4- 6.6 |
| Total | 12.7 | 13350 | 11319 | 12.4[e] | |

Table 17. Continued.

| DMU DMSU PA | 1992 Density | 1992 Total permits issued | 1992 Total harvest | 1993 Density | Pre-fawning population goal |
|---|---|---|---|---|---|
| BIG WOODS | | | | | |
| Metro | | | | | |
| 227[c] | 11.2 | 2619 | 1629 | --- | 4.8- 5.8 |
| 228[d] | --- | --- | --- | --- | ≤ 5.0 |
| 235 | 17.9 | 200 | 251 | 26.7 | 18.0-22.0 |
| 236[c] | 6.0 | 1712 | 1588 | --- | 2.9- 3.5 |
| 337[c] | --- | 770 | 1187 | --- | --- |
| 338[c] | 4.8 | 1410 | 1397 | --- | 4.5- 5.5 |
| 339[c] | 3.0 | 1214 | 1183 | --- | 3.2- 3.8 |
| Total | 4.6 | 7925 | 7235 | 26.7[e] | |
| Southeast | | | | | |
| 341 | 5.2 | 2300 | 1830 | 6.6 | 4.5- 5.5 |
| 342 | 8.2 | 1600 | 1595 | 11.1 | 8.1- 9.9 |
| 343 | 5.0 | 2075 | 1898 | 6.1 | 4.5- 5.5 |
| 344 | 18.5 | 1700 | 1875 | 22.5 | 18.0-22.0 |
| 345 | 8.9 | 1562 | 1722 | 11.5 | 8.1- 9.9 |
| 346 | 14.1 | 2508 | 3004 | 20.2 | 9.0-11.0 |
| 347 | 7.3 | 1768 | 1790 | 7.9 | 5.4- 6.6 |
| 348 | 10.7 | 2001 | 2202 | 13.4 | 9.0-11.0 |
| 349 | 9.3 | 2486 | 2308 | 10.9 | 9.0-11.0 |
| Total | 8.5 | 18000 | 18224 | 10.7 | |
| BIG WOODS TOTAL | 8.5 | 75390 | 72055 | 9.4[e] | |
| PRAIRIE | | | | | |
| North | | | | | |
| 420 | 3.3 | 1068 | 1184 | 4.0 | 1.7- 2.3 |
| 421 | 2.8 | 836 | 957 | 3.2 | 1.6- 2.2 |
| 422 | 3.4 | 723 | 854 | 3.6 | 1.4- 2.0 |
| 423 | 3.6 | 798 | 826 | 3.0 | 1.3- 1.9 |
| 424 | 5.1 | 1200 | 1637 | 4.6 | 1.8- 2.0 |
| 425 | 2.8 | 837 | 823 | 1.8 | 1.2- 1.8 |
| 426 | 4.3 | 1300 | 1137 | 3.5 | 2.0- 3.0 |
| 427 | 3.8 | 1050 | 1296 | 2.8 | 1.3- 1.7 |
| 428 | 4.2 | 1361 | 1183 | 3.5 | 2.3- 2.8 |
| Total | 3.7 | 9173 | 9897 | 3.3 | |
| River | | | | | |
| 431 | 5.8 | 800 | 1002 | 5.0 | 2.2- 2.5 |
| 433 | 10.5 | 500 | 1373 | 9.7 | 4.0- 5.0 |
| 435 | 7.8 | 750 | 1321 | 6.5 | 3.2- 3.8 |
| 440 | 5.5 | 751 | 1130 | 4.3 | 3.2- 3.8 |
| 442 | 5.9 | 1380 | 1809 | 4.6 | 3.2- 3.8 |
| 443 | 5.3 | 1113 | 1134 | 3.4 | 3.2- 4.0 |
| Total | 6.7 | 5294 | 7769 | 5.5 | |
| Southwest | | | | | |
| 446 | 5.2 | 752 | 926 | 4.7 | 3.2- 4.0 |
| 447 | 3.2 | 698 | 785 | 2.5 | 2.5- 3.1 |
| 448 | 3.4 | 795 | 833 | 3.1 | 3.2- 4.0 |
| 449 | 4.5 | 1199 | 1369 | 3.6 | 3.2- 4.0 |
| 450 | 1.8 | 600 | 544 | 1.3 | 1.2- 1.8 |
| 451 | 2.5 | 900 | 892 | 1.8 | 2.4- 3.0 |
| 452 | 2.3 | 801 | 606 | 1.0 | 1.4- 2.0 |
| 453 | 1.8 | 600 | 526 | 1.1 | 1.4- 2.0 |
| 454 | 3.3 | 1400 | 1459 | 2.4 | 2.0- 2.6 |
| PRAIRIE | | | | | |

Table 17. Continued.

| DMU DMSU PA | 1992 Density | 1992 Total permits issued | 1992 Total harvest | 1993 Density | Pre-fawning population goal |
|---|---|---|---|---|---|
| Southwest | | | | | |
| 455 | 5.1 | 250 | 160 | 3.0 | 3.7- 4.5 |
| 456 | 2.2 | 1093 | 1042 | 2.3 | 1.7- 2.3 |
| 457 | 3.2 | 800 | 899 | 2.3 | 1.7- 2.3 |
| 458 | 2.4 | 700 | 747 | 1.9 | 1.5- 2.1 |
| 459 | 3.2 | 1400 | 1326 | 1.7 | 1.7- 2.3 |
| Total | 2.9 | 11988 | 12114 | 2.1 | |
| Southeast | | | | | |
| 461 | 3.2 | 902 | 1249 | 3.9 | 2.5- 3.1 |
| 462 | 4.3 | 1200 | 1385 | 4.5 | 2.7- 3.3 |
| 463 | 2.0 | 905 | 782 | 2.1 | 1.7- 2.3 |
| 464 | 3.1 | 600 | 651 | 2.5 | 1.7- 2.3 |
| 465 | 2.0 | 400 | 590 | 2.0 | 1.5- 2.1 |
| 466 | 2.0 | 900 | 1241 | 2.1 | 1.6- 2.2 |
| 467 | 1.4 | 800 | 904 | 1.4 | 1.0- 1.6 |
| Total | 2.4 | 5707 | 6802 | 2.5 | |
| PRAIRIE TOTAL | 3.6 | 32162 | 36582 | 3.0 | |
| FARMLAND TOTAL | 5.8 | 131041 | 128768 | 5.4[e] | |

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

[b] Total permits issued include antlerless permits and deer management permits.

[c] Change in permit area boundaries, spring 1993.

[d] New permit area created, spring 1993.

[e] Density estimate excludes permit areas created in 1993 or those with boundary changes in 1993.

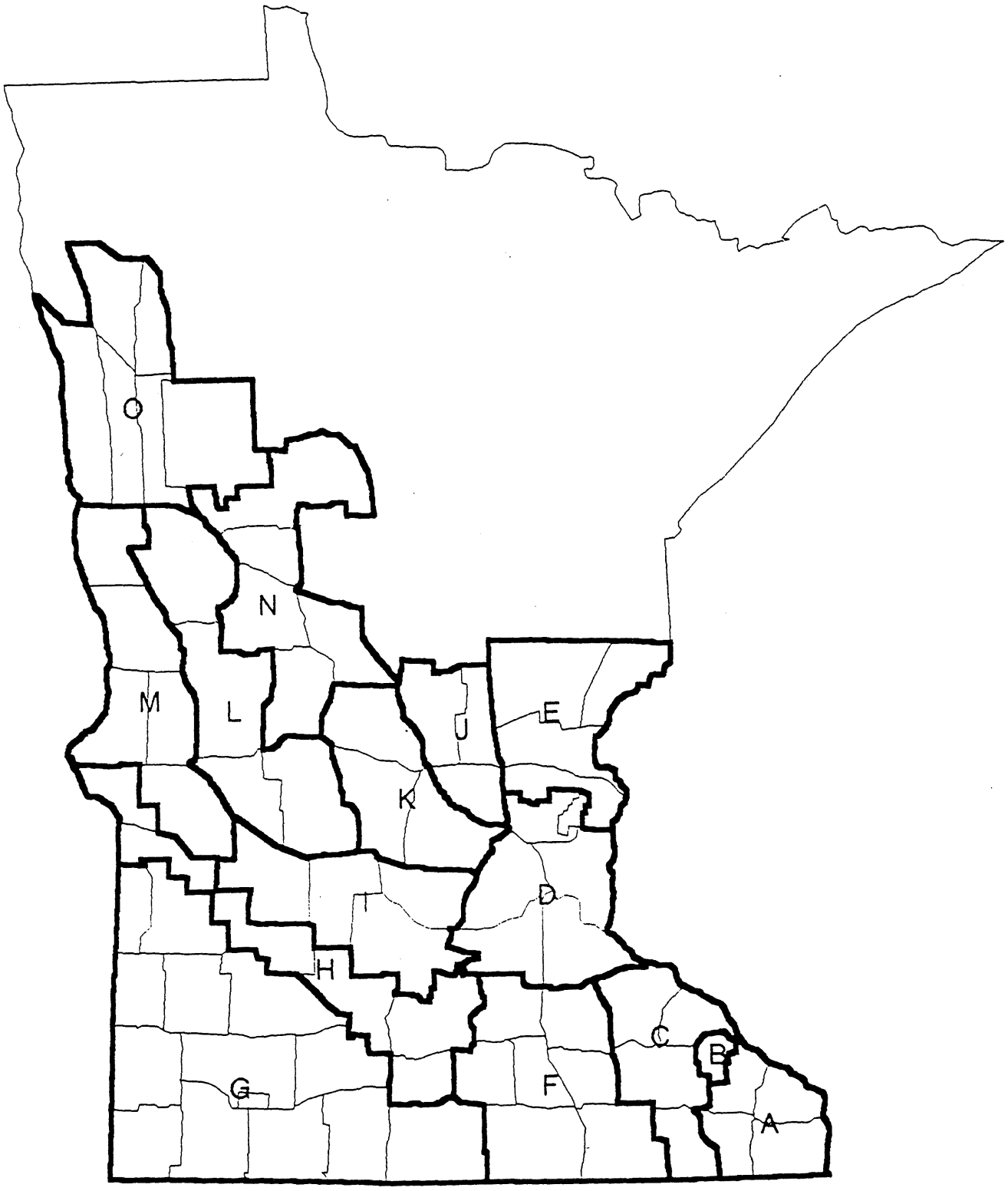



Figure 7. Location of antlerless deer permit areas used for the wild turkey survey, Minnesota, November-December, 1992.

Table 18. Percent of antlerless-deer hunters observing wild turkeys (HOWT) in Minnesota, November-December, 1991-92.

| Turkey Management Unit | Year | n (Respondents) | HOWT | 99% CI on HOWT |
|---|---|---|---|---|
| A | 1991 | 642 | 62.5 | |
| | 1992 | 629 | 62.8 | 7.0 |
| B | 1991 | 122 | 50.8 | |
| | 1992 | 473 | 62.4 | 13.0 |
| C | 1991 | 517 | 52.0 | |
| | 1992 | 632 | 52.4 | 7.6 |
| D | 1991 | 553 | 18.1 | |
| | 1992 | 563 | 17.1 | 5.9 |
| E | 1991 | 812 | 5.3 | |
| | 1992 | 581 | 3.4 | 2.8 |
| F | 1991 | 647 | 11.9 | |
| | 1992 | 583 | 19.0* | 5.3 |
| G | 1991 | 1278 | 4.6 | |
| | 1992 | 625 | 3.7 | 2.5 |
| H | 1991 | 586 | 14.3 | |
| | 1992 | 598 | 16.4 | 5.4 |
| I | 1991 | 338 | 5.3 | |
| | 1992 | 596 | 4.5 | 3.8 |
| J | 1991 | 301 | 2.3 | |
| | 1992 | 560 | 2.1 | 2.7 |
| K | 1991 | 374 | 5.3 | |
| | 1992 | 600 | 6.0 | 3.9 |
| L | 1991 | 768 | 2.6 | |
| | 1992 | 653 | 1.7 | 2.0 |
| M | 1991 | 440 | 7.3 | |
| | 1992 | 578 | 2.9* | 3.7 |
| N | 1991 | 999 | 2.8 | |
| | 1992 | 663 | 2.1 | 2.0 |
| O | 1991 | 597 | 4.0 | |
| | 1992 | 576 | 3.8 | 2.9 |

* - Significant population change from 1991 to 1992 ($p<0.01$)

## PREDATOR SCENT POST SURVEY

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

SCENT STATION ROUTE SPECIFICS - 1992

| Zone | Rts. Done | No. Segments | Segment Density | Station Nights |
|---|---|---|---|---|
| Forest | 41 | 180 | 1/180 mi² | 1729 |
| Transition | 30 | 120 | 1/211 mi² | 1160 |
| Farmland | 24 | 99 | 1/265 mi² | 934 |
| | 95 | 399 | | 3823 |

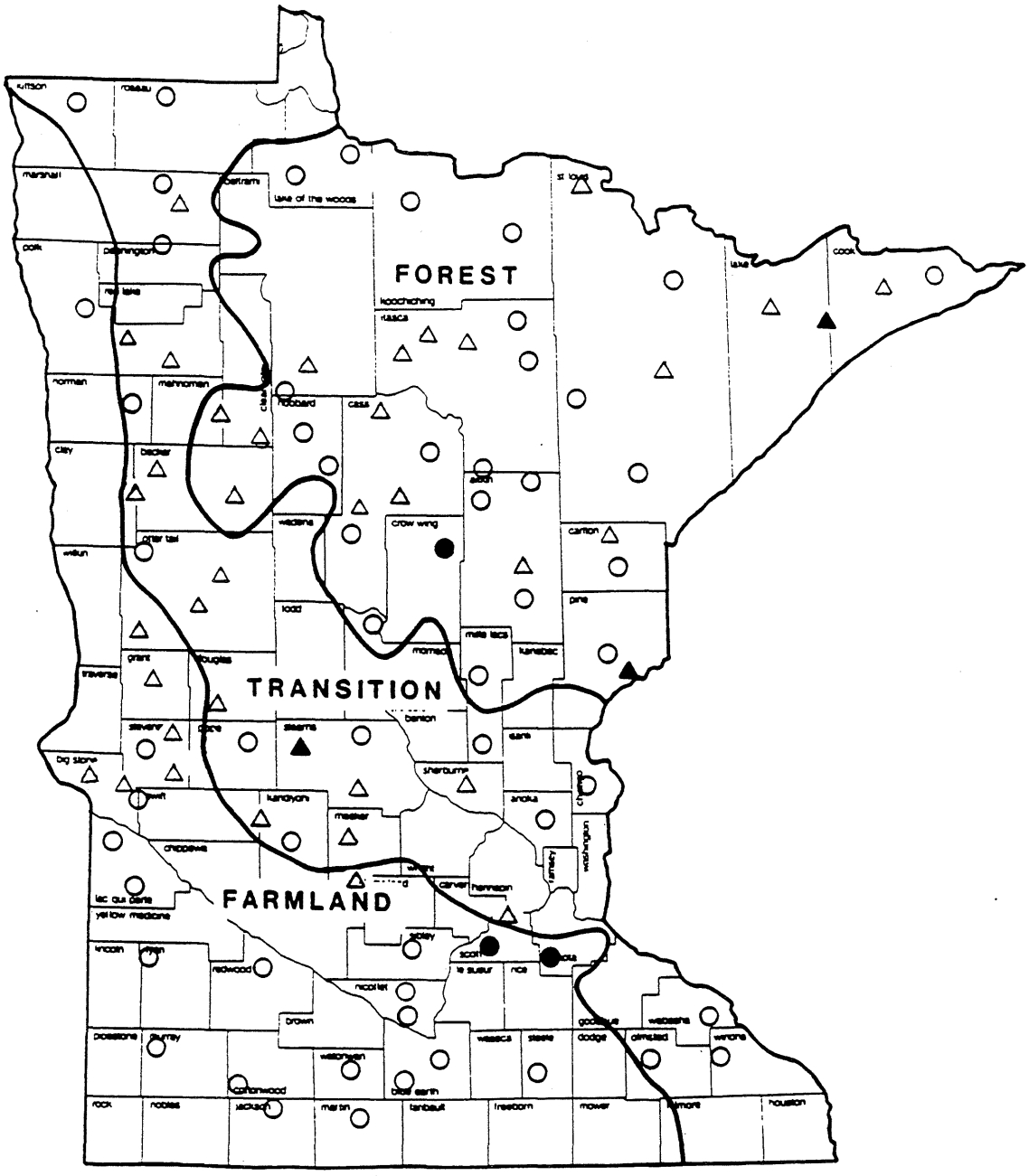



Figure 8. Approximate locations of scent post routes conducted by DNR Section of Wildlife (O ) and cooperators (Δ ) in the Forest, Transition, and Farmland Survey Zones, 1992. Shaded symbols indicate routes not run in 1992.

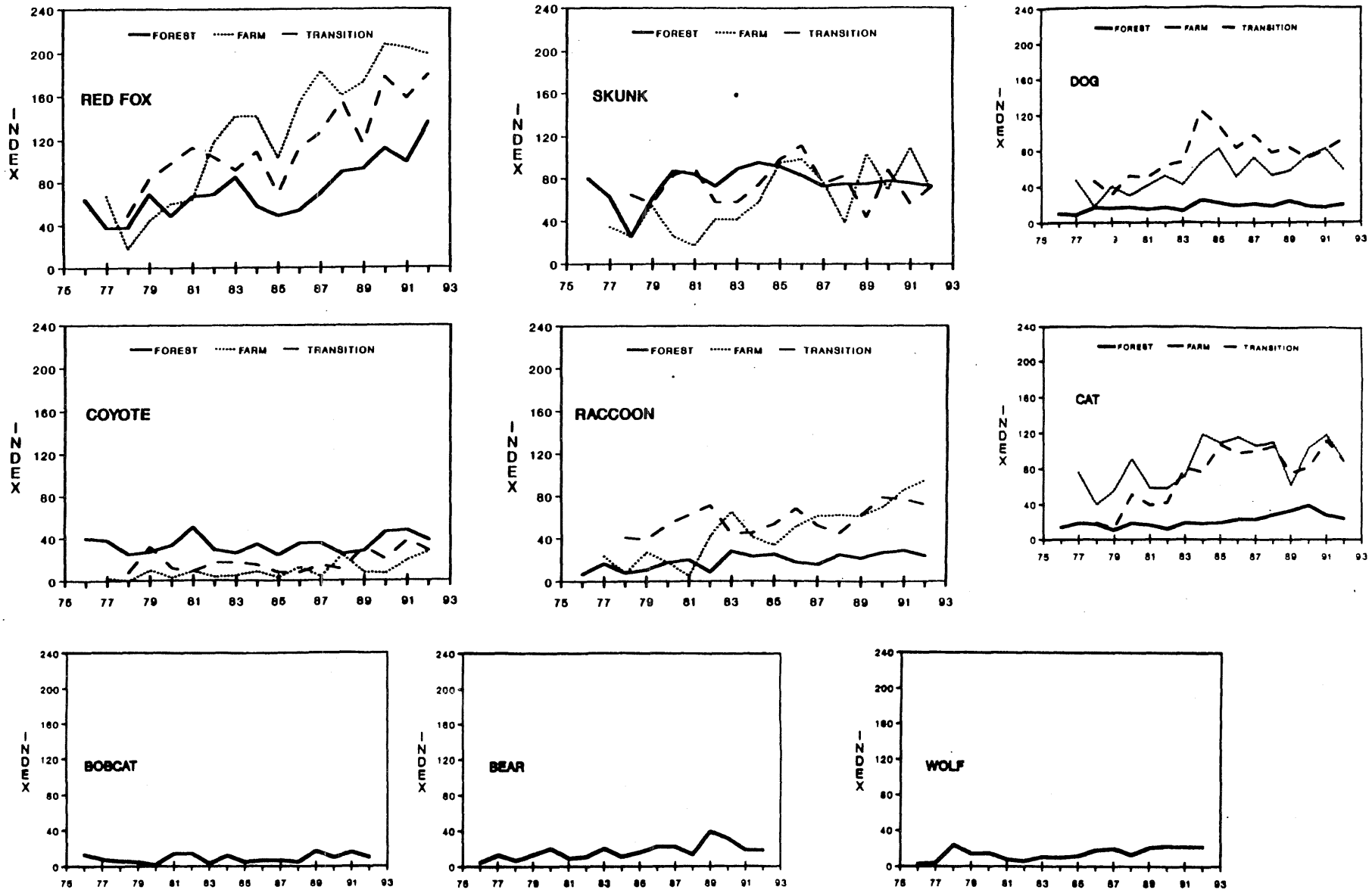



Figure 9. Scent post visitation indices for nine species in the Forest, Transition, and Farmland survey zones, 1976-92.

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

Table 19. Mean number of ruffed grouse drums per stop by census zone, 1961-93.

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

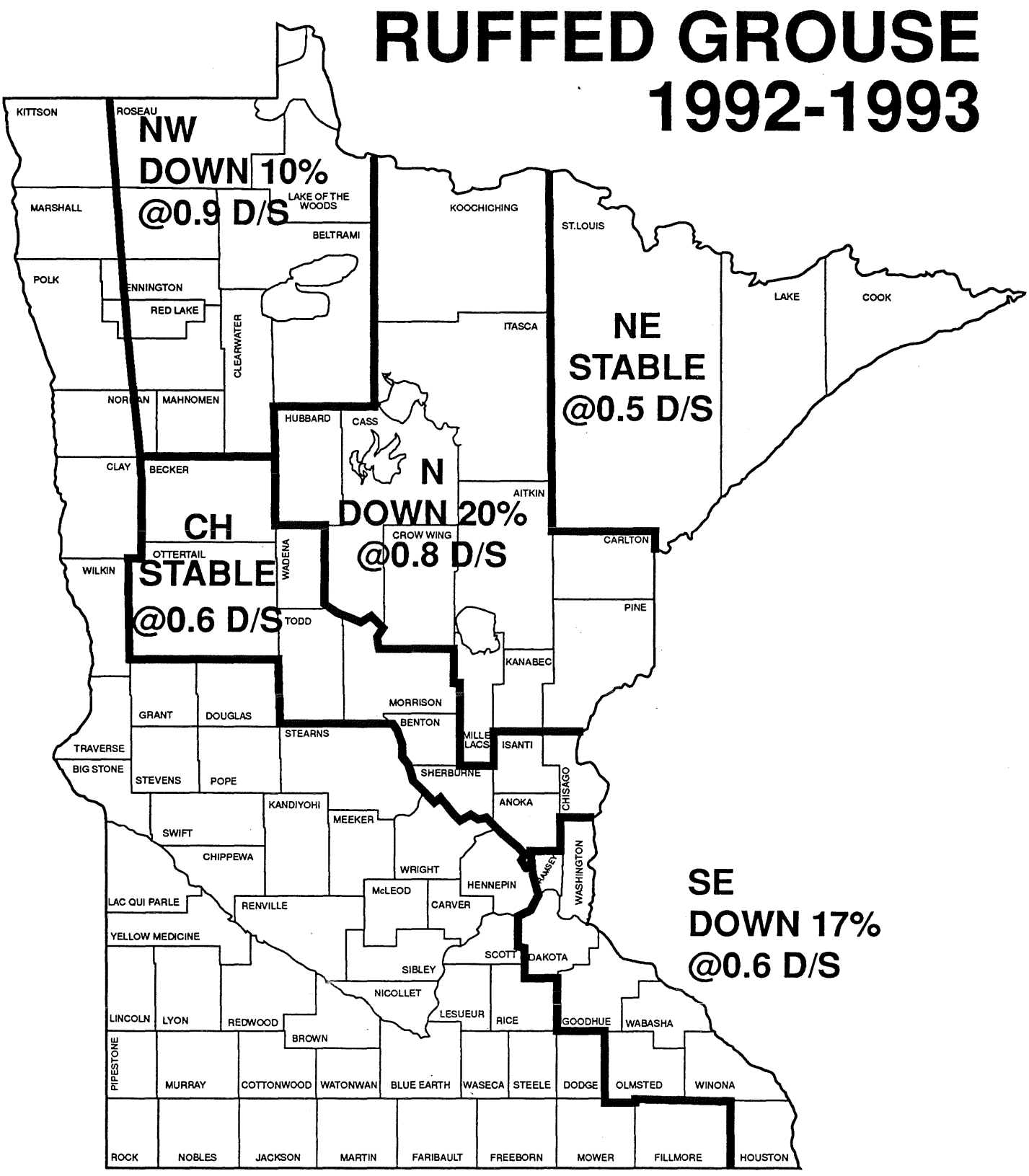



**Figure 10. Changes in average numbers of ruffed grouse drums per stop on roadside counts, 1992-1993.**

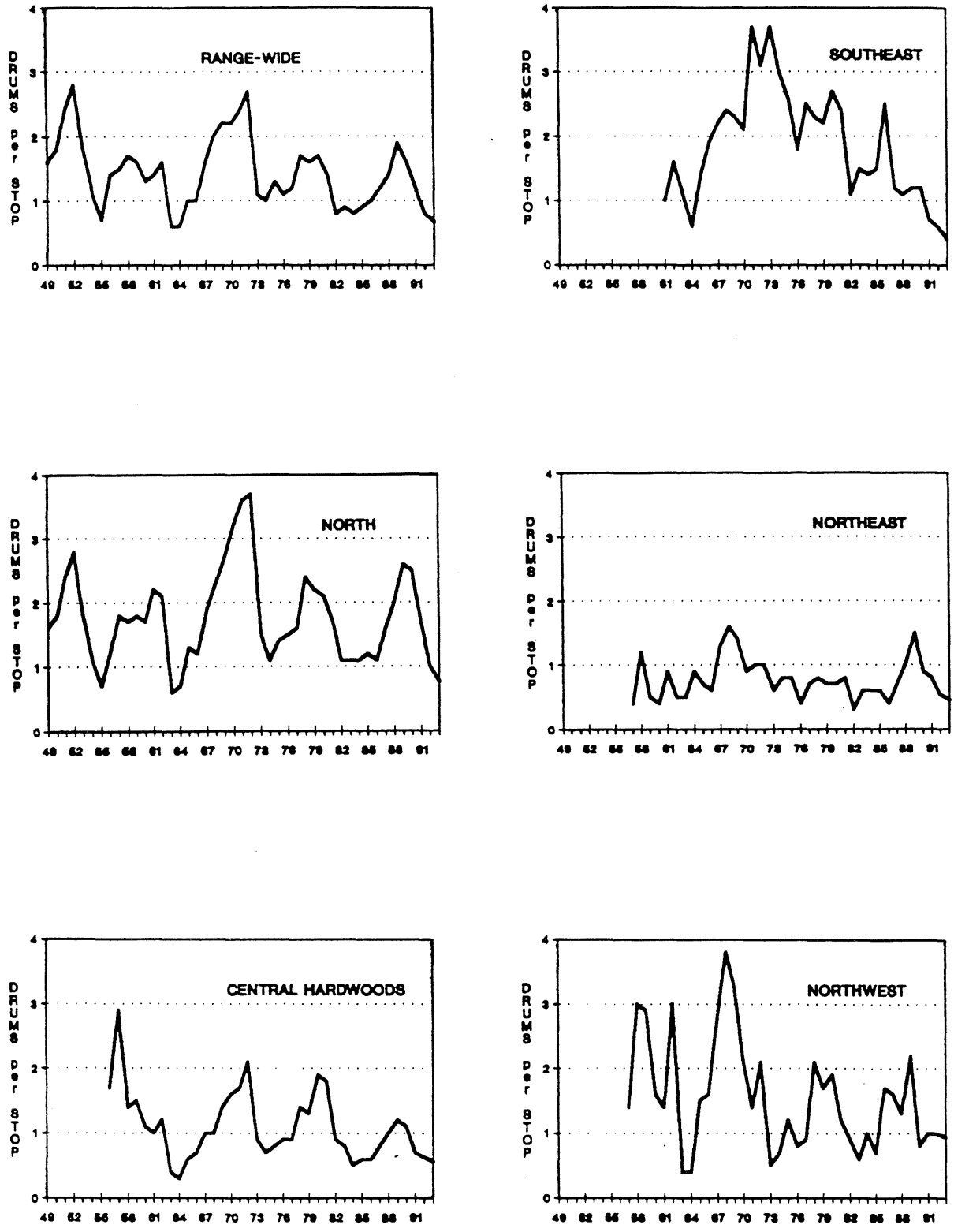



Figure 11. Summary of ruffed grouse drumming trends range-wide and in each of five survey zones, 1949-93.

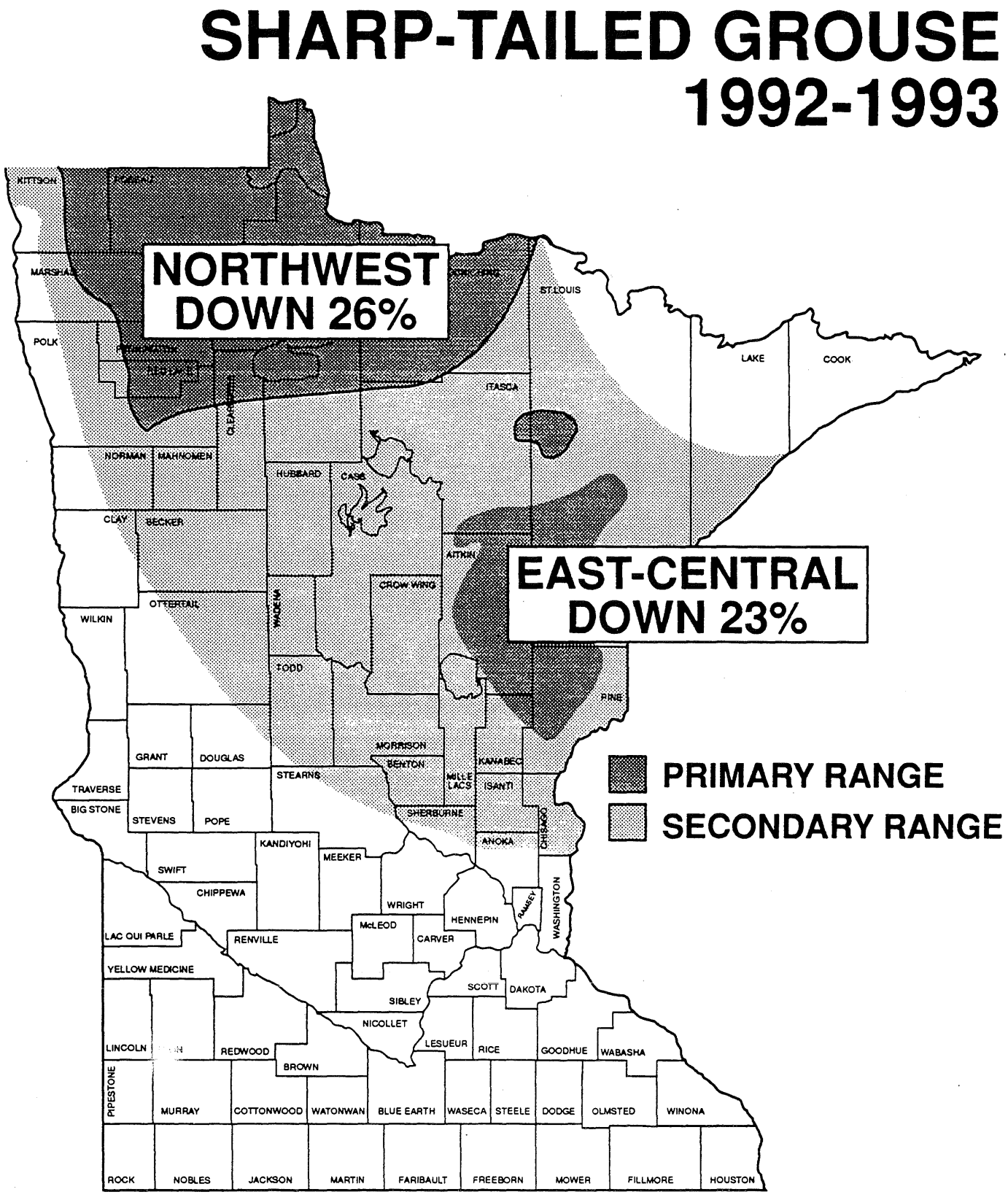



**Figure 12. Status of male sharp-tailed grouse on 123 Northwest and 106 East-Central range dancing grounds, 1992-1993.**

Table 20. Number of snowshoe hares seen per 100 km of ruffed grouse drumming routes in the North, Northwest, and Northeast survey zones, 1974-93.

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

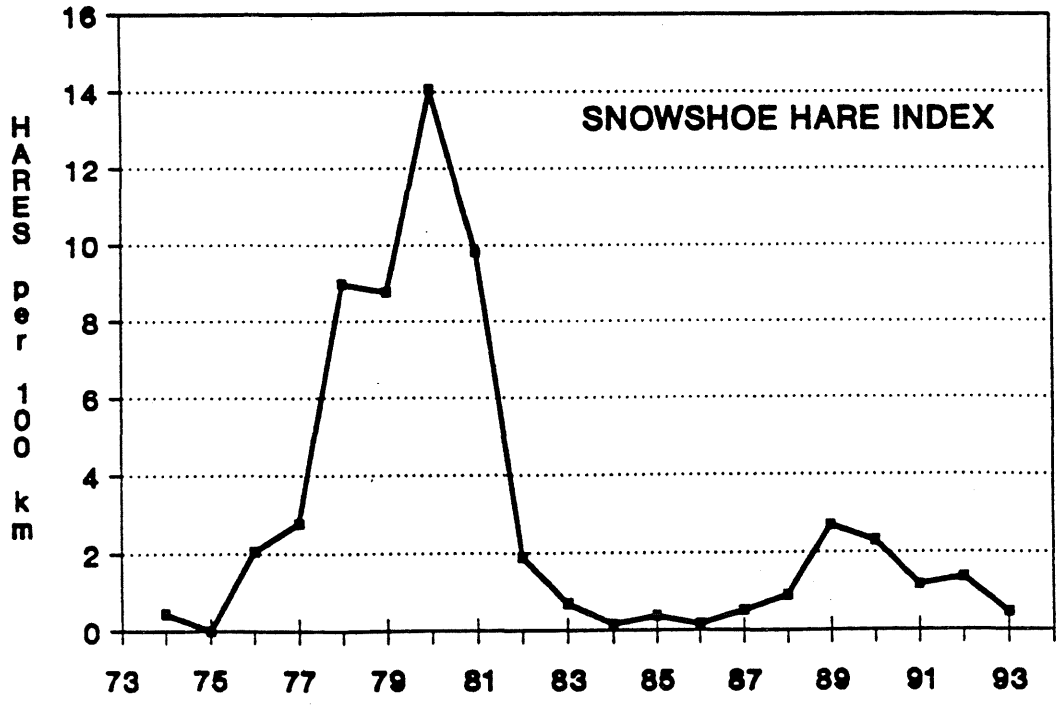



Figure 13. Changes in numbers of dancing male sharp-tailed grouse on Northwest and East-central survey areas, 1992-93.

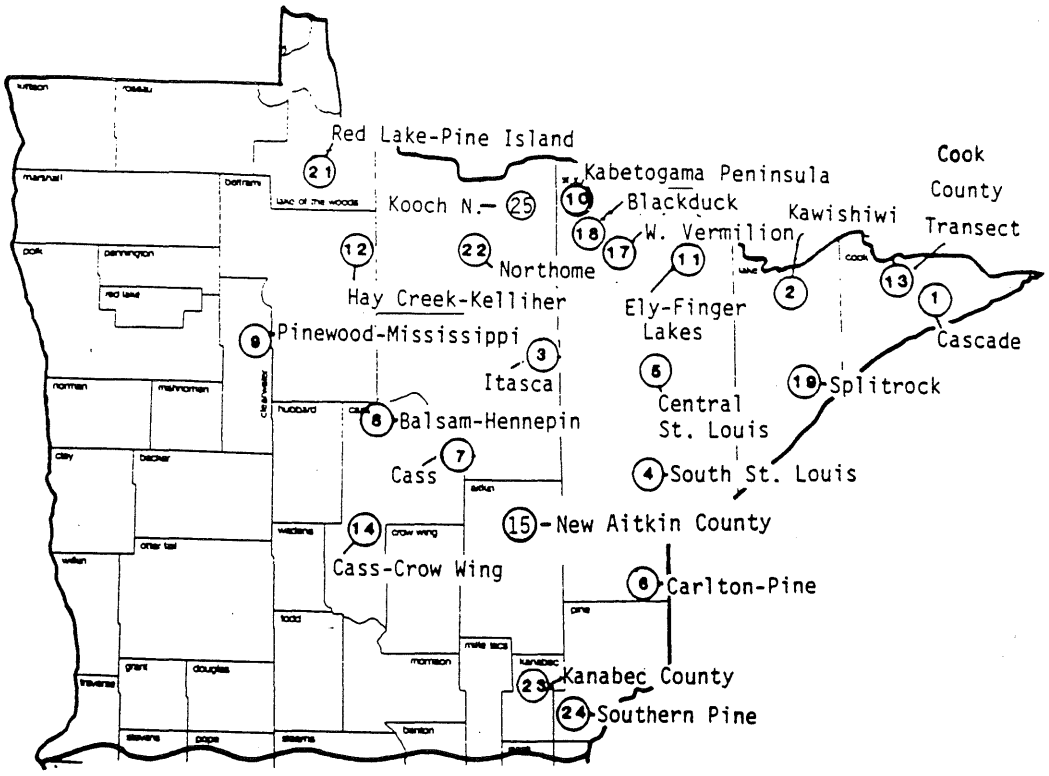



Figure 14. Approximate locations of 23 aerial beaver survey routes flown in 1992.

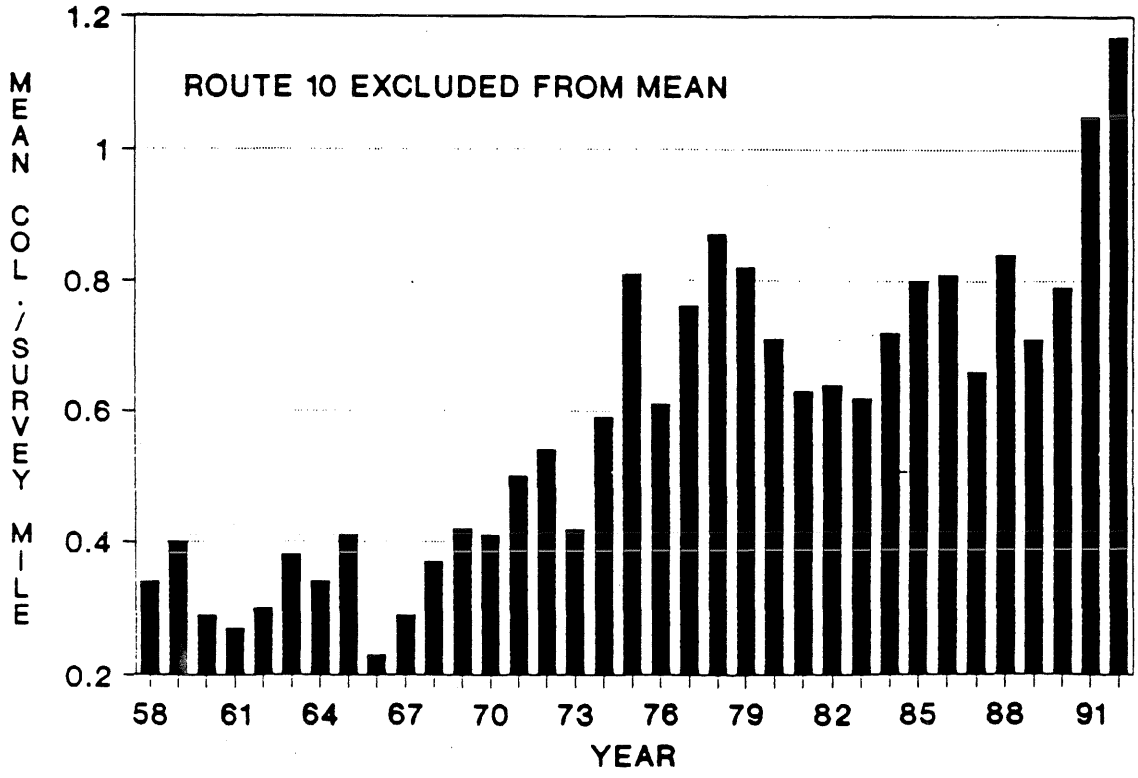



Figure 15. Range-wide mean number of live beaver colonies per mile of survey route, 1958-92.

Table 21. Live beaver colonies per mile of census route in northern Minnesota, 1986-92.

| Number | Route name | Year | | | | | | | 1986-91 Mean | % Change 1992-mean |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | | |
| 1 | Cascade | - | 0.37 | 0.40 | 0.43 | 0.44 | 1.13 | 1.50 | 0.55 | 172.7 |
| 2 | Kawishiwi | - | 1.03 | 0.72 | 0.47 | 0.80 | 1.03 | 1.08 | 0.81 | 33.3 |
| 3 | Itasca | - | 0.22 | 0.48 | 0.56 | 0.45 | 0.92 | 1.09 | 0.53 | 105.7 |
| 4 | South St. Louis | - | 0.54 | 0.64 | - | 0.92 | 1.35 | 0.87 | 0.86 | 1.2 |
| 5 | Central St. Louis | - | 1.02 | - | 0.83 | 0.81 | 1.12 | 1.02 | 0.95 | 7.4 |
| 6 | Carlton & Pine | - | 0.49 | 1.04 | - | 1.06 | 1.50 | 1.09 | 1.02 | 6.9 |
| 7 | Cass | - | 0.59 | 0.77 | 0.84 | 0.98 | 1.16 | 1.62 | 0.87 | 86.2 |
| 8 | Balsam-Hennepin | - | 0.74 | 0.57 | 0.59 | 0.46 | 0.61 | - | 0.59 | - |
| 9 | Pinewood-Mississippi | - | - | 0.38 | 0.36 | 0.49 | 0.41 | - | 0.45 | - |
| 10 | Kabetogama Peninsula | 2.92 | 2.98 | 2.93 | 2.92 | 3.3 | 2.62 | 2.85 | 2.90 | -1.7 |
| 11 | Ely-Finger Lakes | - | 1.00 | 1.23 | 1.09 | 1.20 | 1.67 | 1.35 | 1.24 | 8.9 |
| 12 | Hay Creek-Kelliher | - | 0.49 | 0.49 | 0.56 | 0.46 | 0.58 | 0.78 | 0.52 | 50.0 |
| 13 | Cook County Transect | - | 0.31 | 0.31 | 0.68 | 0.38 | 1.18 | 0.83 | 0.57 | 45.6 |
| 14 | Cass-Crow Wing | 0.69 | 0.64 | 0.77 | 0.89 | 0.87 | 0.96 | 0.88 | 0.80 | 10.0 |
| 15 | Little Willow-Aitkin | - | 0.23 | 0.66 | 0.59 | 0.63 | 0.68 | - | 0.56 | - |
| 16 | East Aitkin County | - | - | 1.03 | 0.80 | - | - | - | 0.92 | - |
| 17 | West Vermilion | 0.95 | 0.80 | 0.87 | - | 1.29 | - | 1.25 | 0.98 | 27.6 |
| 18 | Blackduck | - | 0.84 | 1.20 | - | 1.24 | - | 1.55 | 1.09 | 42.2 |
| 19 | Splitrock | - | 1.15 | 1.18 | 0.53 | 0.73 | 2.42 | 1.80 | 1.20 | 50.0 |
| 20 | Isabella | - | - | - | - | - | - | - | - | - |
| 21 | Red Lake-Pine Island | - | 0.37 | 0.30 | 0.36 | 0.33 | 0.51 | 0.56 | 0.37 | 51.4 |
| 22 | Northome | 0.80 | 0.75 | 0.77 | - | 1.14 | 0.78 | 1.08 | 0.85 | 27.1 |
| 23 | Kanabec County | - | 0.52 | 1.29 | 0.94 | 0.81 | 0.58 | 0.77 | 0.83 | -7.2 |
| 24 | Southern Pine | - | - | 1.95 | 1.03 | 0.93 | 0.89 | 1.15 | 1.20 | -4.2 |
| 25 | Koochiching North | - | 1.29 | 1.39 | 1.15 | 1.05 | 1.43 | 1.62 | 1.26 | 28.6 |

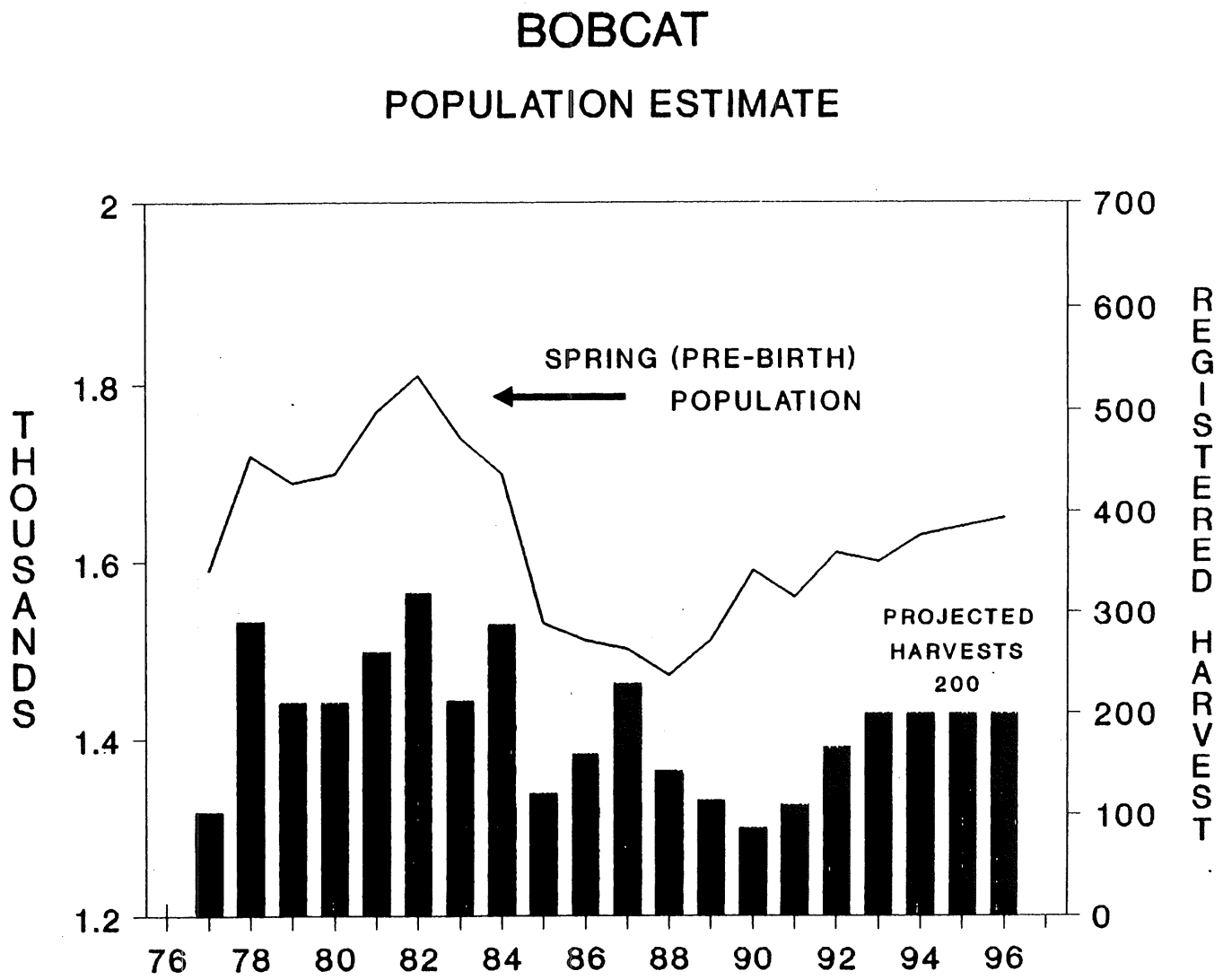



Figure 16. Population modeling summaries for bobcat, 1977-96.

Table 22. Bobcat harvest, age structure, and population index data, 1980 to 1992.

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

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

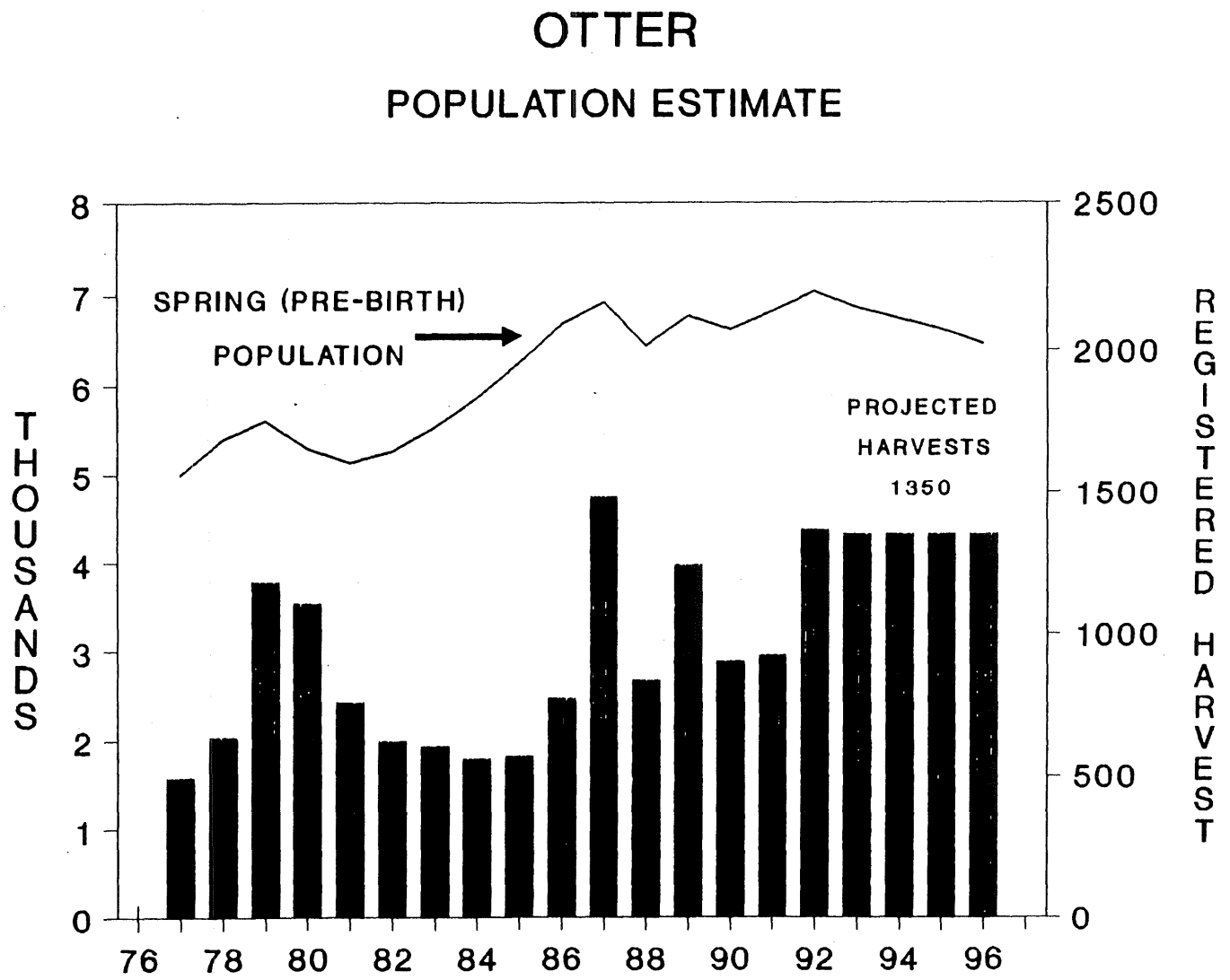



Figure 17. Population modeling summaries for otter, 1977-96.

Table 23. Otter harvest, carcass collection, and pelt price data, 1982-92. Carcasses were not collected after 1986.

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

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

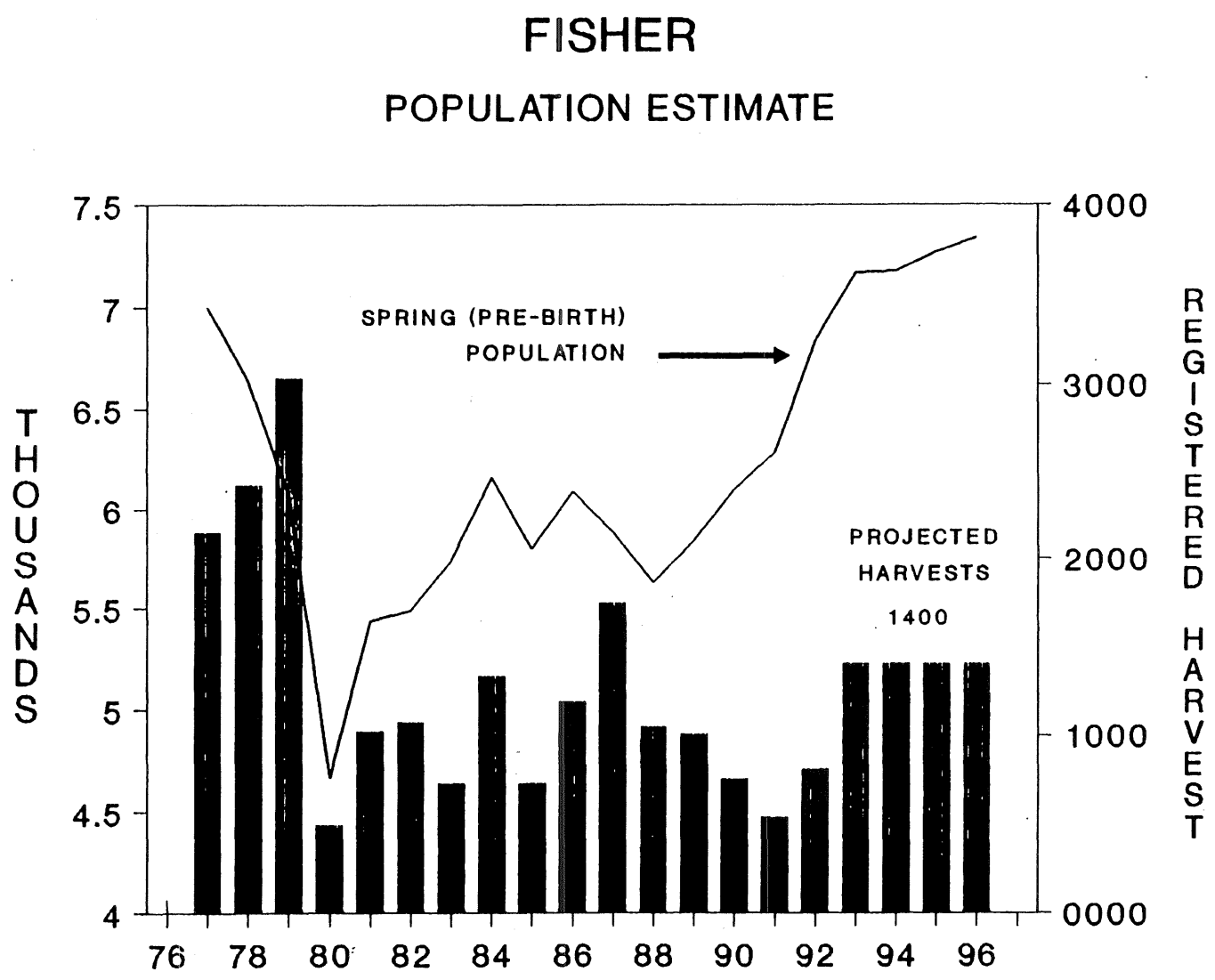



Figure 18. Population modeling summaries for fisher, 1977-96.

Table 24. Fisher harvest, carcass collection, and pelt price data, 1980-1992.

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Season | closed | 12/1-12/10 | 12/1-12/10 | 12/1-12/11 | 12/1-12/16 | 11/30-12/15 | 11/23-12/4 | 11/28-12/13 | 11/26-12/11 | 12/2-12/17 | 12/1-12/16 | 11/30-12/15 | 11/28-12/13 |
| Limit | --- | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Registered take | (423) | 862 | 912 | 631 | 1285 | 678 | 1068 | 1642 | 1025 | 1243 | 746 | 528 | 777 |
| % of available fall population harvested[1] | 9% | 17% | 17% | 10% | 18% | 10% | 14% | 21% | 16% | 15% | 12% | 10% | 11% |
| No. carcasses examined[2] | --- | 843 | 1073 | 662 | 1270 | 712 | 1186 | 1534 | 805 | 1024 | 592 | 410 | 629 |
| % juveniles | --- | 66% | 66% | 69% | 63% | 63% | 59% | 53% | 70% | 64% | 65% | 66% | 54% |
| % 1.7 yr. | --- | 24% | 19% | 18% | 20% | 20% | 24% | 15% | 15% | 19% | 14% | 21% | 25% |
| % ≥ 2.7 yrs. | --- | 10% | 15% | 13% | 17% | 18% | 18% | 22% | 15% | 17% | 21% | 13% | 21% |
| Juv.:adult female ratio | --- | 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 | 4.9:1 |
| % male juveniles | --- | 48% | 46% | 45% | 52% | 46% | 48% | 46% | 48% | 47% | 44% | 50% | 42% |
| % male 1.7 yrs. | --- | 43% | 41% | 40% | 45% | 40% | 50% | 40% | 45% | 47% | 55% | 52% | 55% |
| % male ≥ 2.7 yrs. | --- | 37% | 52% | 40% | 45% | 34% | 37% | 37% | 33% | 36% | 30% | 35% | 45% |
| % males overall | --- | 47% | 46% | 44% | 49% | 43% | 46% | 43% | 45% | 45% | 43% | 48% | 46% |
| Pelt price: males | $90 | $94 | $70 | $71 | $70 | $74 | $84 | $84 | $54 | $26 | $35 | $21 | $16 |
| females | $104 | $110 | $99 | $121 | $122 | $130 | $162 | $170 | $100 | $53 | $46 | $48 | $29 |
| Snowshoe hare index[3] | 9.8 | 1.8 | 0.7 | 0.2 | 0.3 | 0.2 | 0.5 | 0.9 | 2.7 | 2.3 | 1.2 | 1.4 | .5 |

[1] estimated from population model
[2] may exceed registration totals due to accidental catches, Indian Reservation season framework, etc.
[3] index for spring after harvest season.

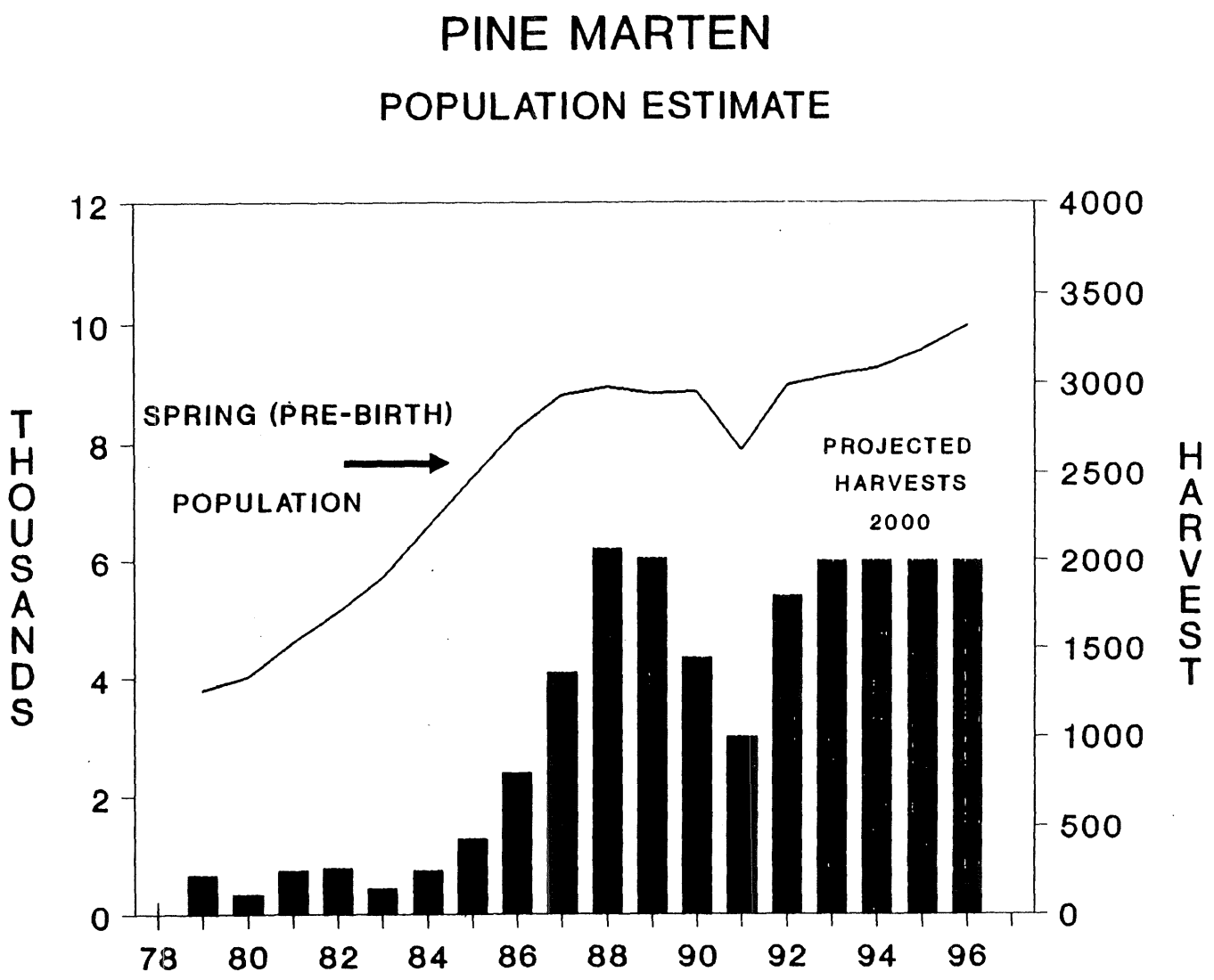



Figure 19. Population modeling summaries for pine marten, 1979-96.

Table 25. Pine marten harvest, carcass collection, and pelt price data, 1985 to 1992.

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

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

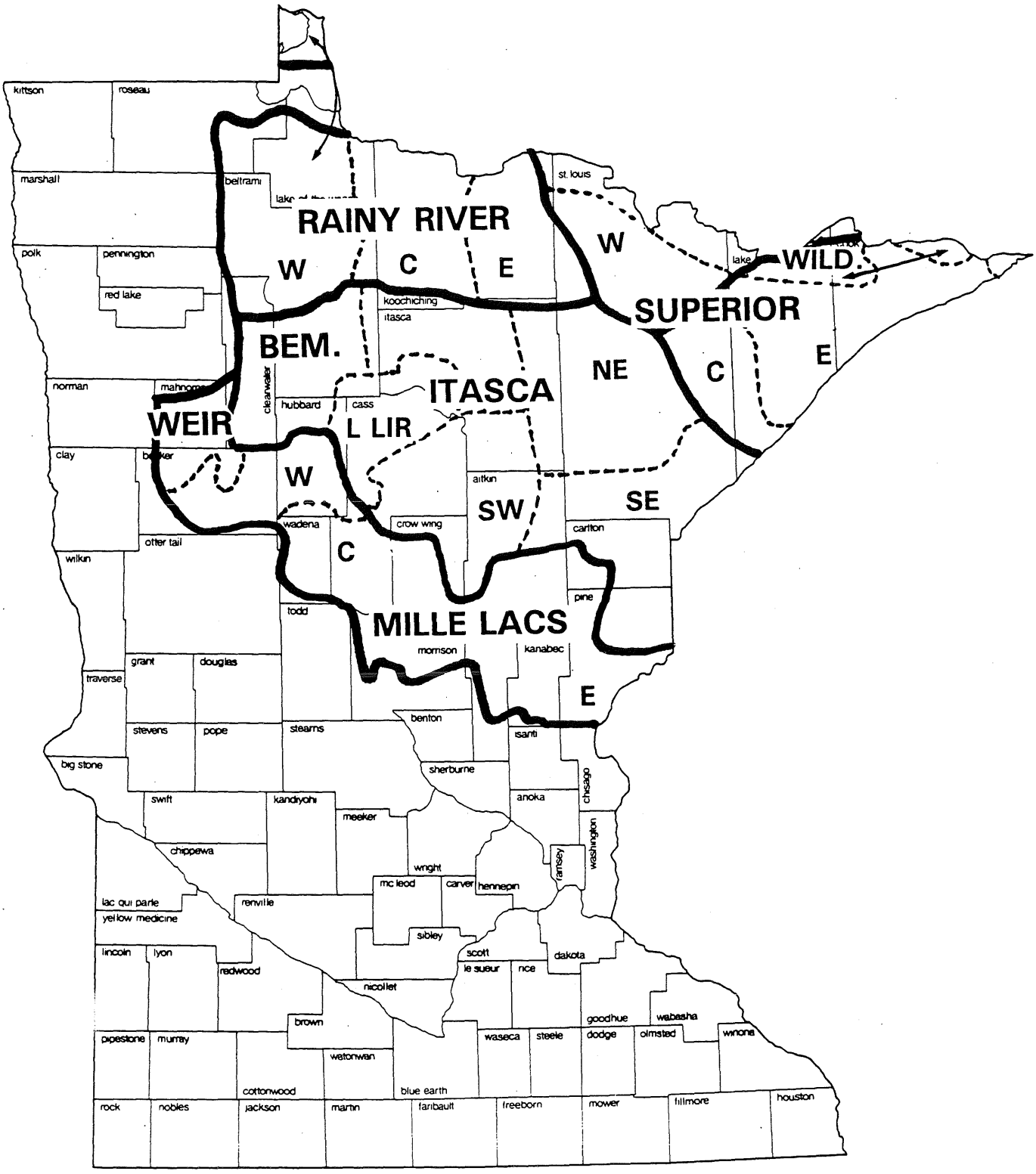



Figure 20. Deer Management Units (DMU) and sub-DMU's in the Forest Zone.

Table 26. Spring white-tailed deer densities estimated from population modeling in Deer Management Subunits of Minnesota's Forest zone, 1984-93.[a]

| DMU and subunit | Deer per square mile | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | Goal* |
| Itasca | 12 | 13 | 13 | 15 | 17 | 16 | 20 | 24 | 28 | 16 | |
| Northwest | 18 | 19 | 17 | 18 | 20 | 19 | 24 | 27 | 30 | 23 | 22-24 |
| Southwest | 12 | 13 | 12 | 14 | 16 | 16 | 20 | 23 | 27 | 17 | 22-24 |
| Northeast | 8 | 9 | 10 | 11 | 13 | 12 | 16 | 18 | 22 | 12 | 18-20 |
| Southeast | 12 | 14 | 15 | 18 | 21 | 21 | 26 | 31 | 37 | 15 | 25-27 |
| Leech Lake IR | 10 | 11 | 11 | 13 | 14 | 13 | 16 | 17 | 20 | 14 | 18-20 |
| Bemidji | 15 | 15 | 14 | 15 | 16 | 15 | 18 | 21 | 23 | 20 | 20-22 |
| | | | | | | | | | | | |
| Mille Lacs | 12 | 12 | 12 | 13 | 14 | 15 | 18 | 21 | 22 | 16 | |
| West | 16 | 16 | 15 | 16 | 17 | 17 | 20 | 23 | 25 | 16 | 15-20 |
| Central | 14 | 14 | 14 | 14 | 15 | 16 | 19 | 21 | 23 | 17 | 16-18** |
| East | 10 | 11 | 11 | 13 | 16 | 18 | 22 | 25 | 26 | 18 | 10-15 |
| White Earth IR | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 7 | 8 | 7 | 14-16 |
| | | | | | | | | | | | |
| Rainy River | 11 | 11 | 11 | 13 | 14 | 12 | 15 | 16 | 18 | 14 | |
| West | 11 | 12 | 12 | 13 | 14 | 12 | 15 | 16 | 18 | 15 | 18-20 |
| Central | 7 | 7 | 7 | 8 | 9 | 8 | 9 | 10 | 11 | 11 | 10-12** |
| East | 14 | 16 | 16 | 18 | 20 | 18 | 21 | 23 | 26 | 16 | 20-22 |
| | | | | | | | | | | | |
| Superior | 8 | 9 | 9 | 11 | 12 | 11 | 14 | 16 | 18 | 11 | |
| West | 11 | 13 | 13 | 15 | 17 | 15 | 19 | 22 | 25 | 20 | 20-22 |
| Central | 8 | 9 | 9 | 11 | 12 | 11 | 14 | 16 | 19 | 7 | 13-15 |
| East | 4 | 4 | 4 | 5 | 6 | 5 | 6 | 7 | 8 | 5 | 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.

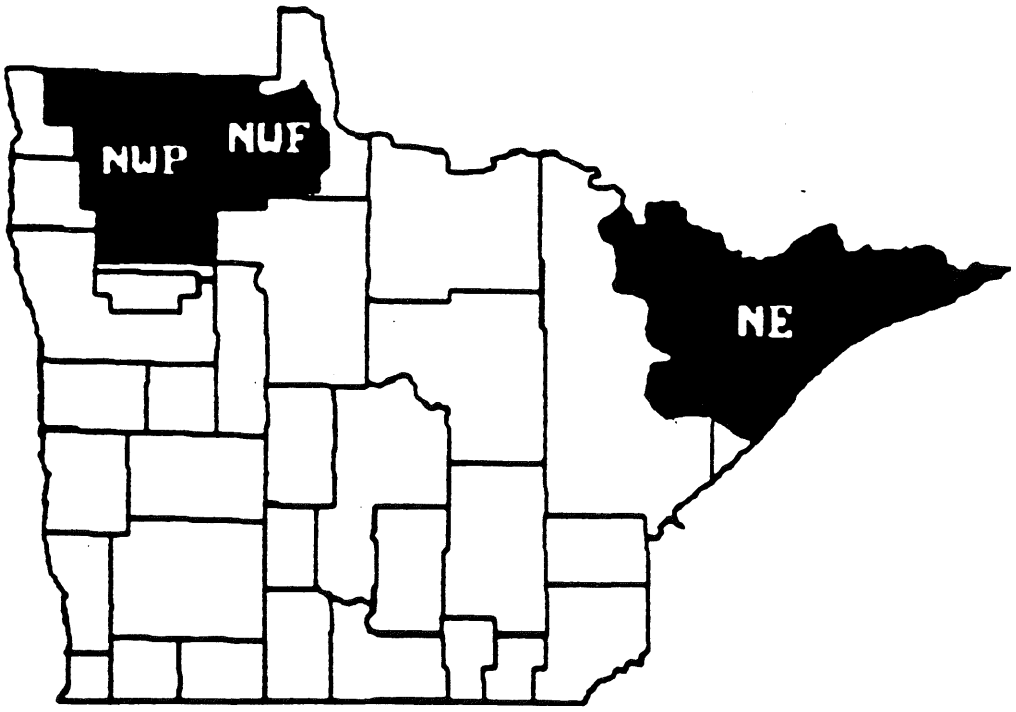



Figure 21. Aerial moose survey area boundaries.

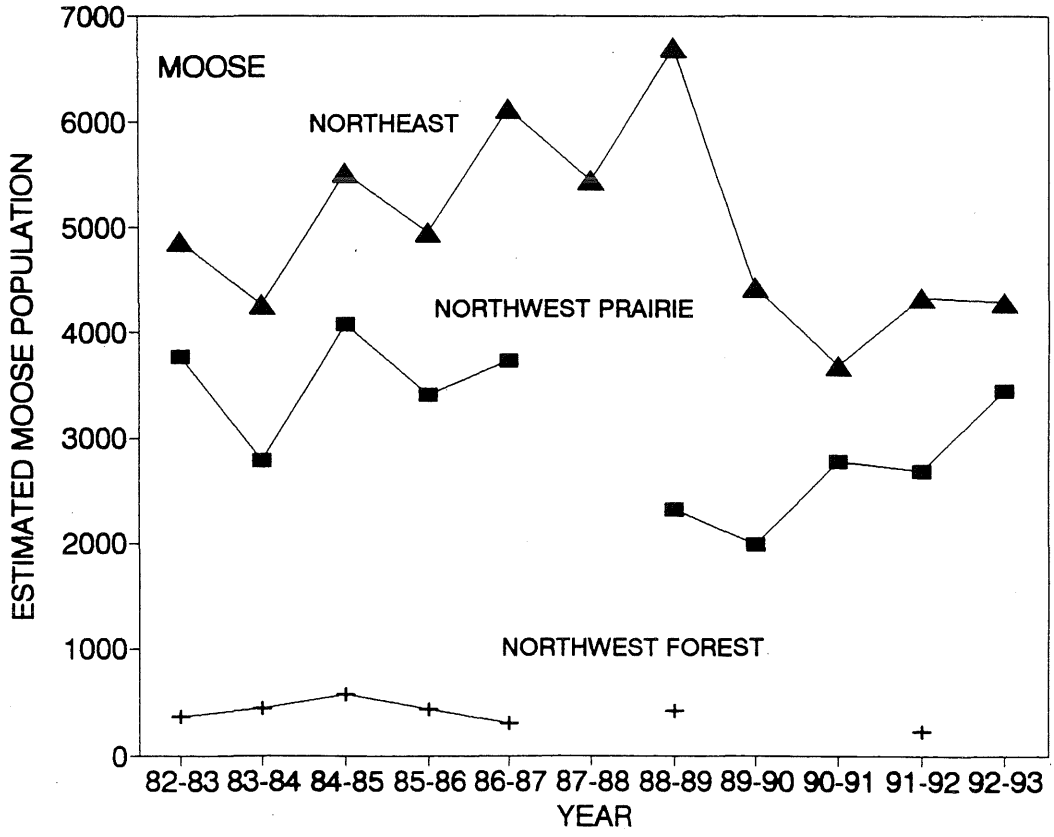



Figure 22. Moose population trends by survey area in northern Minnesota. Trend lines are broken where survey information was not collected.

Table 27. Moose population estimates from aerial moose survey in Minnesota, 1982-93.

| Year | Population Estimate by Survey Area (+90% CI) Northwest Prairie | Northwest Forest | Northeast |
|---|---|---|---|
| 1982-83 | 3772 (930) | 370 (124) | 4877 (999) |
| 1983-84 | 2784 (567) | 446 (139) | 4274 (925) |
| 1984-85 | 4086 (518) | 578 (148) | 4451 (±774) |
| 1985-86 | 3415 (412) | 433 (100) | 4918 (±1029) |
| 1986-87 | 3740 (747) | 307 ( 83) | 5994 (±1438) |
| 1987-88 | no survey | no survey | 5492 (±1090) |
| 1988-89 | 2328 (474) | 419 (153) | 6938 (±2502) |
| 1989-90 | 1985 (435) | no survey | 4492 (±1227) |
| 1990-91 | 2771 (817) | no survey | 3572 (±1670) |
| 1991-92 | 2678 (±629) | 223 (± 65) | 4362 (±1323) |
| 1992-93 | 3542 (±640) | no survey | 4292 (±1371) |
| change 1991-92 to 1992-93 | + 29% | | -2% |

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Table 28. Estimated spring duck populations of selected species in Minnesota, 1975-93.

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

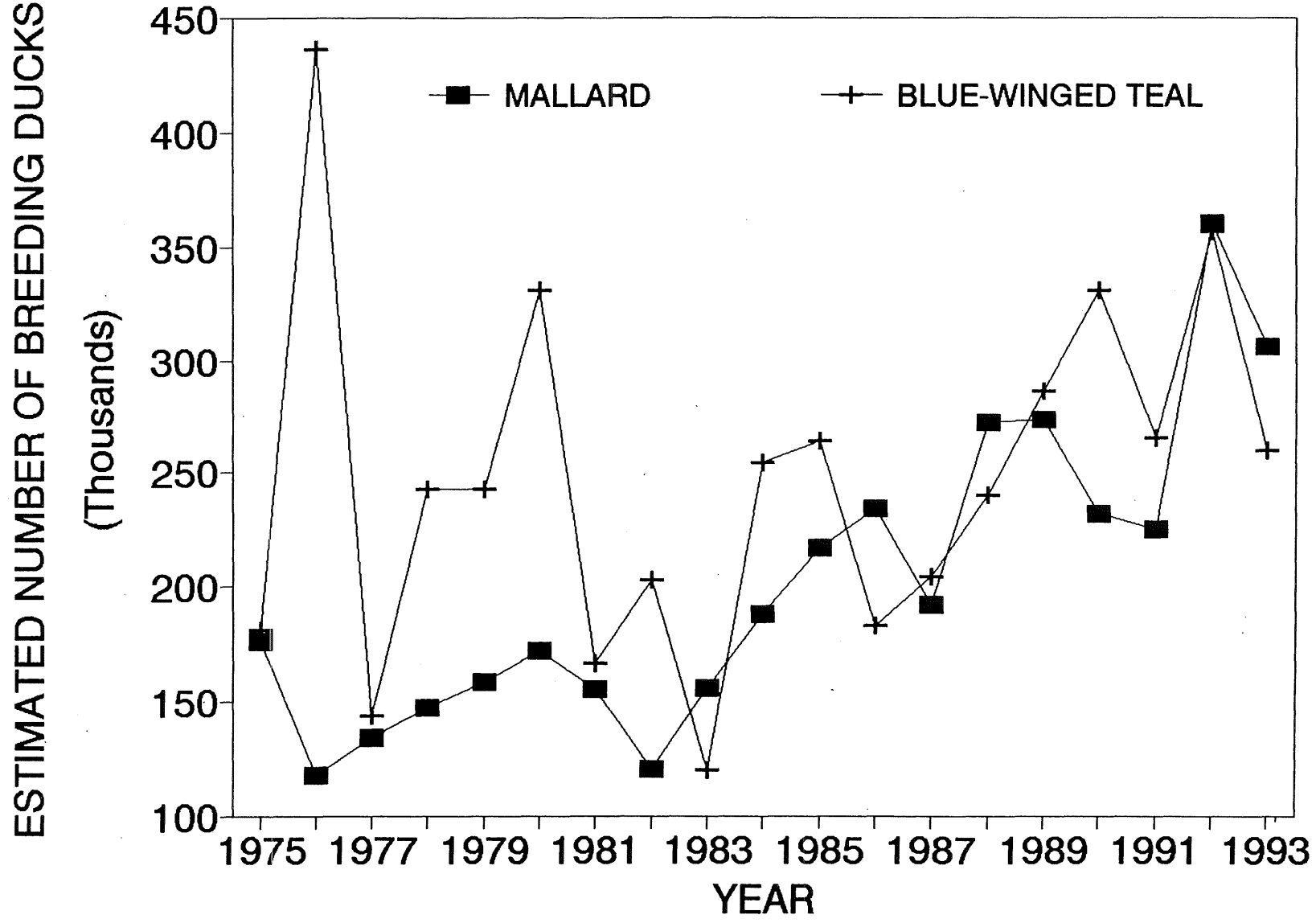



Figure 23. Estimated number of mallards and blue-winged teal breeding in Minnesota, 1975-93.

Table 29. Winter population estimates (post hunting season) of the Canada goose eastern prairie flock, 1963-92 (taken from : U.S. Fish and Wildlife Service/Canadian Wildlife Service. 1993. 1993 Status of waterfowl and fall flight forecast; July 1993. 37pp).

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

[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.

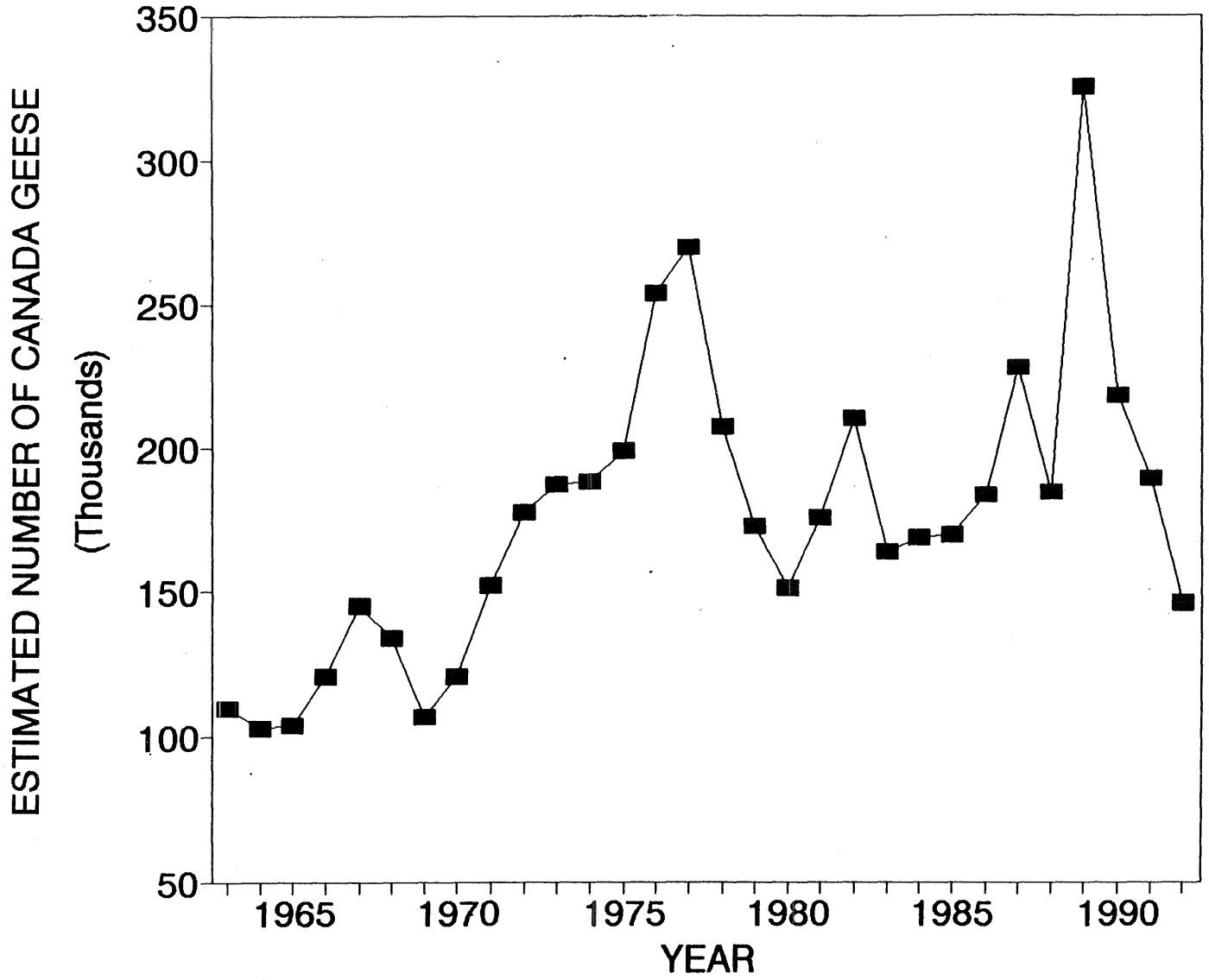



Figure 24. Winter population estimates of the Eastern Population of Canada geese, 1963-92 (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service reports 1993. 1993 Status of waterfowl and fall flight forecasts; July 1993. 37pp).

Table 30. Summary of the number of May ponds (adjusted for visibility) in Prairie Canada (portions of Alberta, Saskatchewan and Manitoba) 1961-93 and north-central U.S. (North Dakota, South Dakota and Montana) 1974-93. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service, 1993. 1993 Status of waterfowl and fall flight forecast. July 1993. 37pp).

| 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 |
| 1992 | 2,784 | 825 |
| 1993 | 2,268 | 1,793 |
| Average | 3,381 | 1,246 |
| 1993 | 2,268 | 1,793 |
| % Change in 1993 from: | | |
| 1992 | -19 | +117 |
| Average | -33 | +44 |

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

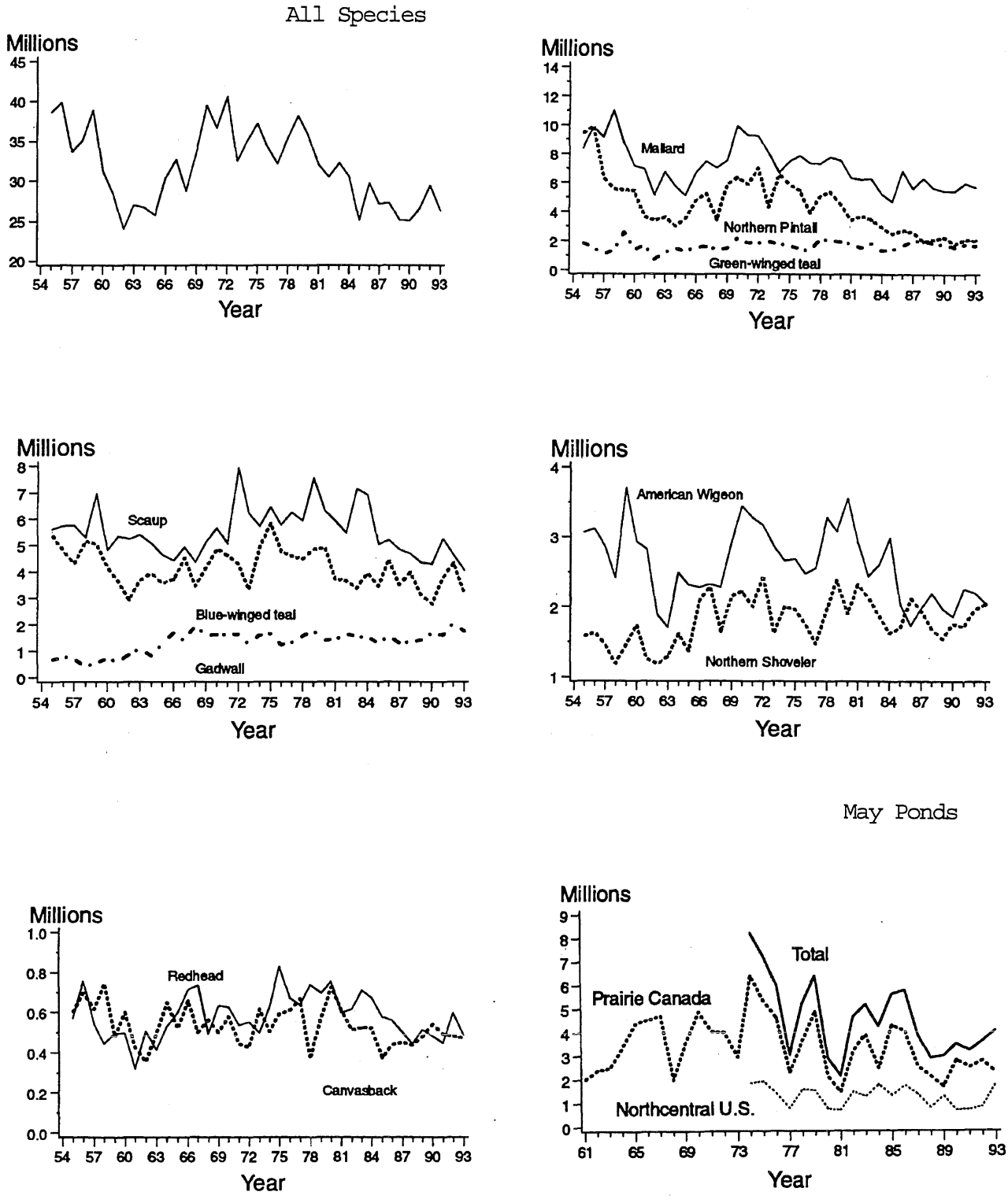



Figure 25. Estimates of North American breeding populations of selected ducks and number of water areas in May in Prairie Canada and Northcentral U.S. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service 1993. 1992 Status of waterfowl and fall flight forecasts; July 1993. 37pp).

Table 31. North American breeding population estimates for 10 species of ducks, 1955-93. (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service. 1993. 1993 Status of waterfowl and fall flight forecast; July 1993. 37pp). In thousands.[a]

| Year | Mallard | | Gadwall | | American wigeon | | Green-winged teal | | Blue-winged teal | | Northern shoveler | | Northern pintail | | Redhead | | Canvasback | | Scaup | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | SE* | N | SE | N | SE | N | SE | N | SE | N | SE | N | SE | N | SE | N | SE | N | SE |
| 1955 | 8355.9 | 383.5 | 662.7 | 56.0 | 3066.7 | 269.0 | 1822.8 | 265.0 | 5381.2 | 368.5 | 1571.3 | 108.6 | 9387.1 | 554.1 | 572.1 | 69.0 | 599.2 | 68.3 | 5608.9 | 453.3 |
| 1956 | 9841.5 | 394.6 | 782.6 | 51.4 | 3117.6 | 321.7 | 1479.5 | 153.2 | 4762.9 | 308.3 | 1630.4 | 86.1 | 9897.3 | 605.6 | 755.1 | 94.5 | 695.8 | 80.5 | 5733.8 | 571.9 |
| 1957 | 9151.3 | 398.9 | 691.0 | 75.3 | 2851.5 | 296.8 | 1053.3 | 143.5 | 4312.4 | 263.2 | 1458.7 | 110.4 | 6310.7 | 421.1 | 542.2 | 68.2 | 614.5 | 91.8 | 5745.3 | 436.9 |
| 1958 | 10993.6 | 521.8 | 453.8 | 36.4 | 2421.3 | 244.3 | 1326.1 | 223.1 | 5164.7 | 386.8 | 1187.3 | 143.0 | 5552.4 | 363.2 | 443.1 | 55.4 | 742.4 | 97.0 | 5285.8 | 473.0 |
| 1959 | 8746.1 | 649.3 | 527.2 | 59.8 | 3703.0 | 386.1 | 2601.1 | 505.1 | 5046.2 | 483.0 | 1455.8 | 288.1 | 5482.9 | 383.0 | 492.8 | 89.1 | 480.6 | 51.4 | 6961.3 | 602.3 |
| 1960 | 7164.1 | 347.5 | 720.9 | 54.8 | 2936.5 | 411.3 | 1389.8 | 349.4 | 4184.7 | 296.2 | 1743.1 | 124.4 | 5414.2 | 288.2 | 494.7 | 70.3 | 599.5 | 81.2 | 4825.9 | 411.8 |
| 1961 | 6912.0 | 502.3 | 594.3 | 66.7 | 2817.3 | 240.7 | 1708.7 | 272.7 | 3655.0 | 322.3 | 1256.4 | 127.9 | 3676.0 | 265.8 | 319.1 | 40.8 | 427.6 | 63.7 | 5335.3 | 459.6 |
| 1962 | 5139.4 | 271.7 | 846.3 | 77.0 | 1882.0 | 142.8 | 700.3 | 131.4 | 2940.2 | 190.0 | 1182.5 | 88.5 | 3395.4 | 199.2 | 503.3 | 69.1 | 353.7 | 41.3 | 5240.3 | 404.2 |
| 1963 | 6723.2 | 418.4 | 1092.0 | 91.0 | 1705.9 | 142.7 | 1155.3 | 199.7 | 3680.5 | 307.1 | 1278.3 | 120.1 | 3621.9 | 205.5 | 413.0 | 59.8 | 499.4 | 73.1 | 5396.4 | 393.2 |
| 1964 | 5740.2 | 368.6 | 825.1 | 61.6 | 2494.7 | 311.7 | 1505.0 | 256.6 | 3960.8 | 306.6 | 1608.1 | 233.8 | 3013.3 | 184.2 | 526.5 | 70.3 | 649.1 | 127.1 | 5057.9 | 387.4 |
| 1965 | 5101.2 | 246.1 | 1269.7 | 112.7 | 2312.3 | 192.6 | 1237.2 | 126.6 | 3569.6 | 253.7 | 1372.2 | 84.8 | 3549.4 | 186.8 | 599.0 | 76.2 | 520.2 | 50.0 | 4651.5 | 396.2 |
| 1966 | 6679.7 | 302.3 | 1672.3 | 130.1 | 2281.9 | 134.4 | 1579.6 | 185.0 | 3718.3 | 218.7 | 2102.8 | 154.8 | 4763.7 | 242.9 | 712.8 | 76.5 | 658.3 | 76.7 | 4431.8 | 320.6 |
| 1967 | 7470.4 | 334.5 | 1384.6 | 97.8 | 2320.0 | 139.5 | 1588.1 | 164.5 | 4509.2 | 310.9 | 2291.0 | 155.8 | 5270.4 | 327.5 | 734.2 | 78.9 | 500.2 | 45.0 | 4931.7 | 453.8 |
| 1968 | 7018.5 | 328.0 | 1947.0 | 213.7 | 2281.5 | 154.4 | 1405.3 | 144.3 | 3459.0 | 383.2 | 1645.6 | 165.7 | 3469.7 | 224.7 | 492.5 | 51.3 | 561.3 | 100.5 | 4360.3 | 323.9 |
| 1969 | 7536.0 | 274.6 | 1573.0 | 100.2 | 2918.6 | 170.2 | 1467.5 | 94.4 | 4132.7 | 239.4 | 2145.2 | 114.8 | 5900.2 | 280.2 | 632.5 | 53.5 | 500.8 | 53.4 | 5130.6 | 360.8 |
| 1970 | 9960.0 | 616.1 | 1606.1 | 123.5 | 3447.0 | 317.6 | 2171.0 | 133.4 | 4858.1 | 372.4 | 2220.1 | 116.3 | 6369.3 | 395.6 | 624.2 | 64.4 | 577.7 | 90.3 | 5633.9 | 397.4 |
| 1971 | 9305.9 | 438.2 | 1602.5 | 122.9 | 3281.3 | 182.3 | 1881.3 | 126.6 | 4606.5 | 316.9 | 2005.2 | 121.4 | 5873.7 | 369.3 | 534.4 | 56.7 | 443.8 | 48.6 | 5063.1 | 332.0 |
| 1972 | 9254.9 | 363.0 | 1620.5 | 120.1 | 3172.4 | 192.6 | 1894.9 | 189.0 | 4276.5 | 229.8 | 2441.4 | 182.0 | 7018.1 | 367.2 | 550.7 | 49.4 | 426.2 | 46.0 | 7932.0 | 721.7 |
| 1973 | 8060.2 | 372.9 | 1246.5 | 90.4 | 2863.7 | 200.0 | 1935.9 | 132.3 | 3333.8 | 220.4 | 1624.3 | 111.5 | 4351.1 | 266.9 | 498.2 | 57.8 | 617.0 | 89.3 | 6221.5 | 532.6 |
| 1974 | 6681.0 | 309.5 | 1591.8 | 128.1 | 2665.1 | 155.9 | 1839.9 | 129.8 | 4968.2 | 389.8 | 2006.3 | 128.6 | 6583.0 | 342.8 | 626.6 | 70.6 | 504.2 | 50.6 | 5720.4 | 408.8 |
| 1975 | 7494.0 | 306.8 | 1641.0 | 108.9 | 2692.0 | 185.9 | 1666.5 | 142.9 | 5828.8 | 335.6 | 1962.1 | 107.3 | 5878.1 | 267.3 | 828.7 | 93.3 | 591.3 | 49.6 | 6426.9 | 481.3 |
| 1976 | 7894.4 | 306.8 | 1244.7 | 85.5 | 2476.1 | 145.2 | 1535.8 | 131.9 | 4746.6 | 288.0 | 1755.8 | 106.9 | 5475.1 | 299.0 | 668.4 | 66.1 | 609.5 | 65.0 | 5778.7 | 341.0 |
| 1977 | 7395.8 | 366.4 | 1311.5 | 126.8 | 2559.8 | 180.9 | 1290.6 | 84.9 | 4589.0 | 347.9 | 1475.1 | 85.9 | 3935.2 | 246.7 | 637.1 | 79.7 | 667.0 | 70.3 | 6246.8 | 355.9 |
| 1978 | 7353.4 | 273.2 | 1560.5 | 92.2 | 3285.5 | 205.3 | 2193.9 | 215.4 | 4471.0 | 288.7 | 1977.6 | 115.6 | 5105.5 | 267.5 | 737.8 | 63.4 | 369.1 | 32.1 | 5935.8 | 399.3 |
| 1979 | 7815.5 | 295.1 | 1750.5 | 121.1 | 3087.3 | 193.5 | 2018.9 | 198.5 | 4860.5 | 291.8 | 2385.5 | 134.7 | 5382.2 | 274.2 | 694.7 | 63.6 | 572.8 | 53.5 | 7540.3 | 567.5 |
| 1980 | 7570.0 | 267.9 | 1390.6 | 98.7 | 3557.6 | 207.6 | 1993.7 | 137.5 | 4884.1 | 290.8 | 1901.9 | 119.3 | 4513.8 | 228.5 | 753.1 | 118.7 | 726.7 | 79.1 | 6314.2 | 415.6 |
| 1981 | 6367.1 | 274.1 | 1401.5 | 119.9 | 2923.5 | 167.5 | 1851.4 | 138.6 | 3725.9 | 236.5 | 2324.7 | 177.4 | 3472.3 | 260.5 | 595.7 | 61.8 | 610.3 | 52.3 | 5917.6 | 410.0 |
| 1982 | 6253.5 | 262.0 | 1637.3 | 126.4 | 2440.4 | 160.8 | 1542.9 | 143.1 | 3656.8 | 193.0 | 2140.6 | 121.6 | 3708.5 | 226.5 | 616.8 | 74.0 | 510.3 | 43.6 | 5468.1 | 371.8 |
| 1983 | 6312.9 | 249.8 | 1517.0 | 144.2 | 2605.9 | 176.9 | 1835.7 | 146.2 | 3366.4 | 188.1 | 1870.2 | 105.2 | 3506.1 | 178.0 | 708.7 | 83.0 | 522.7 | 52.6 | 7135.6 | 477.8 |
| 1984 | 5246.6 | 209.8 | 1531.6 | 126.0 | 2987.0 | 169.2 | 1361.0 | 84.9 | 3956.2 | 260.7 | 1619.5 | 91.8 | 2968.7 | 166.6 | 673.0 | 71.7 | 520.1 | 51.2 | 6909.1 | 477.3 |
| 1985 | 4754.2 | 184.8 | 1304.4 | 98.1 | 2039.7 | 137.8 | 1435.3 | 95.9 | 3459.1 | 231.6 | 1696.7 | 125.6 | 2511.4 | 142.7 | 578.6 | 66.8 | 373.0 | 34.0 | 5038.1 | 324.0 |
| 1986 | 6835.6 | 333.6 | 1539.6 | 107.5 | 1731.7 | 110.4 | 1681.7 | 137.1 | 4463.4 | 237.8 | 2117.7 | 112.4 | 2736.5 | 152.1 | 559.9 | 60.5 | 436.8 | 41.6 | 5204.3 | 354.1 |
| 1987 | 5612.8 | 209.6 | 1310.8 | 97.4 | 1982.3 | 131.3 | 2003.1 | 180.7 | 3517.6 | 221.7 | 1951.1 | 118.8 | 2629.2 | 159.4 | 502.3 | 54.9 | 450.5 | 77.9 | 4837.4 | 305.1 |
| 1988 | 6331.3 | 311.8 | 1349.2 | 120.6 | 2194.4 | 140.1 | 2057.9 | 189.2 | 3975.4 | 292.4 | 1680.2 | 210.5 | 2011.2 | 163.9 | 441.1 | 66.2 | 436.2 | 40.6 | 4683.8 | 309.1 |
| 1989 | 5649.7 | 245.8 | 1415.9 | 106.9 | 1973.9 | 106.1 | 1842.7 | 166.5 | 3128.3 | 230.7 | 1539.5 | 97.0 | 2112.5 | 181.3 | 510.9 | 58.6 | 477.9 | 48.5 | 4344.3 | 291.5 |
| 1990 | 5452.1 | 238.5 | 1672.0 | 135.8 | 1860.2 | 108.3 | 1789.7 | 172.8 | 2776.4 | 178.7 | 1759.4 | 118.6 | 2256.7 | 183.3 | 480.9 | 48.2 | 539.3 | 60.3 | 4293.7 | 265.0 |
| 1991 | 5444.4 | 206.6 | 1583.6 | 111.8 | 2254.1 | 139.5 | 1557.9 | 111.3 | 3763.7 | 270.7 | 1716.2 | 104.6 | 1803.4 | 131.3 | 445.6 | 42.1 | 491.2 | 66.4 | 5255.4 | 364.7 |
| 1992 | 5976.1 | 241.0 | 2032.8 | 143.4 | 2208.4 | 131.9 | 1773.1 | 123.7 | 4333.1 | 263.2 | 1954.4 | 132.1 | 2098.1 | 161.0 | 595.6 | 69.7 | 481.5 | 97.3 | 4639.2 | 291.9 |
| 1993 | 5708.3 | 208.9 | 1755.2 | 107.9 | 2053.0 | 109.3 | 1694.5 | 112.7 | 3192.9 | 205.6 | 2046.5 | 114.3 | 2053.4 | 124.2 | 485.4 | 53.1 | 472.1 | 67.6 | 4080.1 | 249.4 |
| 1955-92 Avg. | 7147 | | 1313 | | 2616 | | 1663 | | 4159 | | 1791 | | 4500 | | 582 | | 536 | | 5559 | |
| Percent change in 1992 from: | | | | | | | | | | | | | | | | | | | | |
| 1992 | - 4 | | -14 | | - 7 | | - 4 | | -26 | | + 5 | | - 2 | | -19 | | - 2 | | -12 | |
| 1955-92 Avg. | -20 | | +34 | | -22 | | + 2 | | -23 | | +14 | | -54 | | -17 | | -12 | | -27 | |

[a] All duck indexes adjusted for visibility bias.

* 95% CI = N ± 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 ± 1.96 x 241.0.
90% CI = N ± 1.645* SE

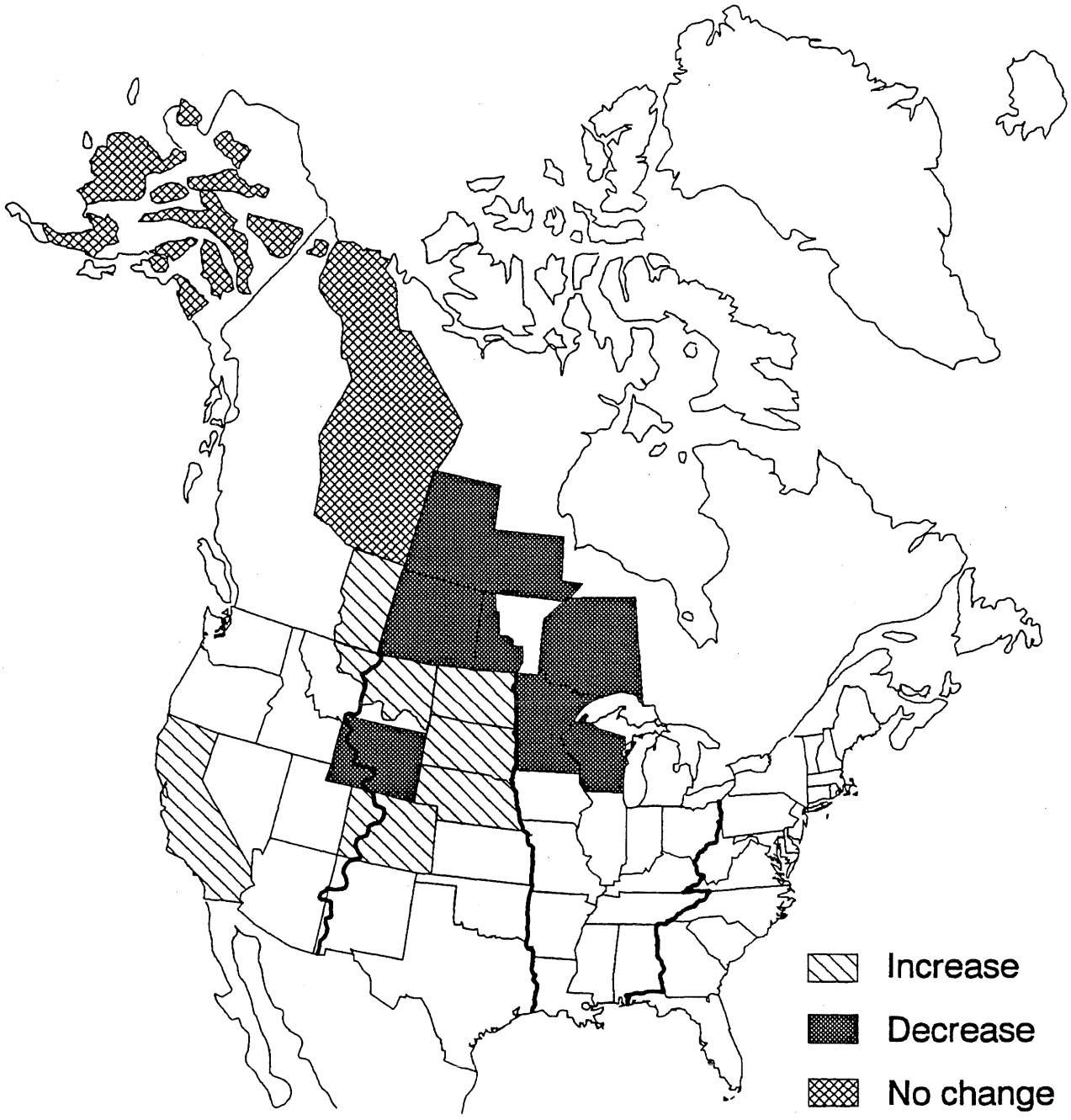



Figure 26. Fall 1993 duck flight forecast for Canada and the U.S., change from 1992, (from: U.S. Fish and Wildlife Service/Canadian Wildlife Service 1993. 1993 Status of waterfowl and fall flight forecast; July 1993. 37pp).

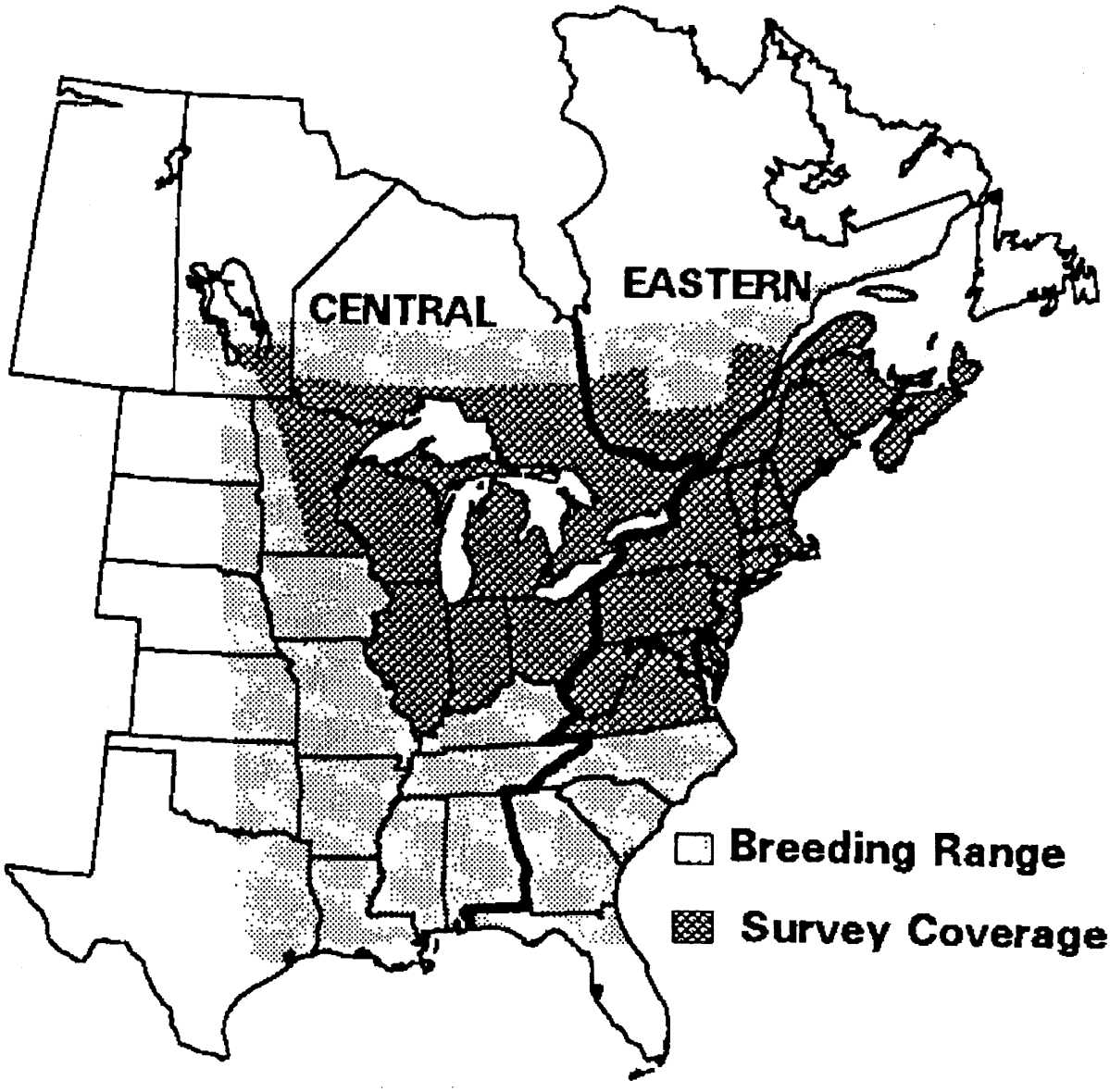



Figure 27. Woodcoock breeding range, singing ground survey coverage, and woodcock management regions (from: Straw, Jr., J. Ashley 1993. American woodcock harvest and breeding population status, 1993. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp.

Table 32. Trends (% change per year[a]) in number of American woodcock heard in singing-ground survey as determined by route regression technique by management region, state, and province. (from: Straw, Jr., J. Ashley 1993. American woodcock harvest and breeding population status, 1993. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp).

| Management Unit/State | 2 year N[b] | (1992-93) % Change | Routes Run[c] | 9 year N | (1985-93) % Change | 26 year N | (1968-93) % Change |
|---|---|---|---|---|---|---|---|
| CENTRAL | 240 | 0.2 | 399 | 498 | - 1.7*** | 661 | -0.9*** |
| IL | 2 | 231.2***[d] | 17 | 17 | -16.3 | 38 | 1.0 |
| IN | 3 | -59.5*** | 11 | 21 | 4.2* | 51 | -0.9 |
| MI | 83 | 0.2 | 116 | 133 | -0.8 | 142 | -0.7 |
| MN | 43 | -1.0 | 70 | 81 | -0.6 | 111 | -0.1 |
| OH | 15 | -21.9 | 36 | 34 | -3.6 | 69 | -4.5 |
| ON | 44 | -1.0 | 75 | 125 | -2.4* | 138 | -0.6 |
| WI | 50 | 9.6 | 73 | 86 | -3.2** | 111 | -1.8** |

[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 6/1/93.

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

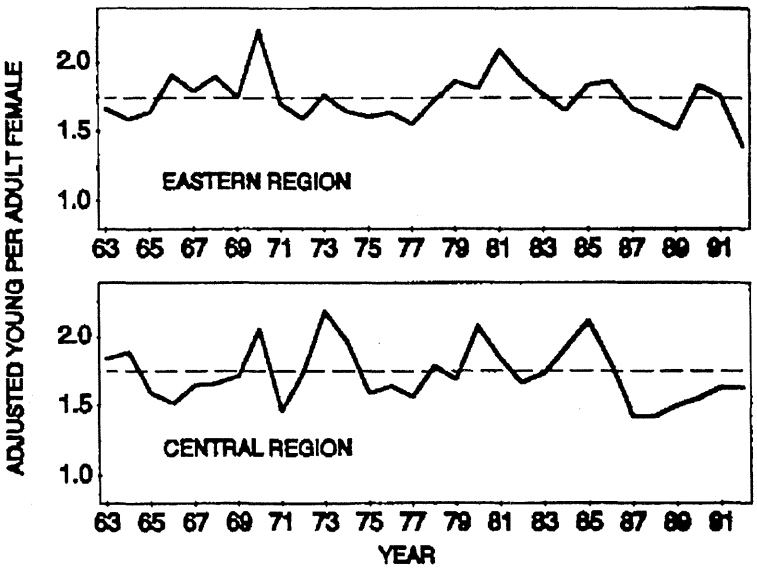



Figure 28. Adjusted index of American woodcock recruitment, 1963-92. Dashed line is the index based on all years, 1963-92. (from: Straw, Jr., J. Ashley 1993. American woodcock harvest and breeding population status, 1993. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp).

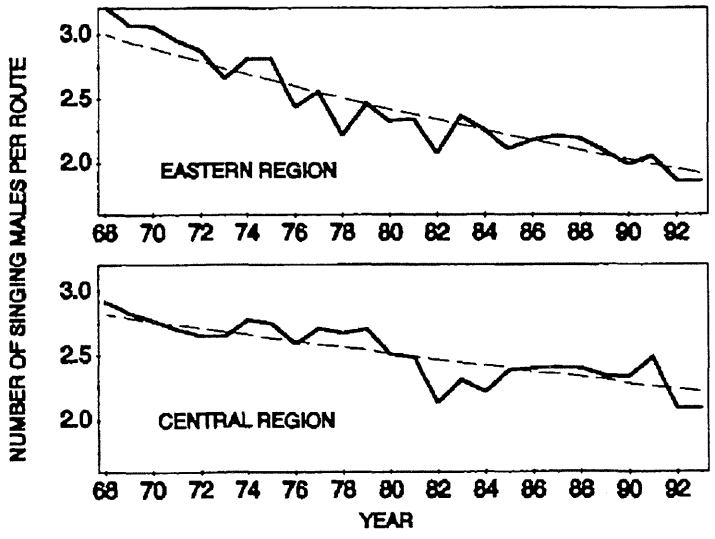
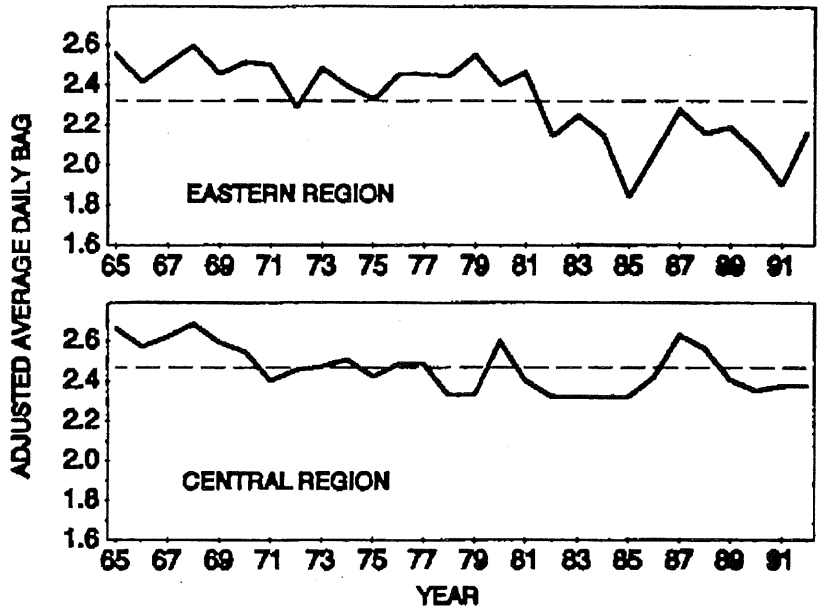



Figure 29. American woodcock singing ground survey long term trends and annual indices, 1968-93. (from: Straw, Jr., J. Ashley 1993. American woodcock harvest and breeding population status, 1993. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp).



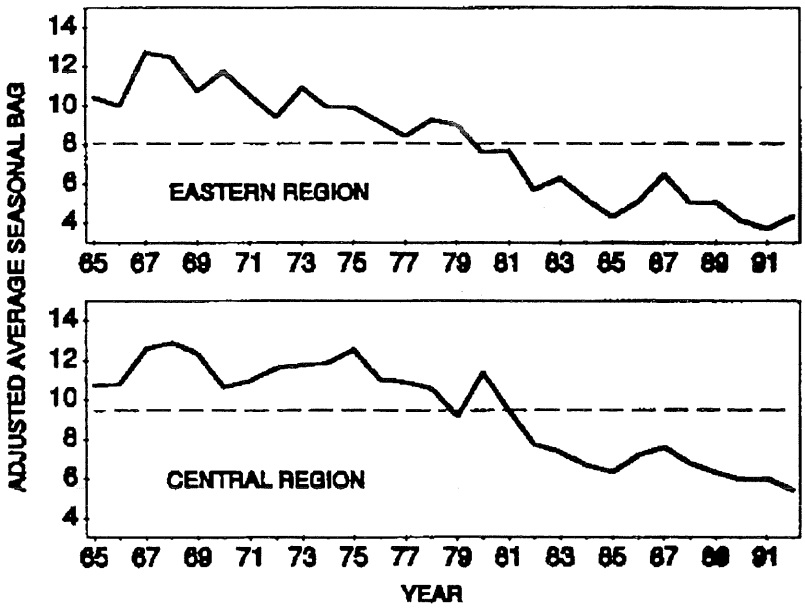




Figure 30. Adjusted indices of daily and seasonal hunting success of American woodcock, 1965-92, Base year is 1969. Dashed line is 1965-92 average. (from: Straw, Jr., J. Ashley 1993. American woodcock harvest and breeding population status, 1993. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp).

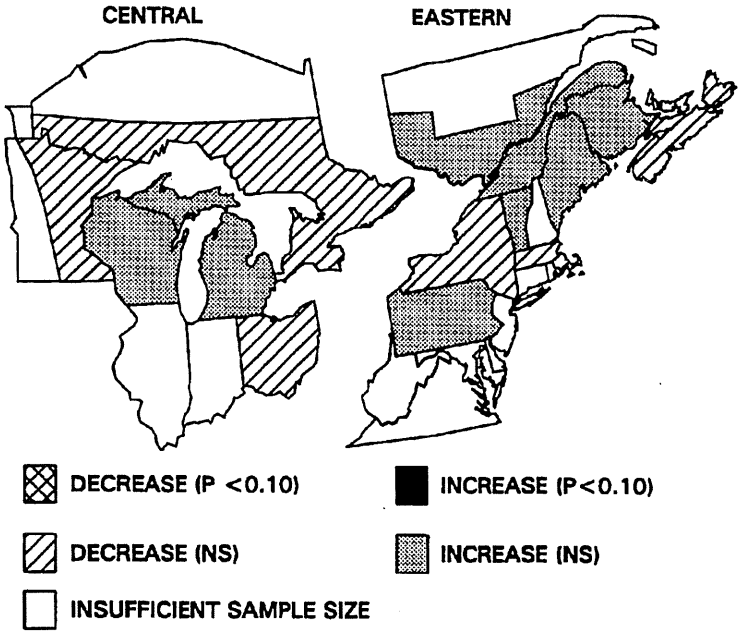



Figure 31. Short-term trends in number of American woodcock heard on the Singing-ground Survey; 1992-93. (from: Straw, Jr., J. Ashley 1993. American woodcock harvest and breeding population satus, 1993. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp.

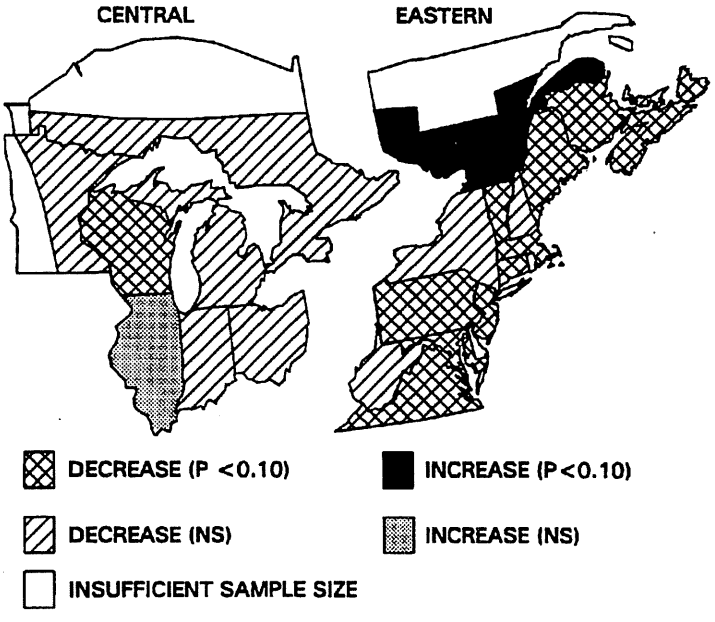



Figure 32. Long-term trends in number of American woodcock heard on the Singing-ground Survey; 1968-93 (from: Straw, Jr., J. Ashley 1993. American woodcock harvest and breeding population status, 1993. U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Laurel, MD. 15pp.

NONGAME WILDLIFE
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Table 33. Minnesota Bald Eagle Nesting Activity in Four Survey Areas, 1992.

| Survey Area | Occupied Breeding Areas | Successful Breeding Areas | Percent Successful | Number of Young | Young/Occupied Breeding Area | Average Brood Size |
|---|---|---|---|---|---|---|
| Chippewa NF | 175 | 101 | 58 | 141 | 0.80 | 1.76 |
| Superior NF | 86 | 61 | 71 | 92 | 1.07 | 0.86 |
| Voyageurs NP | 18 | 10 | 56 | 15 | 0.83 | 1.5 |
| "Other Areas" | 244 | ---[1] | --- | --- | --- | --- |
| Minnesota Total | 523 | --- | --- | --- | --- | --- |

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

Table 34. Minnesota Bald Eagle Nesting Data, 1973-1992.

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

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

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

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

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

HUNTING HARVEST STATISTICS
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Table 35. Small game hunter response to mail surveys, 1979-80 through 1992-93.

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

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

Table 36. Use of small game hunter licenses, 1981-82 through 1992-93.

| | | Returns from mail survey | Projections from license sales |
|---|---|---|---|
| 1981-82 | Hunted | 4,461 ( 82.3%) | 306,843 |
| | Did not hunt | 958 ( 17.7%) | 65,992 |
| | | 5,419 (100.0%) | 372,835 |
| 1982-83 | Hunted | 3,908 ( 81.6%) | 257,546 |
| | Did not hunt | 884 ( 18.4%) | 58,258 |
| | | 4,792 (100.0%) | 315,804 |
| 1983-84 | Hunted | 2,805 ( 84.4%) | 232,973 |
| | Did not hunt | 520 ( 15.6%) | 43,061 |
| | | 3,325 (100.0%) | 276,034 |
| 1984-85 | Hunted | 2,663 ( 81.2%) | 211,740 |
| | Did not hunt | 617 ( 18.8%) | 49,024 |
| | | 3,280 (100.0%) | 260,764 |
| 1985-86 | Hunted | 2,132 ( 82.8%) | 213,883 |
| | Did not hunt | 442 ( 17.2%) | 44,342 |
| | | 2,574 (100.0%) | 258,225 |
| 1986-87 | Hunted | 3,006 ( 83.0%) | 217,504 |
| | Did not hunt | 617 ( 17.0%) | 44,549 |
| | | 3,623 (100.0%) | 262,053 |
| 1987-88 | Hunted | 3,554 ( 84.8%) | 242,875 |
| | Did not hunt | 635 ( 15.2%) | 43,395 |
| | | 4,189 (100.0%) | 286,270 |
| 1988-89 | Hunted | 9,391 ( 82.2%) | 234,833 |
| | Did not hunt | 2,040 ( 17.8%) | 50,852 |
| | | 11,431 (100.0%) | 285,685 |
| *1989-90 | Hunted | 6,924 ( 88.9%) | 272,307 |
| | Did not hunt | 866 ( 11.1%) | 34,000 |
| | | 7,790 (100.0%) | 306,307 |
| 1990-91 | Hunted | 2,798 ( 88.5%) | 275,327 |
| | Did not hunt | 363 ( 11.5%) | 35,777 |
| | | 3,161 (100.0%) | 311,104 |
| 1991-92 | Hunted | 3,004 ( 85.3%) | 270,972 |
| | Did not hunt | 519 ( 14.7%) | 46,697 |
| | | 3,523 (100.0%) | 317,669 |
| 1992-93 | Hunted | 3,008 ( 83.9%) | 249,973 |
| | Did not hunt | 576 ( 16.1%) | 47,968 |
| | | 3,584 (100.0%) | 297,941 |

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

Table 37. Estimated number of hunters (thousands) for various species, 1982-83 through 1992-93.

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

* Crow season added in 1989.

Table 38. Estimated take per hunter for various species, 1982-83 through 1992-93.

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

* Crow season added in 1989.

Table 39. Hunter success rates and mean harvest for successful hunters, 1989-90 through 1992-93.

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

Table 40. 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 | 1992-93 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 297,941 |
| Federal duck stamp sales | 134,803 | 138,161 | 138,820 | 134,594 | 139,391 | 125,831 | 92.772 | 97,939 | 103,971 | 110,197 | 106,855 |
| State duck stamp sales | 123,834 | 125,212 | 131,394 | 125,559 | 146,747 | 120,235 | 89,228 | 97,659 | 102,151 | 104,051 | 104,064 |
| Pheasant stamp sales | - | 114,189 | 81,587 | 85,252 | 81,027 | 102,944 | 100,478 | 108,124 | 122,260 | 133,384 | 117,934 |
| Estimated harvest[b] (thousands) | | | | | | | | | | | |
| Ducks[c] | 1,071 | 1,235 | 1,443 | 1,029 | 1,172 | 928 | 531 | 544 | 619 | 784 | 864 |
| Canada goose[c] | 81 | 62 | 82 | 86 | 101 | 106 | 114 | 103 | 128 | 144 | 150 |
| Other geese[c] | 7 | 8 | 8 | 9 | 3 | 11 | 5 | 9 | 7 | 6 | 5 |
| American coot[c] | 49 | 55 | 48 | 41 | 59 | 29 | 9 | 10 | 17 | 13 | 23 |
| Common snipe | 14 | 17 | 20 | 16 | 21 | 19 | 13 | 12 | 14 | 16 | 9 |
| Rails/gallinules | 3 | 2 | 1 | 2 | 1 | 5 | 1 | 3 | <1 | 3 | <1 |
| Crow | | | | | | | | 54 | 70 | 94 | 69 |
| American woodcock | 54 | 58 | 70 | 70 | 87 | 113 | 104 | 118 | 116 | 94 | 100 |
| Ring-necked pheasant | 265 | 299 | 148 | 179 | 159 | 277 | 332 | 325 | 483 | 565 | 411 |
| Ruffed grouse | 302 | 183 | 320 | 315 | 442 | 817 | 917 | 1,218 | 1,153 | 963 | 543 |
| Spruce grouse | 14 | 10 | 21 | 21 | 20 | 36 | 39 | 55 | 46 | 34 | 21 |
| Sharp-tailed grouse | 17 | 10 | 7 | 14 | 13 | 24 | 29 | 36 | 33 | 33 | 20 |
| Gray partridge | 52 | 74 | 31 | 77 | 54 | 69 | 95 | 86 | 115 | 102 | 49 |
| Gray squirrel | 271 | 199 | 208 | 186 | 235 | 222 | 217 | 194 | 234 | 174 | 147 |
| Fox squirrel | 162 | 126 | 107 | 140 | 145 | 122 | 134 | 113 | 115 | 109 | 92 |
| Eastern cottontail | 135 | 98 | 61 | 75 | 102 | 102 | 118 | 92 | 139 | 128 | 73 |
| White-tailed jack rabbit | 27 | 13 | 11 | 17 | 14 | 12 | 10 | 12 | 9 | 10 | 11 |
| Snowshoe hare | 61 | 21 | 16 | 12 | 25 | 26 | 32 | 48 | 69 | 70 | 24 |
| Raccoon | 80 | 87 | 114 | 85 | 122 | 170 | 102 | 52 | 93 | 74 | 77 |
| Red fox | 19 | 21 | 26 | 44 | 15 | 33 | 43 | 19 | 54 | 78 | 63 |
| Gray fox | 2 | 2 | 4 | 4 | 2 | 4 | 2 | 3 | 5 | 4 | 4 |
| Coyote | 2 | 3 | 5 | 11 | 7 | 6 | 7 | 6 | 14 | 27 | 21 |
| Badger | 2 | 2 | <1 | 2 | 2 | <1 | 2 | <1 | 1 | 1 | <1 |

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

[a] Duplicate licenses not included.

[b] Estimates based upon response of hunters to questionnaires.

[c] U.S. Fish and Wildlife Service harvest estimates for 1992 are:

| | | | |
|---|---|---|---|
| Ducks | 510,478 | Other geese | 000 |
| Canada geese | 102,451 | American coot | 7,673 |

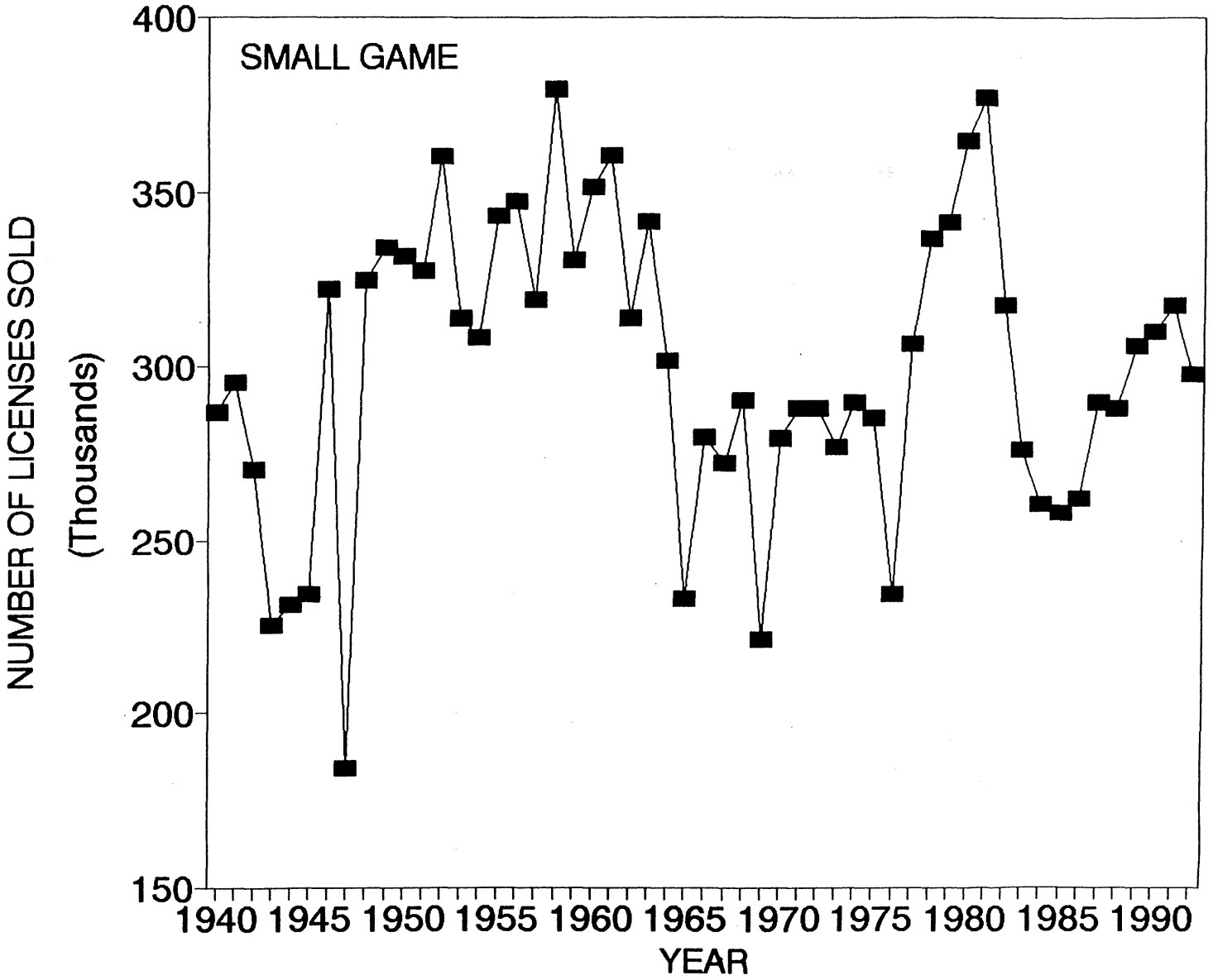



Figure 33. Numbers of Minnesota small game licenses sold, 1940-92.

Table 41. Mail survey results of nonresident small game hunters, 1983-84 through 1992-93.

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

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

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

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

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

Table 42. Species composition of the Minnesota waterfowl harvest, 1991 and 1992 (from: Martin, E.M. and P.I. Padding. 1993. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1992 hunting season. U.S. Fish and Wildlife Service Adm. Rep., Office of Migratory Bird Management, Laurel, Maryland. July 1993. 34pp.).

| Species | 1991 Harvest | 1991 Pct of harvest | 1992 Harvest | 1992 Pct of harvest | Percent change |
|---|---|---|---|---|---|
| Mallard | 173,200 | 35.73 | 179,900 | 35.24 | + 4 |
| Domestic mallard | 0 | 0.00 | 300 | 0.05 | [b] |
| American black duck | 700 | 0.14 | 700 | 0.13 | 0 |
| Black x mallard | 800 | 0.16 | 200 | 0.04 | -75 |
| Gadwall | 17,000 | 3.51 | 15,800 | 3.10 | - 7 |
| American wigeon | 21,200 | 4.38 | 22,900 | 4.49 | + 8 |
| Green-winged teal | 32,700 | 6.73 | 30,200 | 5.92 | - 8 |
| Blue-winged/cinnamon teal | 20,500 | 4.22 | 19,900 | 3.89 | - 3 |
| Northern shoveler | 10,200 | 2.11 | 3,800 | 0.74 | -63 |
| Northern pintail | 5,100 | 1.06 | 7,900 | 1.55 | +55 |
| Wood duck | 94,400 | 19.47 | 88,700 | 17.38 | - 6 |
| Redhead | 11,300 | 2.33 | 7,500 | 1.46 | -34 |
| Canvasback | 0 | 0.00 | 100 | 0.01 | [b] |
| Greater scaup | 1,400 | 0.28 | 2,200 | 0.43 | +57 |
| Lesser scaup | 29,700 | 6.13 | 40,700 | 7.97 | +37 |
| Ring-necked duck | 47,300 | 9.75 | 64,900 | 12.71 | +37 |
| Goldeneyes | 4,300 | 0.88 | 5,800 | 1.13 | +35 |
| Bufflehead | 10,900 | 2.24 | 14,300 | 2.81 | +31 |
| Ruddy duck | 500 | 0.11 | 800 | 0.15 | +60 |
| Scoters | 0 | 0.00 | 200 | 0.03 | [b] |
| Hooded merganser | 3,400 | 0.70 | 3,400 | 0.66 | 0 |
| Other mergansers | 0 | 0.00 | 500 | 0.09 | [b] |
| Total | 484,831 | 100.00[a] | 510,478 | 100.00[a] | + 5 |

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

[b] No percentage change

Table 43. Top 10 states in number of adult waterfowl hunters, 1992, and number of hunter-days and retrieved duck kill, in each (from: Martin, E.M., and P. I. Padding. 1993. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1992 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, Maryland. July 1993. 34pp.).

| State | Number of active adult waterfowl hunters | Number of hunter-days | Retrieved duck kill | Ducks retrieved per hunter-day |
|---|---|---|---|---|
| Minnesota | 95,543 | 726,207 | 510,478 | 0.70 |
| Wisconsin | 67,253 | 509,148 | 272,240 | 0.54 |
| Louisiana | 58,304 | 576,128 | 769,961 | 1.34 |
| Texas | 55,325 | 406,651 | 324,573 | 0.80 |
| California | 52,974 | 510,149 | 689,120 | 1.35 |
| Michigan | 48,459 | 402,881 | 204,111 | 0.51 |
| Illinois | 44,637 | 499,135 | 233,285 | 0.47 |
| Pennsylvania | 36,039 | 227,797 | 65,154 | 0.29 |
| New York | 31,637 | 241,089 | 164,182 | 0.68 |
| Arkansas | 29,820 | 350,994 | 352,214 | 1.00 |
| Mississippi Flyway | 472,542 | 4,288,708 | 3,017,003 | 0.70 |
| United States | 1,017,949 | 8,484,491 | 6,336,015 | 0.75 |

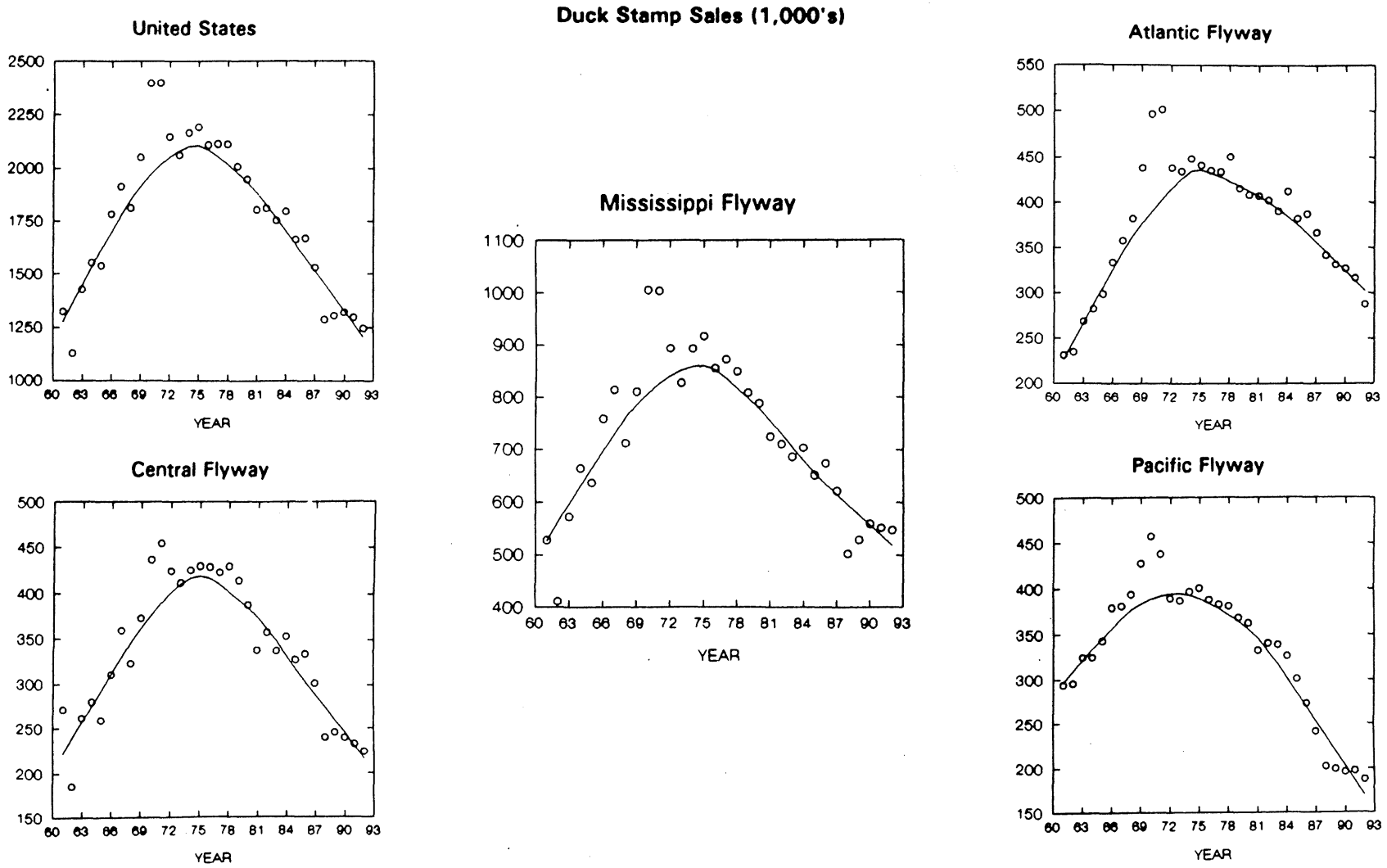



Figure 34. Federal duck stamp sales; Active adult hunters; Adult hunter days, (in 1,000's). The 1961 through 1991 data are final, but the 1992 numbers are estimates. The curves (locally weighted regression [lowess] lines; Cleveland and Devlin 1988, J. Am. Stat. Assoc.) fit a patern to the majority of the estimates and identify estimates that deviate from that pattern (from Martin, E. M., and P.I. Padding. 1993. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1992 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, MD. July 1993. 30pp.).

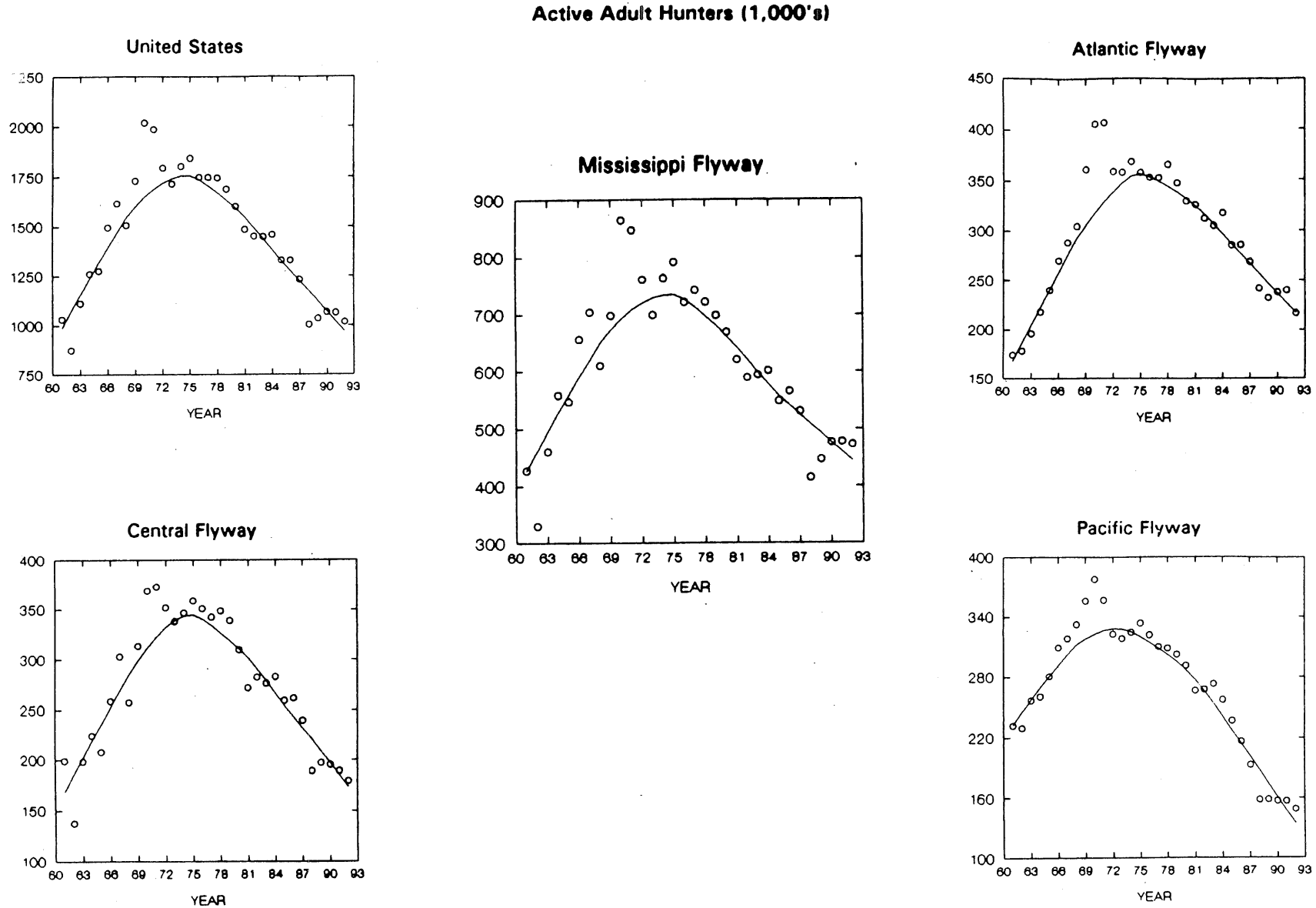



Figure 34. (cont.)

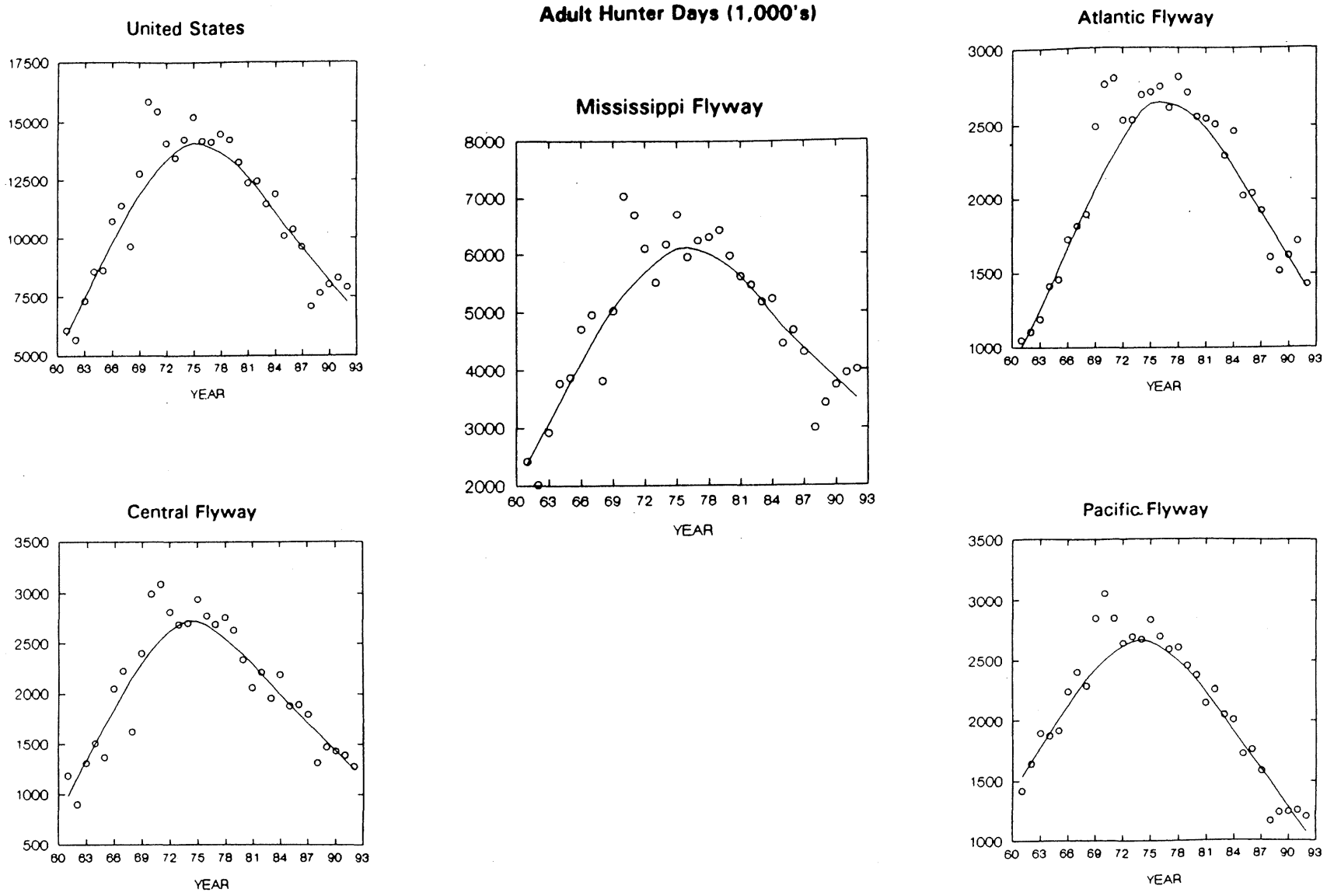



Figure 34. (cont.)

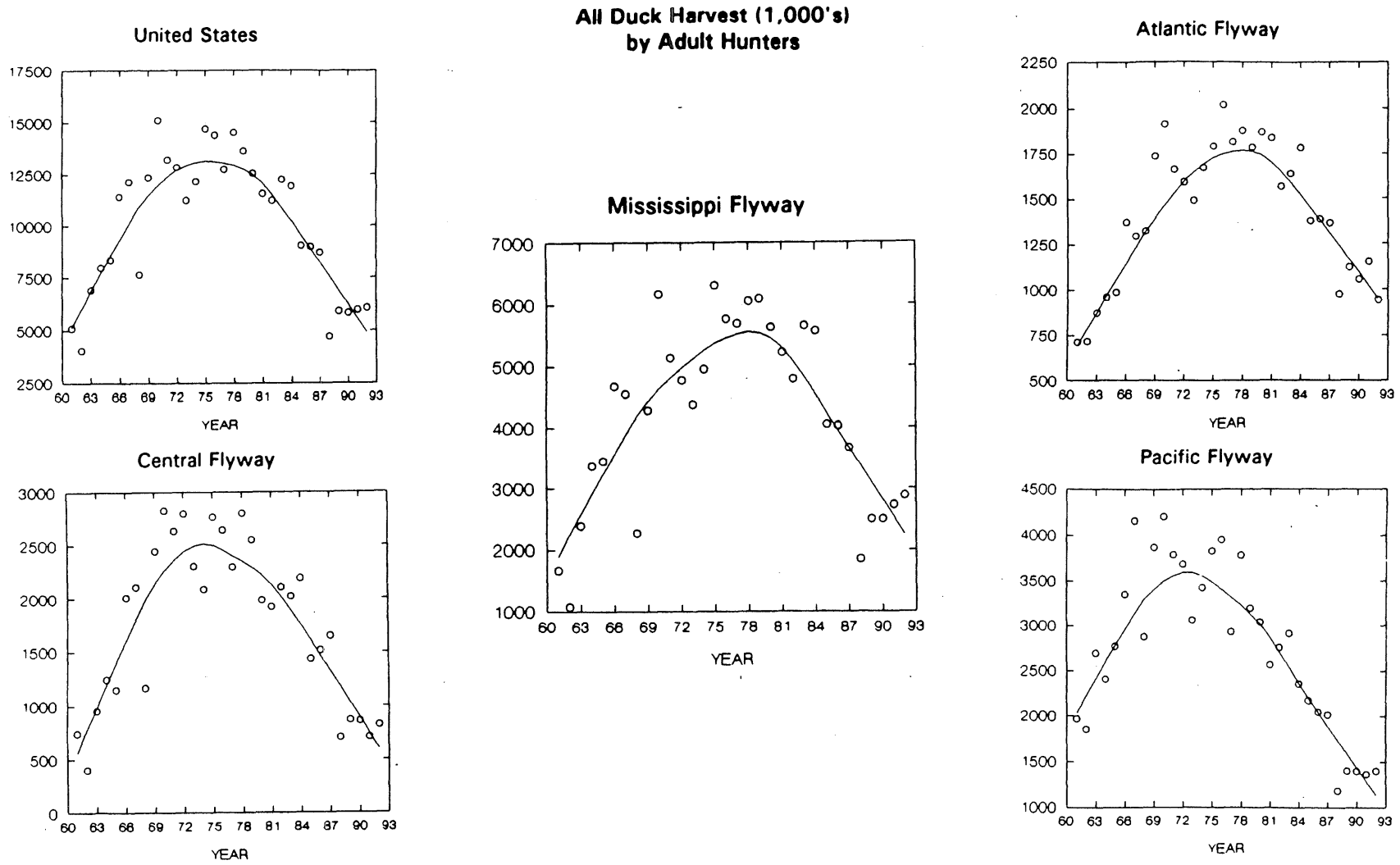



Figure 35. All duck harvest; All goose harvest by adult hunters; Seasonal duck bag; Seasonal Goose bag per adult hunter. The 1961 through 1991 data are final, but the 1992 numbers are estimates. The curves (locally weighted regression [lowess] lines; Cleveland and Devlin 1988, J. Am. Stat. Assoc.) fit a patern to the majority of the estimates and identify estimates that deviate from that pattern (from Martin, E. M., and P.I. Padding. 1993. Preliminary estimates of waterfowl harvest and hunter activity in the United States during the 1992 hunting season. U.S. Fish and Wildlife Service Adm. Rep. Office of Migratory Bird Management, Laurel, MD. July 1993. 30pp.).

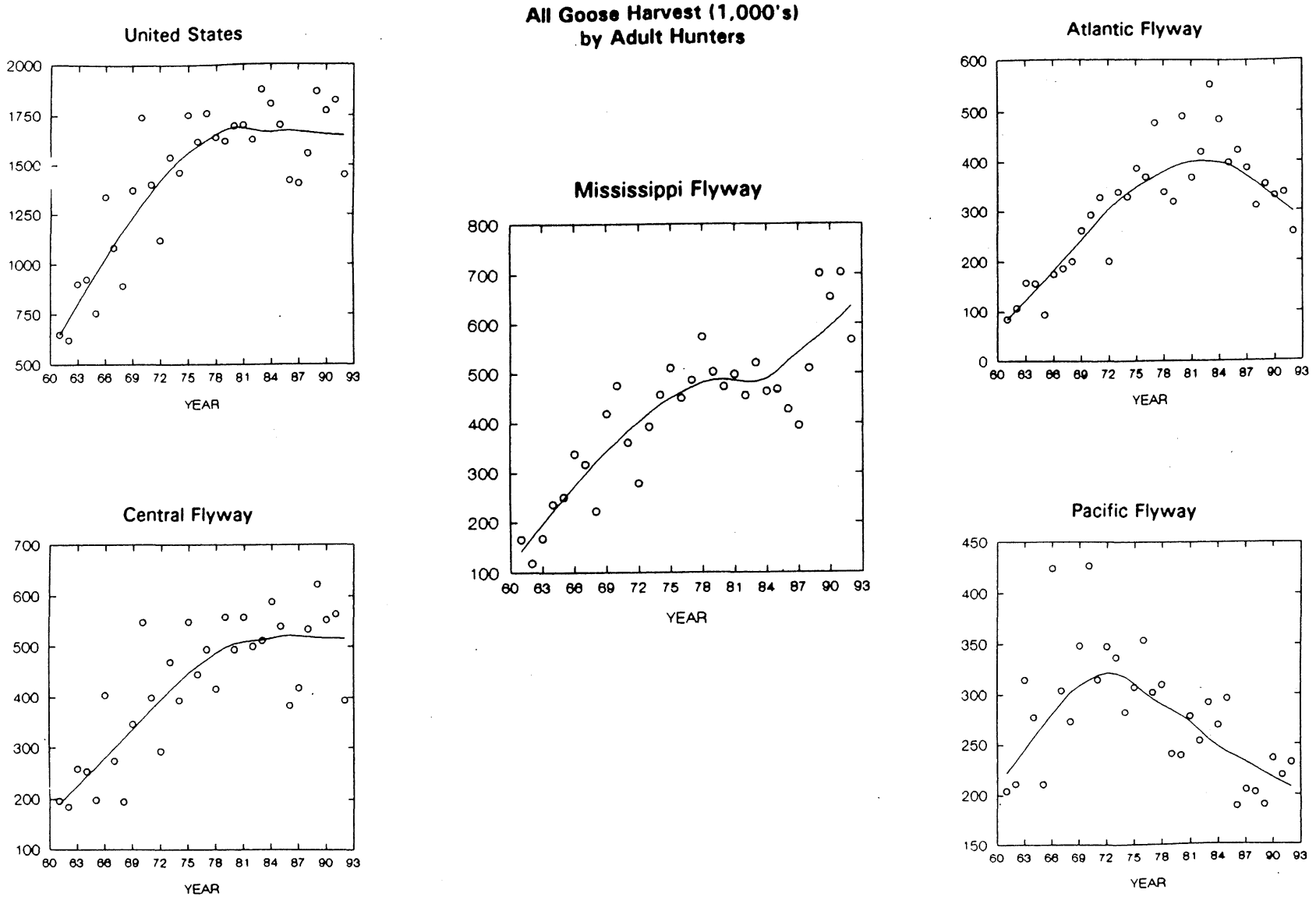



Figure 35. (cont.)

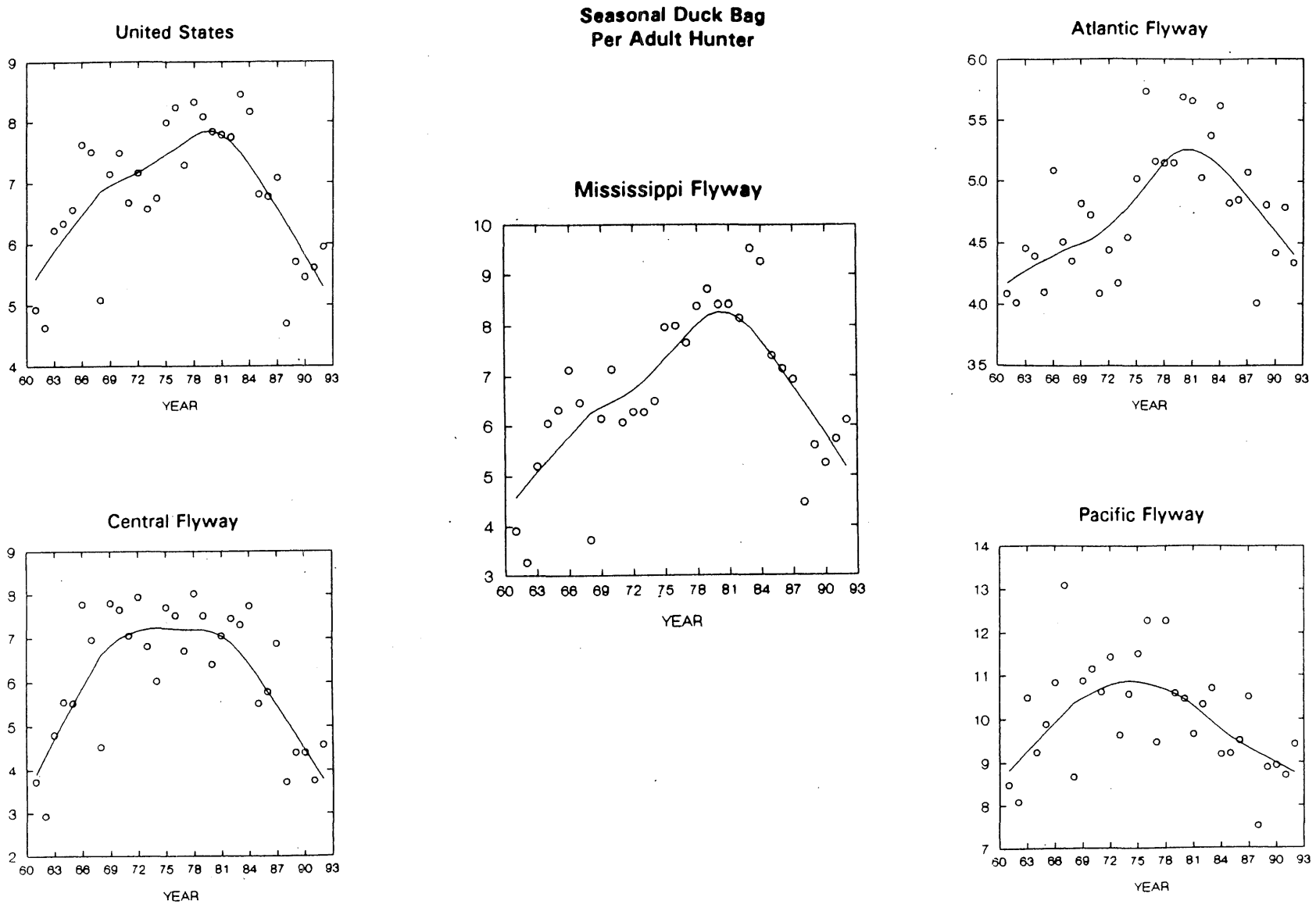



Figure 35. (cont.)

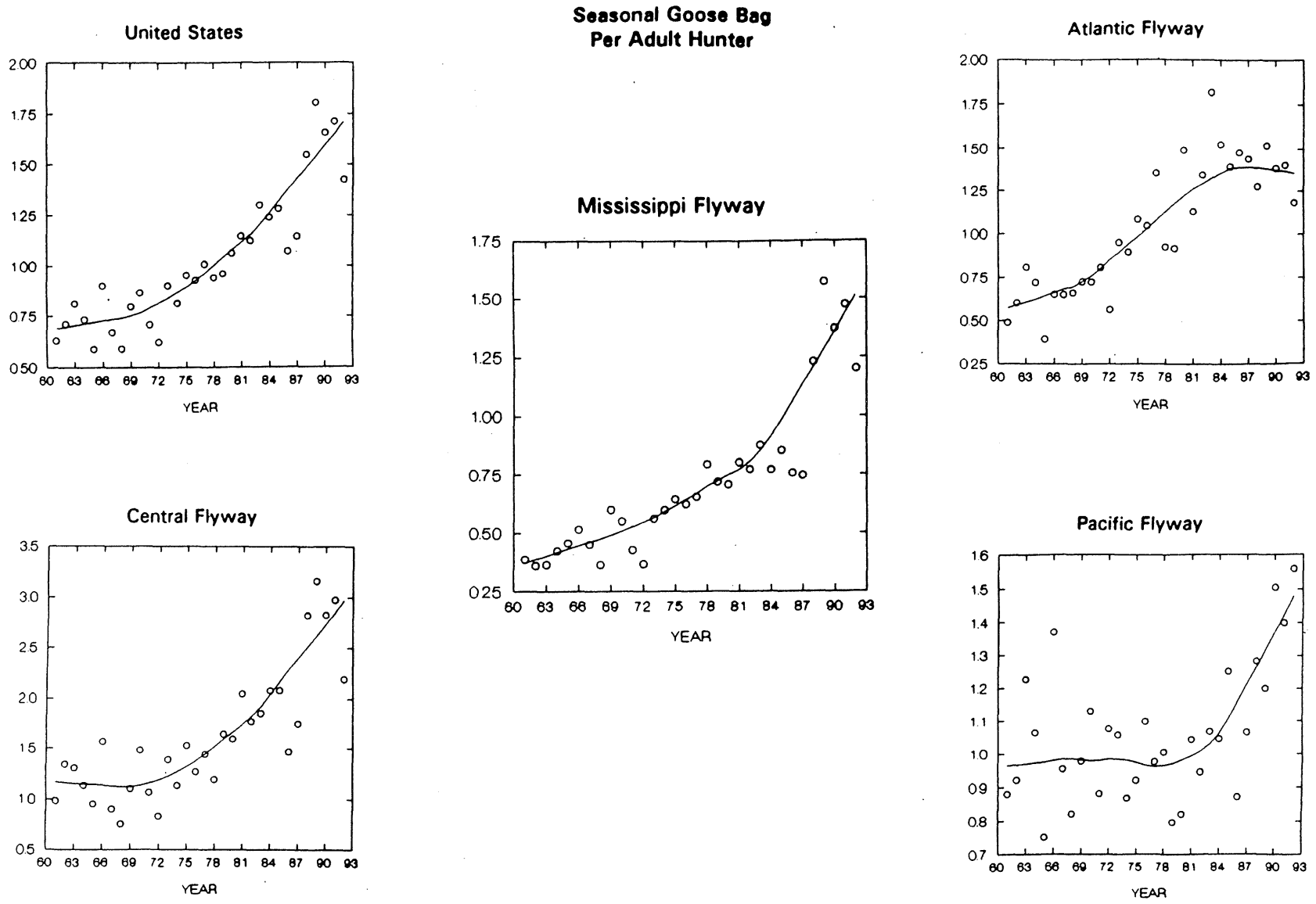



Figure 35. (cont.)

Table 44. Spring turkey hunting summary, 1978-93

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

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

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

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

[d] Legislation allows NON-RESIDENT hunters.

** Computerized preference drawing began spring 1990.

Table 45. Synopsis of fall wild turkey hunt, Minnesota 1990-1992.

| | 1990 | 1991 | 1992 |
|---|---|---|---|
| # of zones | 3 | 4 | 4 |
| # of permits available | 1000 | 2200 | 2200 |
| # of permits issued | 951 | 2020 | 2028 |
| # turkeys registered | | | |
| Female - juvenile | 85 | 211 | 208 |
| - adult | 91 | 140 | 174 |
| Male - juvenile | 67 | 121 | 120 |
| - adult | 83 | 80 | 86 |
| Total | 326 | 552 | 588 |
| Hunter success (%)[a] | 38% | 30% | 32% |

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

Table 46. Deer hunting license sales, 1957-92[a].

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

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

[b] Numbers include the following bonus deer licenses:

| Year | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|
| Resident firearms (regular quota areas) | 1,192 | 2,044 | 721 | 436 | 4,375 | 7,280 | 40,303 |
| Resident firearms (state parks) | 271 | 254 | 107 | 325 | 620 | 927 | 168 |
| Non-resident firearms (regular quota area) | 3 | 1 | 1 | - | 1 | 7 | 112 |
| Resident archery | - | - | - | - | - | 3,418[c] | 14,328 |
| Resident archery (state parks) | 27 | - | - | - | - | - | - |
| Resident archery (metro) | 917 | 1,380 | 1,013 | 1,223 | 1,412 | - | - |
| Resident archery (orchard zone)[d] | - | - | - | - | - | - | - |
| Totals | 2,410 | 3,733 | 1,842 | 1,984 | 6,408 | 11,632 | 54,911 |

[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.

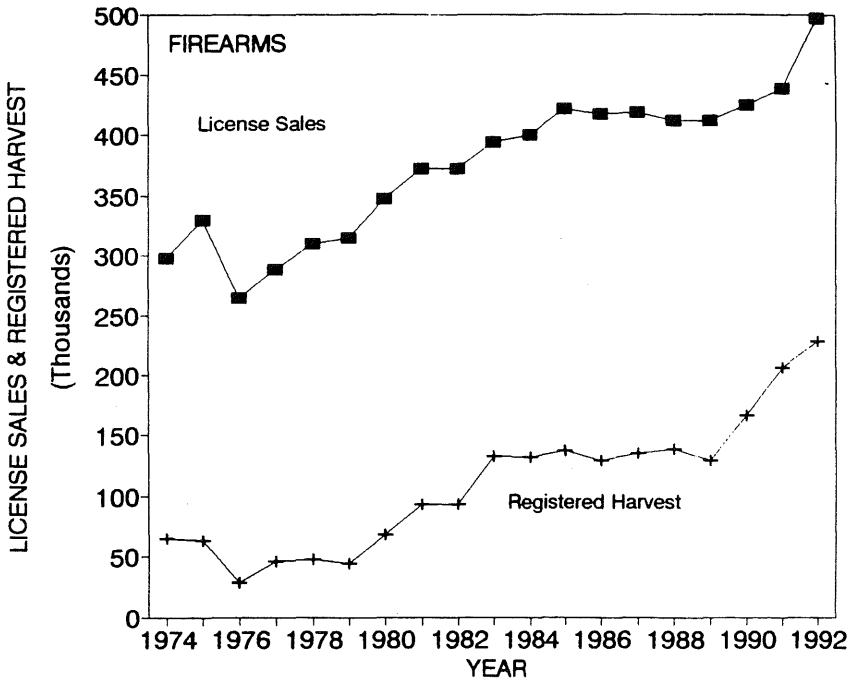
[d] Orchard zone archery bonus permits were only issued in 1987.

Table 47. Registered deer harvest and hunter success rates, 1974-92.

| | Registered Harvest | | | | Percent Success | |
|---|---|---|---|---|---|---|
| | Regular firearms | Archery | Special Muzzleloader season[a] | Total | Regular firearms and special muzzleloader seasons | Archery |
| 1974 | 64,997 | 2,176 | - | 67,173 | 21.8 | 6.9 |
| 1975 | 63,604 | 2,265 | - | 65,869 | 19.3 | 6.9 |
| 1976 | 28,613 | 1,167 | - | 29,780 | 10.8 | 5.3 |
| 1977 | 45,918 | 2,609 | 32 | 48,559 | 15.9 | 8.8 |
| 1978 | 47,372 | 2,608 | 346 | 50,326 | 15.4 | 7.9 |
| 1979 | 44,340 | 2,577 | 318 | 47,235 | 14.2 | 7.1 |
| 1980 | 68,539 | 3,641 | 294 | 72,474 | 19.8 | 8.7 |
| 1981 | 93,027 | 5,535 | 385 | 98,947 | 25.1 | 10.9 |
| 1982 | 93,045 | 5,566 | 441 | 99,052 | 25.1 | 10.1 |
| 1983 | 132,457 | 5,977 | 652 | 139,086 | 33.6 | 10.6 |
| 1984 | 132,042 | 6,390 | 532 | 138,941 | 33.0 | 10.3 |
| 1985 | 138,065 | 7,575 | 563 | 146,203 | 33.4 | 11.3 |
| 1986 | 129,770 | 7,610 | 593 | 137,923 | 31.2 | 11.1 |
| 1987 | 135,003 | 7,535 | 535 | 143,073 | 32.4 | 10.9 |
| 1988 | 138,946 | 8,262 | 686 | 148,394 | 33.6 | 12.0 |
| 1989 | 129,551 | 9,307 | 622 | 139,480 | 31.4 | 13.5 |
| 1990 | 166,589 | 11,106 | 730 | 178,425 | 39.4 | 16.1 |
| 1991 | 206,275 | 12,964 | 961 | 220,200 | 46.9 | 17.5 |
| 1992 | 229,236 | 13,004 | 828 | 243,068 | 46.7 | 15.2 |

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

a)




b)

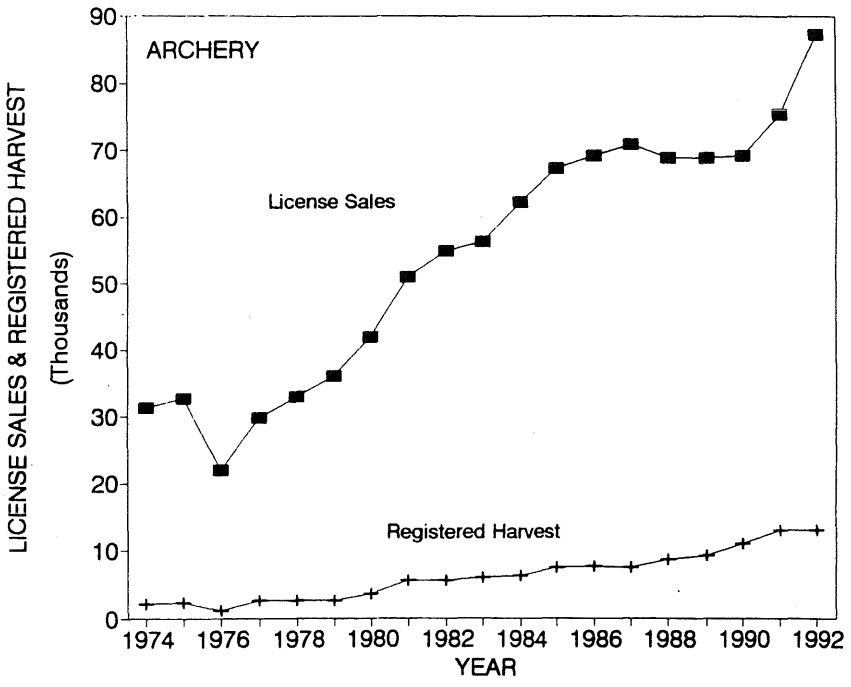



Figure 36. Numbers of Minnesota deer hunting licenses sold and registered harvest by (a) firearm and (b) archery hunters, 1974-92.

Table 48. White-tailed deer harvest and hunter success rates by DMU and Sub-DMU, 1992.

| Unit | Permits Issued | Antlerless Registered | Permit Success | Bucks Registered | Total Reg. Kill |
|---|---|---|---|---|---|
| Red River West | 1056 | 585 | 55.4% | 611 | 1,196 |
| Red River East | 6,951 | 3,991 | 57.4% | 2,933 | 6,924 |
| RED RIVER Total | 8,007 | 4,576 | 57.2% | 3,544 | 8,120 |
| AGASSIZ Total | 12,839 | 5,951 | 46.4% | 4,941 | 10,892 |
| Rainy River West | 1,300 | 685 | 52.7% | 1,877 | 2,562 |
| Rainy River Central | 3,000 | 1,192 | 39.7% | 1,607 | 2,799 |
| Rainy River East | 5,000 | 1,255 | 25.1% | 1,684 | 2,939 |
| RAINY RIVER Total | 9,300 | 3,132 | 33.7% | 5,168 | 8,300 |
| Superior West | 6,000 | 1,482 | 24.7% | 1,852 | 3,334 |
| Superior Wilderness | 0 | 6 | .0% | 158 | 164 |
| Superior Central | 3,350 | 964 | 28.8% | 1,095 | 2,059 |
| Grand Portage I.R. | 0 | 0 | .0% | 5 | 5 |
| Superior East | 1600 | 511 | 31.9% | 664 | 1,175 |
| SUPERIOR Total | 10,950 | 2,963 | 27.1% | 3,774 | 6,737 |
| Itasca NW | 12,850 | 4,780 | 37.2% | 3,677 | 8,457 |
| Itasca SW | 20,500 | 8,414 | 41.0% | 5,030 | 13,444 |
| Itasca NE | 12,000 | 3,468 | 28.9% | 3,810 | 7,278 |
| Itasca SE | 16,000 | 4,621 | 28.9% | 4,207 | 8,828 |
| Leech Lake Ind. Res. | 1,750 | 717 | 41.0% | 1,070 | 1,787 |
| Bemidji | 12,625 | 6,050 | 47.9% | 4,280 | 10,330 |
| ITASCA Total | 75,725 | 28,050 | 36.6% | 22,074 | 50,124 |
| Mille Lacs West | 13,404 | 6,534 | 48.8% | 3,511 | 10,045 |
| Mille Lacs Central | 19,044 | 10,474 | 55.0% | 5,205 | 15,679 |
| Mille Lacs East | 27,973 | 13,320 | 47.6% | 5,950 | 19,270 |
| White Earth Ind. Res. | 500 | 240 | 48.0% | 811 | 1051 |
| MILLE LACS Total | 60,921 | 30,568 | 50.2% | 15,477 | 46,045 |
| Big Woods North | 33,561 | 20,123 | 60.0% | 12,133 | 32,256 |
| Big Woods Central | 13,350 | 6,248 | 46.8% | 4,089 | 10,337 |
| Big Woods Metro N | 3,240 | 1,431 | 44.2% | 1,032 | 2,463 |
| Big Woods Metro S | 2,644 | 1,581 | 59.8% | 1,057 | 2,638 |
| Big Woods SE | 16,368 | 9,672 | 59.1% | 7,119 | 16,791 |
| BIG WOODS Total | 69,163 | 39,055 | 56.5% | 25,430 | 64,485 |
| Prairie North | 8,838 | 5,210 | 59.0% | 3,671 | 8,881 |
| Prairie River | 5,208 | 3,701 | 71.1% | 2,971 | 6,672 |
| Prairie Southwest | 11,555 | 6,954 | 60.2% | 4,028 | 10,982 |
| Prairie Southeast | 5,652 | 3,511 | 62.1% | 2,311 | 5,822 |
| PRAIRIE Total | 31,253 | 19,376 | 62.0% | 12,981 | 32,357 |
| Unknown | 0 | 63 | .0 | 42 | 105 |
| Total | 278,158 | 133,734 | 48.1% | 93,432 | 227,166 |

[a] Includes management permits.

Table 49. Archery deer harvest by county, 1981-92.

| County | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aitkin | 110 | 107 | 94 | 88 | 140 | 130 | 137 | 146 | 184 | 213 | 277 | 165 |
| Anoka | 169 | 147 | 156 | 168 | 258 | 247 | 278 | 288 | 288 | 375 | 464 | 389 |
| Becker | 46 | 52 | 65 | 63 | 67 | 62 | 55 | 88 | 94 | 87 | 108 | 156 |
| Beltrami | 97 | 130 | 109 | 108 | 126 | 101 | 135 | 141 | 120 | 148 | 172 | 189 |
| Benton | 18 | 28 | 29 | 25 | 35 | 36 | 36 | 54 | 43 | 80 | 97 | 54 |
| Big Stone | 38 | 38 | 42 | 56 | 49 | 39 | 32 | 44 | 39 | 49 | 62 | 72 |
| Blue Earth | 80 | 78 | 116 | 94 | 116 | 95 | 123 | 147 | 148 | 177 | 190 | 141 |
| Brown | 46 | 48 | 47 | 50 | 38 | 66 | 60 | 74 | 76 | 92 | 101 | 107 |
| Carlton | 30 | 31 | 20 | 30 | 45 | 22 | 26 | 38 | 30 | 40 | 59 | 30 |
| Carver | 30 | 34 | 49 | 50 | 65 | 53 | 77 | 111 | 132 | 159 | 140 | 160 |
| Cass | 108 | 131 | 118 | 147 | 141 | 151 | 125 | 132 | 172 | 197 | 253 | 216 |
| Chippewa | 138 | 78 | 92 | 90 | 92 | 82 | 84 | 128 | 96 | 133 | 115 | 134 |
| Chisago | 68 | 78 | 95 | 103 | 142 | 135 | 121 | 140 | 161 | 216 | 261 | 351 |
| Clay | 75 | 84 | 94 | 123 | 111 | 132 | 109 | 135 | 147 | 170 | 152 | 284 |
| Clearwater | 21 | 21 | 27 | 20 | 22 | 29 | 30 | 40 | 27 | 27 | 27 | 35 |
| Cook | 12 | 7 | 5 | 9 | 29 | 12 | 8 | 14 | 14 | 17 | 30 | 12 |
| Cottonwood | 87 | 73 | 99 | 54 | 90 | 75 | 70 | 82 | 87 | 100 | 95 | 85 |
| Crow Wing | 123 | 105 | 99 | 156 | 177 | 159 | 165 | 180 | 197 | 254 | 330 | 298 |
| Dakota | 46 | 51 | 64 | 99 | 124 | 167 | 174 | 173 | 180 | 231 | 298 | 311 |
| Dodge | 26 | 22 | 45 | 76 | 52 | 63 | 77 | 80 | 103 | 99 | 93 | 105 |
| Douglas | 64 | 53 | 77 | 68 | 86 | 79 | 72 | 87 | 87 | 124 | 127 | 148 |
| Faribault | 46 | 49 | 57 | 47 | 58 | 73 | 53 | 78 | 66 | 88 | 84 | 59 |
| Fillmore | 50 | 64 | 75 | 81 | 108 | 83 | 109 | 143 | 120 | 174 | 171 | 288 |
| Freeborn | 47 | 34 | 69 | 60 | 61 | 67 | 87 | 99 | 104 | 103 | 95 | 85 |
| Goodhue | 63 | 69 | 71 | 69 | 113 | 112 | 111 | 120 | 123 | 154 | 153 | 189 |
| Grant | 18 | 22 | 27 | 27 | 33 | 26 | 19 | 33 | 44 | 33 | 27 | 41 |
| Hennepin | 69 | 44 | 97 | 78 | 105 | 156 | 176 | 138 | 190 | 217 | 259 | 307 |
| Houston | 55 | 70 | 58 | 67 | 79 | 75 | 92 | 89 | 114 | 123 | 158 | 160 |
| Hubbard | 97 | 130 | 102 | 98 | 126 | 138 | 127 | 129 | 128 | 144 | 187 | 196 |
| Isanti | 83 | 83 | 82 | 83 | 97 | 102 | 82 | 116 | 146 | 161 | 228 | 256 |
| Itasca | 171 | 146 | 113 | 127 | 155 | 169 | 140 | 175 | 169 | 220 | 271 | 132 |
| Jackson | 47 | 44 | 46 | 42 | 59 | 54 | 61 | 74 | 94 | 97 | 120 | 139 |
| Kanabec | 35 | 66 | 51 | 49 | 76 | 61 | 76 | 80 | 131 | 174 | 237 | 144 |
| Kandiyohi | 95 | 96 | 111 | 116 | 108 | 111 | 127 | 168 | 197 | 197 | 222 | 229 |
| Kittson | 12 | 10 | 28 | 32 | 24 | 23 | 47 | 40 | 66 | 95 | 129 | 131 |
| Koochiching | 33 | 18 | 21 | 29 | 20 | 29 | 27 | 31 | 35 | 34 | 60 | 34 |
| Lac Qui Parle | 87 | 82 | 78 | 108 | 141 | 107 | 96 | 122 | 120 | 142 | 144 | 114 |
| Lake | 40 | 46 | 30 | 39 | 50 | 40 | 40 | 54 | 42 | 48 | 67 | 43 |
| Lake of the Woods | 13 | 13 | 14 | 22 | 24 | 22 | 21 | 30 | 31 | 38 | 39 | 35 |
| LeSueur | 38 | 31 | 39 | 52 | 37 | 62 | 42 | 77 | 77 | 78 | 91 | 98 |
| Lincoln | 72 | 56 | 74 | 35 | 68 | 54 | 44 | 69 | 69 | 71 | 76 | 76 |
| Lyon | 94 | 74 | 110 | 72 | 104 | 104 | 82 | 113 | 107 | 102 | 137 | 120 |
| McLeod | 40 | 28 | 2 | 33 | 35 | 55 | 45 | 72 | 74 | 74 | 99 | 85 |
| Mahnomen | 4 | 7 | 5 | 6 | 9 | 8 | 4 | 2 | 12 | 13 | 5 | 6 |
| Marshall | 39 | 45 | 66 | 82 | 79 | 75 | 75 | 70 | 69 | 81 | 122 | 118 |
| Martin | 35 | 38 | 56 | 33 | 41 | 55 | 64 | 64 | 57 | 80 | 72 | 75 |
| Meeker | 44 | 43 | 37 | 54 | 59 | 61 | 76 | 102 | 119 | 129 | 122 | 124 |
| Mille Lacs | 40 | 57 | 35 | 63 | 51 | 40 | 64 | 55 | 70 | 114 | 170 | 119 |
| Morrison[a] | 66 | 158 | 127 | 108 | 114 | 66 | 104 | 118 | 110 | 186 | 220 | 221 |
| Mower | 55 | 42 | 80 | 64 | 113 | 121 | 105 | 123 | 117 | 155 | 138 | 130 |
| Murray | 130 | 83 | 61 | 39 | 90 | 71 | 86 | 88 | 89 | 94 | 85 | 74 |
| Nicollet | 80 | 67 | 65 | 52 | 64 | 88 | 50 | 75 | 105 | 94 | 121 | 104 |
| Nobles | 79 | 33 | 54 | 18 | 43 | 48 | 55 | 55 | 56 | 52 | 50 | 54 |
| Norman | 20 | 34 | 35 | 45 | 43 | 39 | 51 | 47 | 34 | 58 | 62 | 69 |
| Olmsted | 55 | 51 | 85 | 84 | 86 | 108 | 96 | 109 | 117 | 150 | 213 | 297 |

- Continued -

Table 49. Continued.

| County | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ottertail | 133 | 153 | 175 | 178 | 234 | 223 | 237 | 237 | 253 | 302 | 363 | 431 |
| Pennington | 12 | 18 | 15 | 19 | 12 | 19 | 15 | 6 | 9 | 17 | 16 | 13 |
| Pine | 166 | 171 | 134 | 166 | 229 | 186 | 201 | 262 | 330 | 417 | 542 | 305 |
| Pipestone | 40 | 30 | 67 | 1 | 42 | 53 | 55 | 57 | 53 | 52 | 56 | 34 |
| Polk | 50 | 78 | 70 | 102 | 98 | 102 | 110 | 136 | 93 | 118 | 97 | 149 |
| Pope | 49 | 64 | 57 | 56 | 63 | 70 | 67 | 96 | 82 | 105 | 136 | 130 |
| Ramsey | 2 | 1 | 0 | 21 | 14 | 33 | 2 | 6 | 12 | 8 | 17 | 15 |
| Red Lake | 1 | 3 | 4 | 13 | 8 | 6 | 7 | 6 | 11 | 11 | 10 | 14 |
| Redwood | 81 | 63 | 82 | 63 | 72 | 68 | 63 | 75 | 77 | 85 | 93 | 54 |
| Renville | 55 | 63 | 59 | 32 | 62 | 60 | 66 | 61 | 78 | 80 | 71 | 98 |
| Rice | 45 | 51 | 39 | 54 | 56 | 59 | 93 | 77 | 108 | 113 | 117 | 128 |
| Rock | 38 | 31 | 14 | 22 | 51 | 39 | 51 | 44 | 42 | 49 | 43 | 56 |
| Roseau | 77 | 90 | 112 | 98 | 94 | 86 | 81 | 95 | 82 | 103 | 232 | 176 |
| St. Louis | 180 | 149 | 120 | 127 | 180 | 209 | 159 | 197 | 186 | 228 | 236 | 181 |
| Scott | 50 | 37 | 50 | 72 | 87 | 136 | 192 | 134 | 210 | 268 | 327 | 280 |
| Sherburne | 128 | 116 | 113 | 115 | 131 | 128 | 116 | 86 | 145 | 170 | 209 | 157 |
| Sibley | 41 | 30 | 32 | 43 | 43 | 44 | 46 | 46 | 70 | 67 | 91 | 60 |
| Stearns | 134 | 143 | 122 | 159 | 241 | 239 | 226 | 268 | 303 | 410 | 462 | 541 |
| Steele | 19 | 27 | 29 | 30 | 41 | 41 | 46 | 65 | 56 | 65 | 73 | 74 |
| Stevens | 11 | 21 | 27 | 26 | 25 | 20 | 26 | 28 | 19 | 30 | 37 | 35 |
| Swift | 67 | 49 | 67 | 59 | 68 | 67 | 84 | 94 | 96 | 101 | 96 | 99 |
| Todd | 95 | 109 | 103 | 126 | 169 | 141 | 127 | 147 | 162 | 185 | 239 | 223 |
| Traverse | 21 | 13 | 21 | 32 | 22 | 19 | 33 | 32 | 41 | 39 | 31 | 69 |
| Wabasha | 18 | 30 | 61 | 57 | 50 | 61 | 50 | 64 | 87 | 98 | 121 | 115 |
| Wadena | 45 | 69 | 70 | 64 | 43 | 62 | 43 | 60 | 68 | 76 | 92 | 128 |
| Waseca | 46 | 35 | 55 | 42 | 27 | 36 | 42 | 46 | 44 | 61 | 48 | 55 |
| Washington | 75 | 91 | 88 | 154 | 174 | 196 | 189 | 283 | 336 | 431 | 506 | 583 |
| Watonwan | 34 | 30 | 35 | 20 | 39 | 39 | 45 | 39 | 51 | 52 | 57 | 61 |
| Wilkin | 26 | 34 | 39 | 34 | 34 | 32 | 29 | 38 | 26 | 43 | 57 | 83 |
| Winona | 116 | 138 | 117 | 151 | 234 | 196 | 224 | 221 | 254 | 266 | 270 | 331 |
| Wright | 71 | 78 | 83 | 95 | 92 | 115 | 112 | 140 | 209 | 191 | 206 | 357 |
| Yellow Medicine | 47 | 38 | 54 | 47 | 47 | 44 | 49 | 70 | 92 | 79 | 76 | 61 |
| Unknown | 25 | 63 | 23 | 34 | 37 | 70 | 17 | 22 | 14 | 25 | 56 | 103 |
| Camp Ripley | 153 | 129 | 237 | 387 | 278 | 257 | 284 | 241 | 215 | 301 | 219 | 158 |
| Totals | 5535 | 5566 | 5977 | 6390 | 7575 | 7610 | 7715 | 8759 | 9541 | 11106 | 12968[a] | 12993[a] |

[a] Camp Ripley not included.

Table 50. Special Muzzleloader Season harvest by block, 1992. (Includes Special Permit Areas)

| Block Number | Adult | | Fawns | | Total |
|---|---|---|---|---|---|
| | Male | Female | Male | Female | |
| 106 | 0 | 0 | 0 | 1 | 1 |
| 152 | 4 | 6 | 0 | 3 | 13 |
| 157 | 0 | 5 | 2 | 1 | 8 |
| 158 | 0 | 1 | 0 | 0 | 1 |
| 169 | 0 | 5 | 2 | 1 | 8 |
| 172 | 2 | 1 | 0 | 0 | 3 |
| 173 | 0 | 1 | 0 | 0 | 1 |
| 175 | 0 | 2 | 0 | 0 | 2 |
| 179 | 0 | 1 | 0 | 0 | 1 |
| 180 | 1 | 1 | 0 | 0 | 2 |
| 182 | 0 | 1 | 0 | 0 | 1 |
| 201 | 1 | 0 | 2 | 0 | 3 |
| 202 | 1 | 1 | 0 | 1 | 3 |
| 203 | 3 | 0 | 0 | 0 | 3 |
| 204 | 1 | 0 | 0 | 1 | 2 |
| 205 | 0 | 3 | 1 | 0 | 4 |
| 206 | 0 | 2 | 0 | 0 | 2 |
| 211 | 5 | 22 | 3 | 4 | 34 |
| 212 | 1 | 3 | 1 | 1 | 6 |
| 222 | 1 | 0 | 0 | 0 | 1 |
| 225 | 0 | 2 | 0 | 1 | 3 |
| 226 | 1 | 3 | 0 | 1 | 4 |
| 227 | 0 | 1 | 0 | 1 | 2 |
| 235 | 3 | 12 | 6 | 3 | 24 |
| 245 | 12 | 20 | 2 | 4 | 38 |
| 246 | 1 | 0 | 1 | 0 | 2 |
| 341 | 2 | 2 | 0 | 1 | 5 |
| 342 | 0 | 0 | 1 | 1 | 2 |
| 343 | 0 | 1 | 0 | 0 | 1 |
| 344 | 3 | 23 | 15 | 14 | 55 |
| 345 | 0 | 1 | 0 | 0 | 1 |
| 348 | 0 | 1 | 0 | 0 | 1 |
| 349 | 0 | 1 | 0 | 0 | 1 |
| 412 | 0 | 0 | 0 | 1 | 1 |
| 416 | 0 | 1 | 1 | 0 | 2 |
| 417 | 0 | 58 | 21 | 12 | 91 |
| 420 | 2 | 7 | 0 | 2 | 11 |
| 421 | 1 | 1 | 0 | 0 | 2 |
| 424 | 1 | 6 | 4 | 0 | 11 |
| 431 | 8 | 19 | 2 | 7 | 36 |
| 433 | 42 | 114 | 33 | 40 | 229 |
| 435 | 0 | 1 | 1 | 1 | 3 |
| 446 | 0 | 3 | 0 | 0 | 3 |
| 453 | 1 | 1 | 1 | 0 | 3 |
| 454 | 0 | 11 | 4 | 5 | 20 |
| 455 | 2 | 2 | 1 | 0 | 5 |
| 456 | 0 | 0 | 1 | 0 | 1 |
| 458 | 0 | 0 | 0 | 2 | 2 |
| 459 | 2 | 5 | 0 | 3 | 10 |
| 462 | 2 | 17 | 16 | 3 | 38 |
| 465 | 0 | 8 | 5 | 2 | 15 |
| 466 | 0 | 40 | 12 | 13 | 65 |
| 467 | 0 | 23 | 8 | 10 | 41 |
| Total | 103 | 146 | 439 | 140 | 828 |

Table 51. Muzzleloader Special Permit Area Data, 1992.

| Area | Dates | Permits Issued | | Applications | Harvest | | |
|---|---|---|---|---|---|---|---|
| | | Regular | Bonus | | Bucks | Antlerless | Total |
| Carlos Avery WMA | 11/28-12/04 | 20 | 0 | 63 | 1 | 2 | 3 |
| (Sanctuary) | 12/05-12/13 | 20 | 0 | 53 | 2 | 5 | 7 |
| Garvin County Park | 11/28-12/04 | 18[a] | 0 | 18 | | No Data | |
| Nerstrand Woods SP | 11/29-12/02 | 53[a] | 42 | 74 | 1 | 30 | 31 |
| Lake Shetek SP | 11/28-12/04 | 44[a] | 0 | 47 | 0 | 19 | 19 |
| Myre-Big Island SP | 11/28-11/30<br>12/05-12/06 | 54[a] | 50 | 93 | 3 | 64 | 67 |
| Lake Louise SP | 11/28-11/30<br>12/12-12/13 | 26[a] | 20 | 48 | 1 | 41 | 42 |
| Rice Lake SP | 11/28-12/01 | 12[a] | 10 | 12 | 0 | 15 | 15 |
| Sibley SP | 11/28-12/04 | 106[a] | 0 | 158 | 0 | 88 | 88 |

[a] Antlerless - only permits

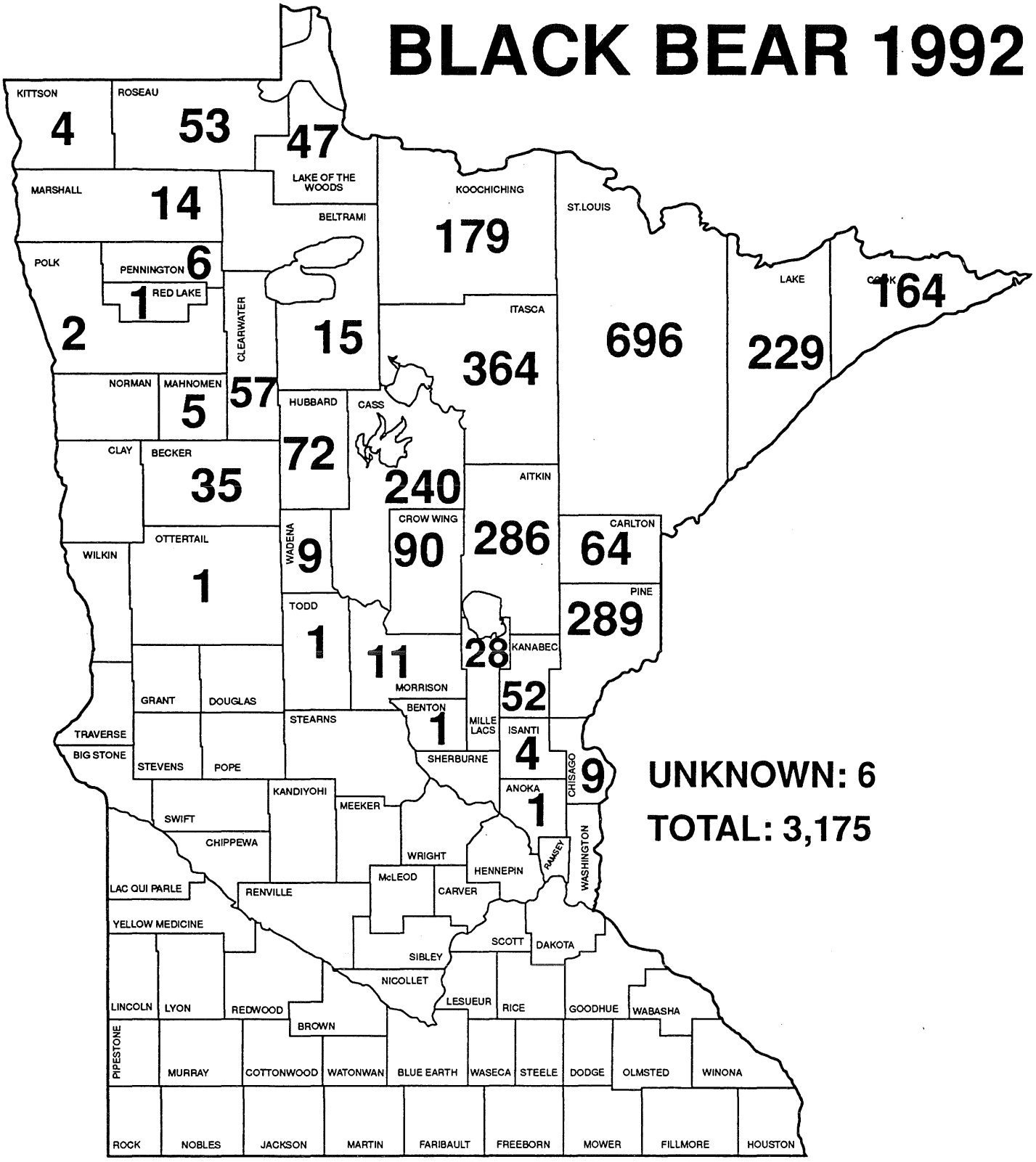



**Figure 37. Black bear registered harvest by county, 1992 season.**

Table 52. Registered bear harvest by county, 1980-1992.

| County | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aitkin | 92 | 128 | 39 | 102 | 96 | 118 | 153 | 149 | 157 | 226 | 271 | 116 | 286 | 2,091 |
| Anoka | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 |
| Becker | 7 | 9 | 1 | 14 | 9 | 10 | 3 | 9 | 8 | 17 | 24 | 14 | 35 | 185 |
| Beltrami | 28 | 79 | 24 | 78 | 60 | 58 | 53 | 55 | 58 | 79 | 112 | 136 | 15 | 921 |
| Benton | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 4 |
| Carlton | 17 | 18 | 3 | 9 | 19 | 34 | 39 | 21 | 28 | 31 | 44 | 34 | 64 | 382 |
| Cass | 69 | 110 | 29 | 93 | 73 | 114 | 89 | 134 | 96 | 173 | 192 | 131 | 240 | 1,651 |
| Chisago | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 3 | 2 | 9 | 23 |
| Clearwater | 3 | 18 | 4 | 8 | 7 | 17 | 12 | 22 | 14 | 25 | 60 | 22 | 57 | 283 |
| Cook | 148 | 79 | 7 | 46 | 30 | 62 | 65 | 98 | 45 | 127 | 120 | 103 | 164 | 1,264 |
| Crow Wing | 9 | 33 | 8 | 26 | 21 | 36 | 22 | 37 | 34 | 47 | 94 | 40 | 90 | 518 |
| Hubbard | 15 | 19 | 11 | 25 | 45 | 41 | 36 | 37 | 30 | 42 | 57 | 55 | 72 | 524 |
| Isanti | 1 | 3 | 0 | 0 | 0 | 1 | 2 | 1 | 0 | 0 | 3 | 1 | 4 | 16 |
| Itasca | 212 | 172 | 50 | 121 | 128 | 170 | 183 | 242 | 179 | 245 | 264 | 324 | 364 | 2,920 |
| Kanabec | 12 | 18 | 8 | 19 | 19 | 18 | 36 | 34 | 52 | 48 | 104 | 27 | 52 | 485 |
| Kittson | 0 | 0 | 0 | 1 | 8 | 0 | 2 | 2 | 7 | 3 | 2 | 2 | 4 | 32 |
| Koochiching | 137 | 149 | 66 | 105 | 89 | 95 | 113 | 126 | 87 | 111 | 129 | 150 | 179 | 1,716 |
| Lake | 74 | 80 | 17 | 42 | 28 | 60 | 79 | 83 | 60 | 119 | 112 | 153 | 229 | 1,254 |
| Lake of the Woods | 30 | 43 | 25 | 32 | 41 | 29 | 32 | 27 | 48 | 51 | 40 | 40 | 47 | 513 |
| Mahnomen | 0 | 1 | 2 | 2 | 5 | 1 | 4 | 2 | 2 | 3 | 6 | 5 | 5 | 41 |
| Marshall | 2 | 3 | 1 | 9 | 17 | 12 | 5 | 14 | 24 | 14 | 21 | 14 | 14 | 151 |
| Mille Lacs | 5 | 12 | 3 | 11 | 11 | 28 | 14 | 16 | 21 | 17 | 22 | 18 | 28 | 218 |
| Morrison | 1 | 1 | 1 | 10 | 5 | 4 | 8 | 11 | 6 | 6 | 10 | 10 | 11 | 91 |
| Ottertail | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 |
| Pennington | 0 | 1 | 0 | 3 | 2 | 1 | 1 | 12 | 4 | 3 | 8 | 5 | 6 | 46 |
| Pine | 62 | 73 | 20 | 55 | 52 | 98 | 113 | 115 | 208 | 157 | 226 | 175 | 289 | 1,732 |

Table 52. Continued.

| County | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Polk | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 7 | 0 | 2 | 12 |
| Red Lake | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 10 |
| Rice | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| Roseau | 18 | 18 | 7 | 23 | 32 | 19 | 28 | 29 | 28 | 36 | 36 | 65 | 53 | 404 |
| St. Louis | 289 | 284 | 64 | 197 | 122 | 302 | 317 | 290 | 305 | 325 | 371 | 483 | 696 | 4,403 |
| Todd | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| Wadena | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 7 | 9 | 24 |
| Unknown | 13 | 4 | 22 | 7 | 0 | 11 | 6 | 5 | 2 | 1 | 5 | 9 | 6 | 104 |
| Total | 1,248 | 1,359 | 412 | 1,038 | 919 | 1,340 | 1,416 | 1,577 | 1,509 | 1,911 | 2,350 | 2,143 | 3,175 | 22,168 |

Table 53. Minnesota bear permits, licenses, hunters, harvests, and success rates during 1981-92.

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Permit applications | --[a] | 9,260 | 13,617 | 17,886 | 22,954 | 20,694 | 19,687 | 25,879 | 24,096 | 24,861 | 25,890 | 26,428 |
| Permits available | -- | 1,960 | 3,550 | 3,880 | 4,290 | 4,730 | 4,810 | 5,310 | 5,520 | 6,370 | 7,140 | 7,920 |
| Licenses purchased: | | | | | | | | | | | | |
| Quota area | -- | 1,921 | 3,471 | 3,489 | 3,948 | 4,188 | 4,213 | 4,297 | 4,628 | 5,568 | 6,257 | 6,845 |
| No-quota area | 11,429 | -- | -- | -- | -- | -- | 1,789 | 1,297 | 1,145 | 1,472 | 1,384 | 1,460 |
| | | | | | | | | | | | | |
| % Permit-holders buying license | -- | 98.0 | 97.8 | 89.9 | 92.0 | 88.5 | 87.6 | 80.9 | 83.8 | 87.4 | 87.6 | 86.4 |
| Estimated number of hunters | 10,700 | 1,800 | 3,100 | 3,100 | 3,700 | 3,900 | 5,500 | 5,100 | 5,400 | 6,500 | 7,100[b] | 7,700[b] |
| Harvest | 1,359 | 392 | 1,038 | 919 | 1,340 | 1,438 | 1,577 | 1,509 | 1,930 | 2,381 | 2,143 | 3,175 |
| % Success rate[c] | 13 | 22 | 33 | 30 | 36 | 37 | 29 | 30 | 36 | 37 | 30 | 41 |

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

[b] No-quota hunters were not surveyed in 1991, so the percent of license-holders hunting in the qutoa areas was used to calculate the total number of hunters. No hunters were surveyed in 1992, so the average percent of license-holders hunting during the past 3 years (93%) was used to estimate the total number of people hunting.

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

Table 54. Success rates of Minnesota bear hunters as measured by registered harvest/licenses sold.

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

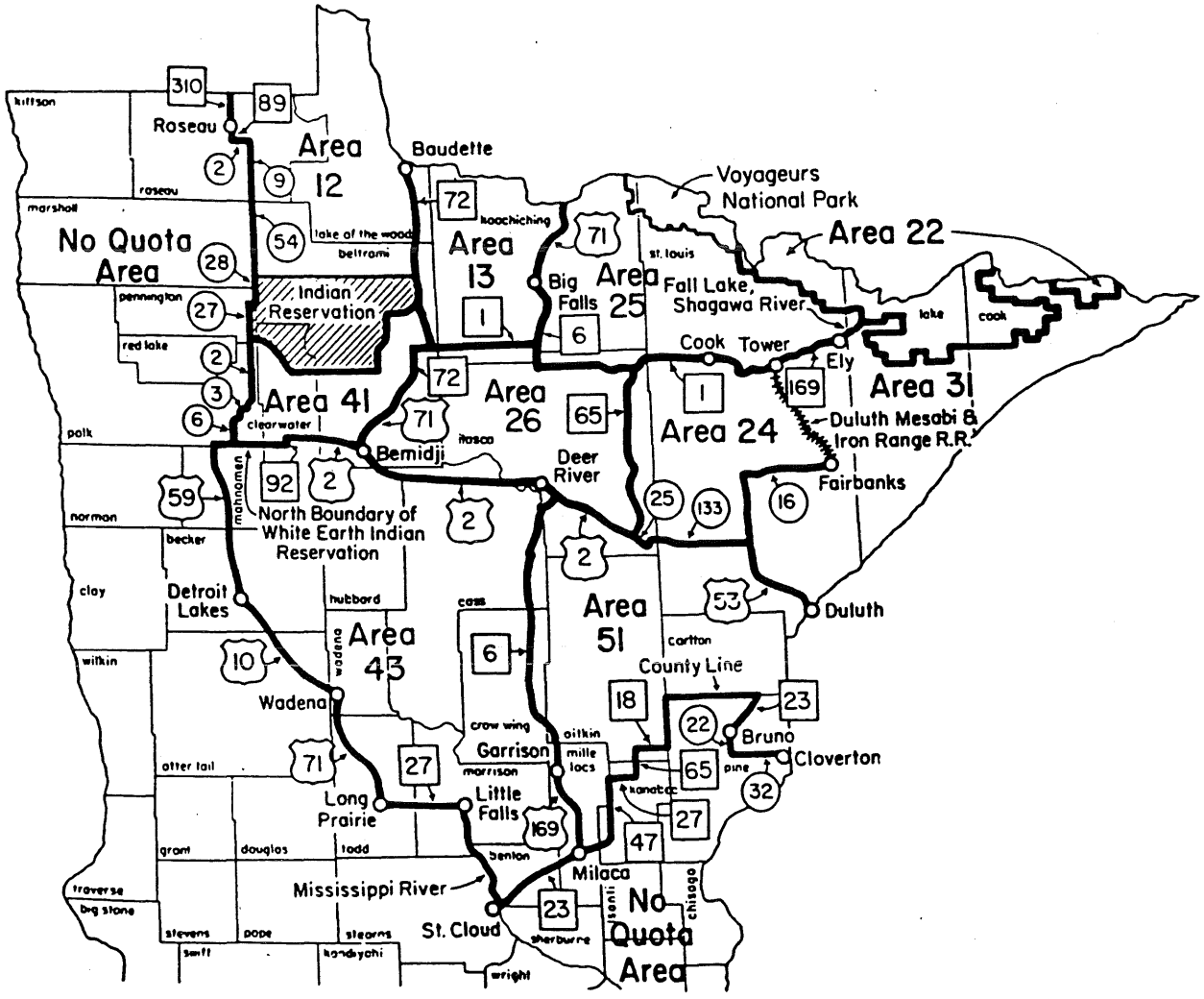



Figure 38. Boundaries of bear management units, 1992.

Table 55. Moose hunt quota and harvest statistics, 1971-91.

| Year | Area | Number of 4-person licenses issued | Number of 4-person license applications | Chances for permit | Harvest | Party Success (%) | Sex of Moose M | Sex of Moose 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 56. Trapper response to mail surveys, 1979-80 through 1992-93.

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

Table 57. Use of trapper licenses, 1979-80 through 1992-93.

| | | Return from mail survey | Projections from license sales |
|---|---|---|---|
| 1979-80 | Trapped | 760 ( 85.6%) | 15,512 |
| | Did not trap | 128 ( 14.4%) | 2,609 |
| | | 888 (100.0%) | 18,121 |
| 1980-81 | Trapped | 918 ( 85.6%) | 20,548 |
| | Did not trap | 154 ( 14.4%) | 3,457 |
| | | 1,072 (100.0%) | 24,005 |
| 1981-82 | Trapped | 972 ( 83.3%) | 19,725 |
| | Did not trap | 195 ( 16.7%) | 3,954 |
| | | 1,167 (100.0%) | 23,679 |
| 1982-83 | Trapped | 688 ( 86.6%) | 17,526 |
| | Did not trap | 106 ( 13.4%) | 2,700 |
| | | 794 (100.0%) | 20,226 |
| 1983-84 | Trapped | 549 ( 82.8%) | 13,862 |
| | Did not trap | 114 ( 17.2%) | 2,879 |
| | | 663 (100.0%) | 16,741 |
| 1984-85 | Trapped | 445 ( 89.9%) | 15,136 |
| | Did not trap | 50 ( 10.1%) | 1,700 |
| | | 495 (100.0%) | 16,836 |
| 1985-86 | Trapped | 420 ( 83.0%) | 12,201 |
| | Did not trap | 86 ( 17.0%) | 2,498 |
| | | 506 (100.0%) | 14,699 |
| 1986-87 | Trapped | 442 ( 86.0%) | 13,240 |
| | Did not trap | 72 ( 14.0%) | 2,155 |
| | | 514 (100.0%) | 15,395 |
| 1987-88 | Trapped | 512 ( 84.6%) | 15,777 |
| | Did not trap | 93 ( 15.4%) | 2,866 |
| | | 605 (100.0%) | 18,643 |
| 1988-89 | Trapped | 582 ( 80.1%) | 9,789 |
| | Did not trap | 145 ( 19.9%) | 2,432 |
| | | 727 (100.0%) | 12,221 |
| 1989-90 | Trapped | 2,251 ( 80.3%) | 7,314 |
| | Did not trap | 553 ( 19.7%) | 1,794 |
| | | 2,804 (100.0%) | 9,108 |
| 1990-91 | Trapped | 1,399 ( 80.6%) | 4,972 |
| | Did not trap | 337 ( 19.4%) | 1,197 |
| | | 1,736 (100.0%) | 6,169[a] |
| 1991-92 | Trapped | 1,639 ( 79.5%) | 4,150 |
| | Did not trap | 423 ( 20.5%) | 1,070 |
| | | 2,062 (100.0%) | 5,220[a] |
| 1992-93 | Trapped | 1,438 ( 85.5%) | 4,927 |
| | Did not trap | 243 ( 14.5%) | 836 |
| | | 1,681 (100.0%) | 5,763[a] |

[a] excludes duplicates.

Table 58. Estimated number of trappers of various furbearers, 1982-83 through 1992-93.

| | Estimated number of trappers (thousands) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1982 -83 | 1983 -84 | 1984 -85 | 1985 -86 | 1986 -87 | 1987 -88 | 1988 -89 | 1989 -90 | 1990 -91 | 1991 -92 | 1992 -93 |
| Muskrat | 12 | 11 | 13 | 9 | 11 | 15 | 7 | 4 | 2 | 2 | 3 |
| Mink | 10 | 8 | 9 | 8 | 9 | 13 | 7 | 5 | 3 | 2 | 3 |
| Short-tailed weasel | 1 | <1 | 1 | <1 | 1 | 1 | 1 | <1 | <1 | <1 | <1 |
| Long-tailed weasel | 1 | <1 | 1 | <1 | 1 | 2 | 1 | 1 | <1 | <1 | <1 |
| Raccoon | 9 | 9 | 9 | 8 | 8 | 11 | 6 | 4 | 2 | 2 | 2 |
| Striped skunk | 5 | 4 | 5 | 4 | 4 | 5 | 3 | 2 | 1 | 1 | 1 |
| Eastern spotted skunk | <1 | 2 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Badger | 1 | 1 | 1 | 1 | 1 | 1 | 1 | <1 | <1 | <1 | <1 |
| Opossum | <1 | <1 | <1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| Red fox | 6 | 6 | 6 | 5 | 5 | 6 | 4 | 2 | 2 | 2 | 2 |
| Gray fox | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | <1 | <1 | <1 |
| Coyote | 2 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| Beaver (fall) | 2 | 4 | 5 | 4 | 6 | 8 | 4 | 3 | 2 | 2 | 2 |
| Beaver (spring) | 3 | 4 | 3 | 4 | 4 | 4 | 2 | 2 | 1 | 1 | 1 |

Table 59. Estimated take per trapper of various furbearers, 1982-83 through 1992-93.

| | Estimated take per trapper reporting that species | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1982 -83 | 1983 -84 | 1984 -85 | 1985 -86 | 1986 -87 | 1987 -88 | 1988 -89 | 1989 -90 | 1990 -91 | 1991 -92 | 1992 -93 |
| Muskrat | 48.4 | 75.8 | 75.1 | 51.8 | 72.9 | 68.7 | 28.3 | 26.5 | 24.3 | 20.3 | 35.9 |
| Mink | 5.6 | 6.8 | 8.0 | 7.6 | 8.7 | 8.5 | 8.9 | 8.8 | 9.5 | 8.3 | 11.6 |
| Short-tailed weasel | 2.2 | 4.6 | 3.5 | 2.6 | 4.2 | 4.7 | 4.2 | 4.6 | 3.2 | 4.3 | 4.9 |
| Long-tailed weasel | 1.6 | 4.0 | 2.1 | 2.0 | 5.2 | 4.4 | 5.0 | 4.6 | 2.8 | 5.2 | 3.6 |
| Raccoon | 6.4 | 7.8 | 8.3 | 11.3 | 11.4 | 11.9 | 12.8 | 11.6 | 15.8 | 14.2 | 16.1 |
| Striped skunk | 6.4 | 8.5 | 9.4 | 10.3 | 10.2 | 10.2 | 10.1 | 9.5 | 11.8 | 9.0 | 8.2 |
| Eastern spotted skunk | 6.7 | 2.5 | 1.4 | 2.5 | 2.5 | 1.8 | 2.0 | 4.8 | 7.3 | 2.7 | 1.6 |
| Badger | 1.7 | 2.1 | 1.6 | 2.1 | 1.7 | 1.9 | 2.0 | 1.8 | 2.4 | 2.2 | 1.8 |
| Opossum | 1.8 | 3.1 | 2.8 | 8.7 | 13.8 | 6.7 | 8.2 | 8.6 | 10.7 | 9.1 | 10.0 |
| Red fox | 6.3 | 6.9 | 9.2 | 6.1 | 7.5 | 8.7 | 13.3 | 10.1 | 18.3 | 13.7 | 10.8 |
| Gray fox | 2.7 | 2.5 | 2.9 | 3.5 | 2.9 | 2.6 | 4.1 | 3.1 | 3.0 | 2.0 | 3.5 |
| Coyote | 3.2 | 4.8 | 5.3 | 4.5 | 3.8 | 3.3 | 3.7 | 4.3 | 3.4 | 3.8 | 4.7 |
| Beaver (fall | 4.4 | 7.3 | 10.0 | 9.8 | 11.5 | 16.3 | 11.2 | 14.6 | 13.2 | 15.1 | 12.5 |
| Beaver (spring) | 25.5 | 25.4 | 30.3 | 21.7 | 21.7 | 22.7 | 14.1 | 19.9 | 18.8 | 26.7 | 28.7 |

Table 60. Minnesota trapper license sales and estimated annual harvest, 1981-82 through 1992-93.[a]

| | 1981-82 | 1982-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | 1990-91 | 1991-92 | 1992-93 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 5,763 |
| Beaver license sales[c] | 6,602 | 1,971 | - | - | - | - | - | - | - | - | - | - |
| Estimated harvest[d] (thousands) | | | | | | | | | | | | |
| Muskrat | 989 | 570 | 865 | 963 | 477 | 826 | 1,007 | 185 | 118 | 55 | 45 | 92 |
| Mink | 76 | 57 | 58 | 75 | 57 | 77 | 110 | 59 | 40 | 25 | 21 | 32 |
| Short-tailed weasel | 3 | 1[e] | 2 | 3 | 1 | 3 | 7 | 3 | 2 | 1 | 1 | 1 |
| Long-tailed weasel | 4 | 1 | 1 | 1 | 1 | 3 | 7 | 3 | 2 | 1 | 1 | 1 |
| Raccoon | 72 | 60 | 69 | 78 | 89 | 95 | 134 | 74 | 41 | 34 | 31 | 34 |
| Striped skunk | 54 | 34 | 36 | 47 | 41 | 42 | 54 | 31 | 17 | 15 | 10 | 7 |
| Eastern spotted skunk | <1 | 1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| Badger | 3 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 1 | 1 | 1 |
| Opossum | 1 | <1 | 2 | 1 | 7 | 14 | 10 | 9 | 6 | 6 | 5 | 6 |
| Red fox | 53 | 41 | 42 | 58 | 29 | 40 | 57 | 53 | 25 | 33 | 25 | 23 |
| Gray fox | 5 | 5 | 5 | 5 | 6 | 6 | 5 | 5 | 2 | 1 | 1 | 1 |
| Coyote | 3 | 5 | 9 | 10 | 7 | 7 | 7 | 3 | 4 | 3 | 3 | 4 |
| Beaver (fall season) | 30 | 24 | 30 | 51 | 43 | 71 | 132 | 47 | 48 | 24 | 25 | 22 |
| Beaver (spring season) | 10 | 76 | 101 | 103 | 92 | 101 | 26 | - | 31 | 20 | 26 | 34 |
| Registered harvest | | | | | | | | | | | | |
| Otter | 485 | 385 | 408 | 529 | 559 | 777 | 1,386 | 922 | 1,294 | 88 | 855 | 1,368 |
| Lynx[f] | 17 | 28 | 9 | closed | closed | closed | closed | closed | closed | closed | closed | closed |
| Bobcat[f] | 260 | 274 | 208 | 280 | 119 | 160 | 214 | 140 | 129 | 84 | 106 | 168 |
| Fisher | 862 | 912 | 631 | 1,289 | 678 | 1,068 | 1,642 | 1,025 | 1,243 | 746 | 528 | 778 |
| Marten | closed | closed | closed | closed | 430 | 798 | 1,363 | 2,072 | 2,119 | 1,349 | 656 | 1,602 |

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

[b] Separate licenses were issued for juveniles (13-17 years old) and adults (18 and older), beginning in 1982. As of August 13, 1993, 5,763 trapping licenses were sold in 1992, 619 (10.7%) were juvenile licenses and 5,144 (89.3%) 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, 1979-80 through 1992-93.

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

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

REGISTERED FURBEARER HARVEST STATISTICS

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

Table 62. Registered furbearer harvests and total permits issued, 1985-92[a].

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

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

[b] Confiscation and 1854 Authority removed.

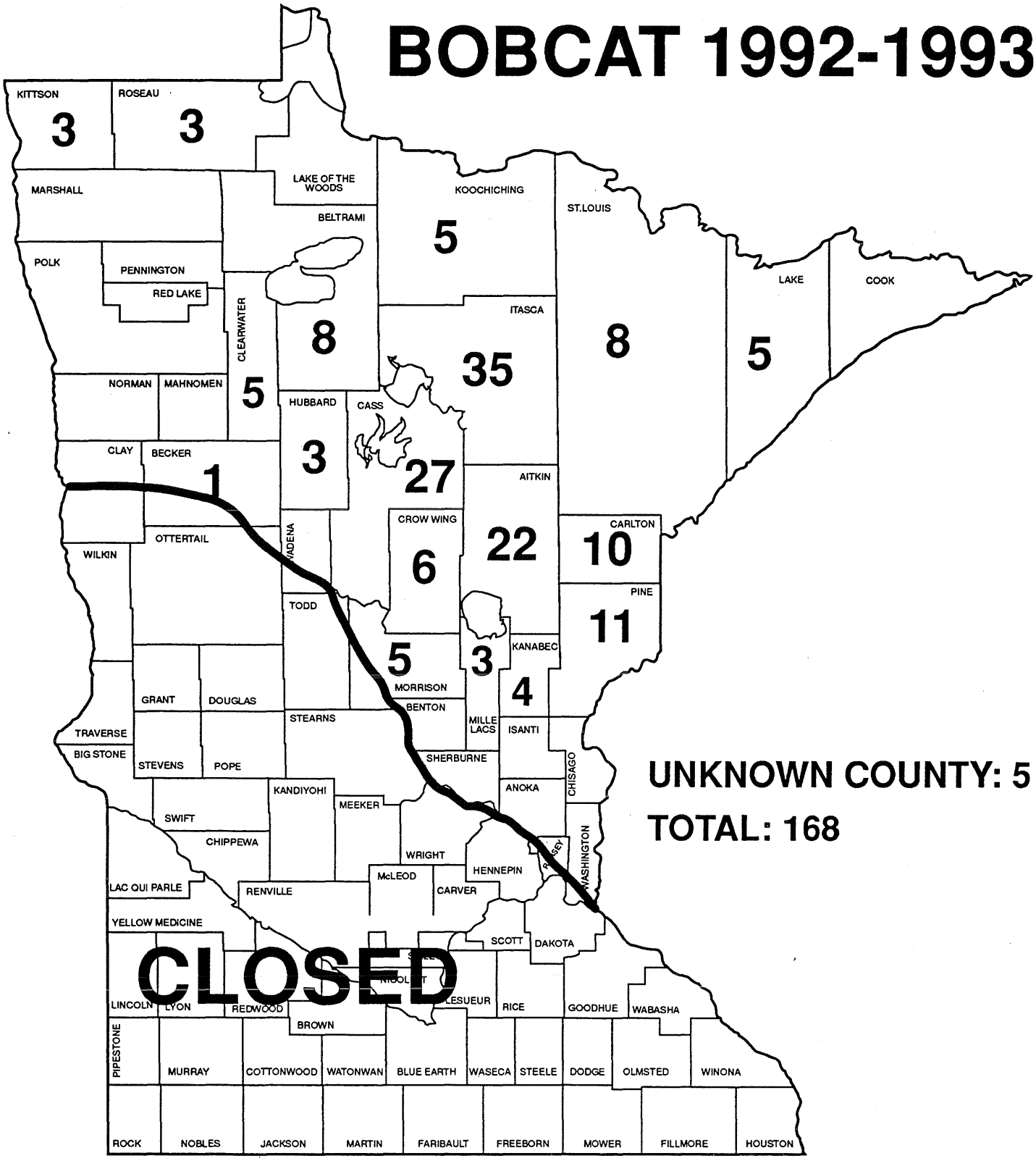



**Figure 39. Bobcat harvest by county, 1992-1993.**

Table 63. Time distribution of bobcat harvest by 5-day increments, 1992-93 season.

| Interval | Sex M | Sex F | Sex U | Total | % of Known Total | Cumulative Percent |
|---|---|---|---|---|---|---|
| Nov. 28-Dec. 2 | 6 | 12 | 2 | 20 | 12.0 | 12.0 |
| Dec. 3-7 | 12 | 16 | 11 | 39 | 24.0 | 36.0 |
| Dec. 8-12 | 11 | 10 | 2 | 23 | 14.0 | 50.0 |
| Dec. 13-17 | 9 | 7 | 2 | 18 | 11.0 | 61.0 |
| Dec. 18-22 | 11 | 11 | 2 | 24 | 15.0 | 76.0 |
| Dec. 23-27 | 4 | 9 | 3 | 16 | 10.0 | 86.0 |
| Dec. 28-Jan. 1 | 5 | 7 | 1 | 13 | 8.0 | 94.0 |
| Jan. 2-3* | 3 | 4 | 2 | 9 | 6.0 | 100.0 |
| Unknown | - | 3 | 3 | 6 | - | - |
| Total | 61 | 79 | 28 | 168 | 100.0 | 100.0 |

* 2-day interval

Table 64. Distribution of bobcat harvest among takers, 1983-84 thru 1992-93.

| Number of Takers | Number Taken (# (%)) | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | Total |
| 1983-84 | 108 (72.0) | 32 (21.3) | 6 ( 4.0) | 4 ( 2.7) | 0 ( 0.0) | 150 |
| 1984-85 | 116 (65.2) | 39 (21.9) | 13 ( 7.3) | 9 ( 5.1) | 1 ( 0.5) | 178 |
| 1985-86 | 70 (78.7) | 11 (12.4) | 6 ( 6.7) | 1 ( 1.1) | 1 ( 1.1) | 89 |
| 1986-87 | 92 (76.7) | 18 (15.0) | 9 ( 7.5) | 0 ( 0.0) | 1 ( 0.8) | 120 |
| 1987-88 | 104 (71.7) | 23 (15.9) | 10 ( 6.9) | 6 ( 4.1) | 2 ( 1.4) | 145 |
| 1988-89 | 88 (81.5) | 11 (10.2) | 7 ( 6.5) | 1 ( 0.9) | 1 ( 0.9) | 108 |
| 1989-90 | 56 (69.1) | 13 (16.0) | 5 ( 6.2) | 3 ( 3.7) | 4 ( 4.9) | 81 |
| 1990-91 | 47 (77.0) | 9 (14.7) | 1 ( 1.6) | 4 ( 6.5) | 0 ( 0.0) | 61 |
| 1991-92 | 42 (63.6) | 15 (22.7) | 4 ( 6.1) | 3 ( 4.5) | 2 ( 3.0) | 66 |
| 1992-93 | 69 (64) | 21 (20) | 9 (9) | 5 (5) | 2 (2) | 106 |
| Total | 792 (71.7) | 192 (17.4) | 70 ( 6.3) | 36 ( 3.3) | 14 ( 1.3) | 1104 |

Table 65. Bobcat harvest by method of take, 1979-1992.

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

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

Table 66. Comparison of bobcat harvest by county, 1981-82 through 1992-93.

| County | 1982-83 | 1983-84 | 1984-85 | 1985-86 | 1986-87 | 1987-88 | 1988-89 | 1989-90 | 1990-91 | 1991-92 | 1992-93 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Aitkin | 28 | 20 | 25 | 14 | 12 | 25 | 18 | 31 | 4 | 3 | 22 |
| Becker | 6 | 8 | 9 | 1 | 1 | 3 | 2 | 1 | 3 | 5 | 1 |
| Beltrami | 18 | 17 | 24 | 5 | 7 | 15 | 7 | 8 | 4 | 6 | 8 |
| Benton | | | | | | | | | | 1 | 0 |
| Carlton | 15 | 4 | 20 | 6 | 9 | 9 | 4 | 1 | 1 | 2 | 10 |
| Cass | 30 | 13 | 42 | 20 | 34 | 28 | 13 | 27 | 11 | 14 | 27 |
| Chisago | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Clearwater | 1 | 1 | 0 | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 5 |
| Cook | 2 | 0 | 1 | 0 | 1 | 2 | 4 | 2 | 3 | 0 | 0 |
| Crow Wing | 4 | 4 | 5 | 6 | 5 | 1 | 2 | 0 | 5 | 4 | 6 |
| Douglas | 0 | 0 | 0 | 0 | Closed | Closed | Closed | Closed | Closed | Closed | Closed |
| Hubbard | 4 | 1 | 1 | 0 | 0 | 2 | 3 | 1 | 1 | 3 | 3 |
| Isanti | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| Itasca | 46 | 36 | 50 | 15 | 28 | 44 | 20 | 19 | 11 | 16 | 35 |
| Kanabec | 2 | 2 | 6 | 2 | 3 | 0 | 1 | 6 | 1 | 0 | 4 |
| Kittson | 5 | 3 | 0 | 0 | 3 | 6 | 2 | 0 | 3 | 3 | 3 |
| Koochiching | 3 | 12 | 8 | 8 | 6 | 9 | 13 | 1 | 0 | 5 | 5 |
| Lake | 8 | 3 | 1 | 1 | 3 | 4 | 2 | 1 | 0 | 1 | 5 |
| Lake of the Woods | 3 | 1 | 1 | 1 | 0 | 2 | 4 | 0 | 0 | 0 | 0 |
| Marshall | 2 | 3 | 1 | 1 | 3 | 4 | 0 | 0 | 1 | 5 | 0 |
| Mille Lacs | 0 | 6 | 0 | 4 | 3 | 8 | 2 | 0 | 3 | 7 | 3 |
| Morrison | 5 | 7 | 5 | 4 | 4 | 4 | 2 | 2 | 2 | 2 | 5 |
| Ottertail | 2 | 1 | 1 | 3 | 2 | 1 | 2 | 1 | 0 | 1 | 0 |
| Pennington | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pine | 29 | 24 | 29 | 14 | 11 | 15 | 23 | 15 | 18 | 16 | 11 |
| Polk | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Red Lake | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Renville | 0 | 0 | 1 | 0 | Closed | Closed | Closed | Closed | Closed | Closed | Closed |
| Roseau | 9 | 9 | 14 | 2 | 2 | 2 | 2 | 0 | 2 | 1 | 3 |
| St. Louis | 59 | 32 | 43 | 8 | 19 | 26 | 10 | 7 | 8 | 3 | 8 |
| Wadena | 0 | 1 | 1 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 0 |
| Unknown | 1 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 1 | 6 | 5 |
| Total | 274 | 208 | 280 | 119 | 160 | 214 | 140 | 129 | 84 | 106 | 168 |

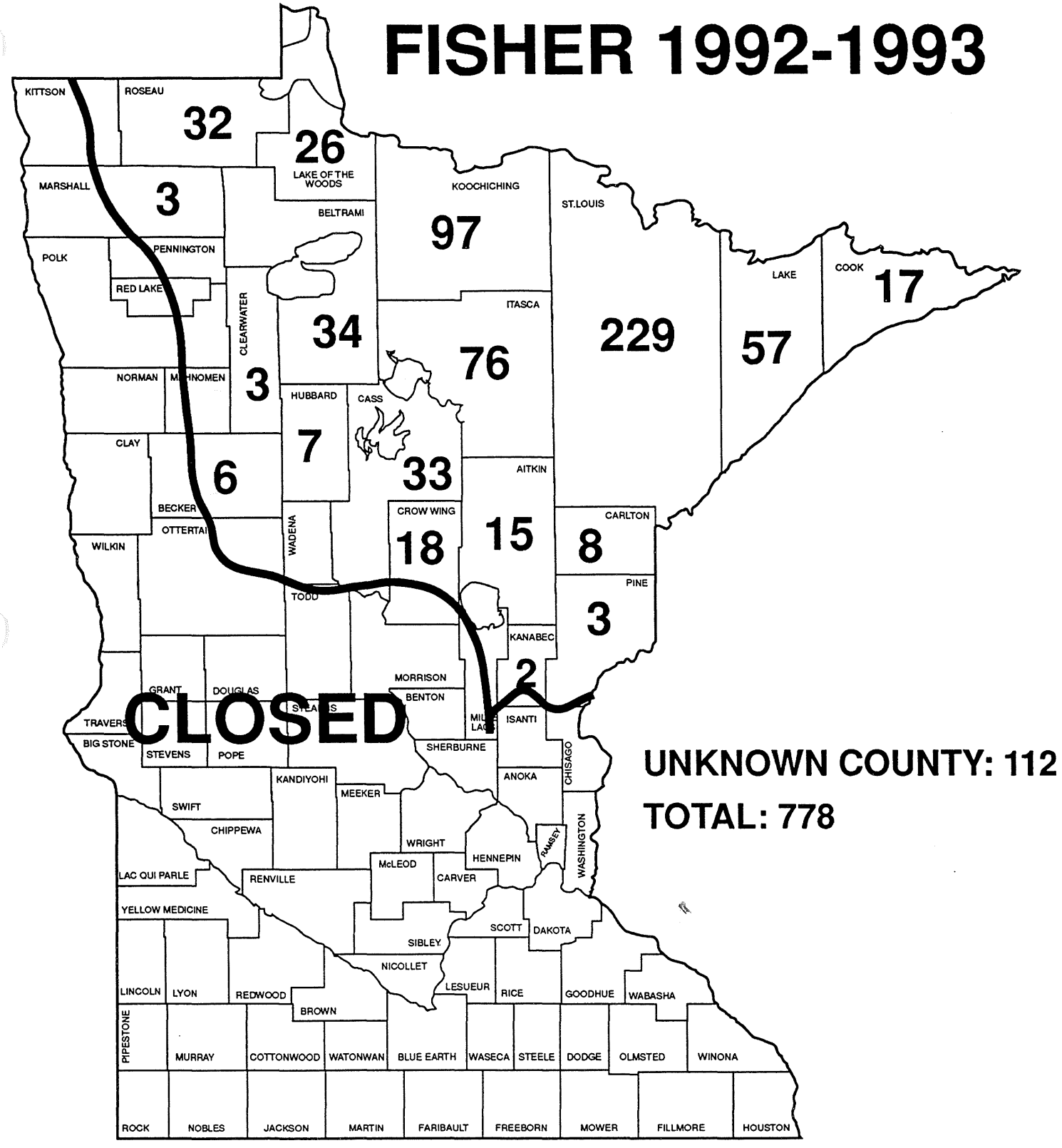



**Figure 40. Fisher harvest by county, 1992-1993.**

Table 67. Fisher harvest by date and sex, 1992-93 season.

| Date | Sex | | | Total | % of known Total | Cumulative Percent |
|---|---|---|---|---|---|---|
| | Male | Female | Unknown | | | |
| Nov. 28 | 2 | 2 | 0 | 4 | 1.0 | 1.0 |
| Nov. 29 | 16 | 19 | 1 | 36 | 5.0 | 6.0 |
| Nov. 30 | 16 | 20 | 1 | 37 | 6.0 | 12.0 |
| Dec. 1 | 20 | 23 | 2 | 45 | 7.0 | 19.0 |
| Dec. 2 | 24 | 27 | 5 | 56 | 9.0 | 28.0 |
| Dec. 3 | 25 | 25 | 3 | 53 | 8.0 | 36.0 |
| Dec. 4 | 15 | 25 | 4 | 44 | 7.0 | 43.0 |
| Dec. 5 | 33 | 33 | 5 | 71 | 11.0 | 54.0 |
| Dec. 6 | 25 | 23 | 4 | 52 | 8.0 | 62.0 |
| Dec. 7 | 13 | 27 | 1 | 41 | 6.0 | 68.0 |
| Dec. 8 | 12 | 16 | 3 | 31 | 5.0 | 73.0 |
| Dec. 9 | 13 | 10 | 3 | 26 | 4.0 | 77.0 |
| Dec. 10 | 13 | 12 | 3 | 28 | 4.0 | 81.0 |
| Dec. 11 | 18 | 10 | 2 | 30 | 5.0 | 86.0 |
| Dec. 12 | 31 | 25 | 3 | 59 | 9.0 | 95.0 |
| Dec. 13 | 15 | 16 | 0 | 31 | 5.0 | 100.0 |
| Unknown | 47 | 64 | 23 | 134 | -- | -- |
| Total | 338 | 377 | 63 | 778 | 100 | 100 |

Table 68. Fisher harvest by county and sex, 1992-93 season.

| County | Sex | | | Total |
|---|---|---|---|---|
| | Male | Female | Unknown | |
| Aitkin | 7 | 4 | 4 | 15 |
| Becker | 2 | 4 | 0 | 6 |
| Beltrami | 13 | 21 | 0 | 34 |
| Carlton | 6 | 2 | 0 | 8 |
| Cass | 19 | 14 | 0 | 33 |
| Clearwater | 3 | 0 | 0 | 3 |
| Cook | 9 | 8 | 0 | 17 |
| Crow Wing | 12 | 5 | 1 | 18 |
| Hubbard | 3 | 4 | 0 | 7 |
| Itasca | 20 | 21 | 35 | 76 |
| Kanabec | 2 | 0 | 0 | 2 |
| Koochiching | 53 | 43 | 1 | 97 |
| Lake | 28 | 29 | 0 | 57 |
| Lake of the Woods | 8 | 18 | 0 | 26 |
| Marshall | 2 | 1 | 0 | 3 |
| Pine | 0 | 3 | 0 | 3 |
| Roseau | 16 | 16 | 0 | 32 |
| St. Louis | 101 | 127 | 1 | 229 |
| Unknown | 41 | 61 | 10 | 112 |
| Total | 345 | 381 | 52 | 778 |

Table 69. Comparison of fisher harvest by county, 1982-92.

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

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

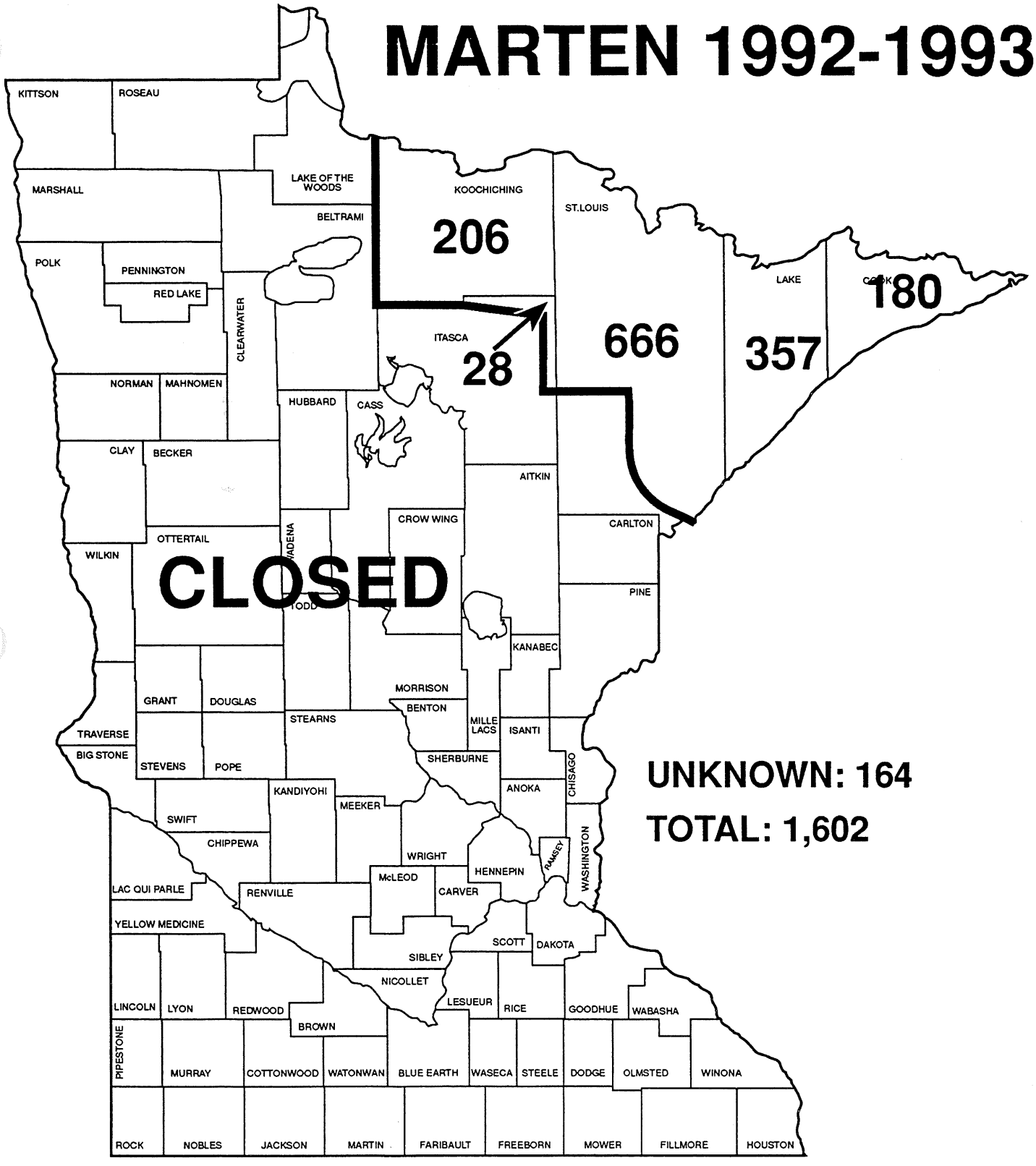



**Figure 41. Pine marten harvest by county, 1992-1993.**

Table 70. Marten harvest by date and sex, 1992-93 season.

| Date | Sex | | | Total | % of Known Total | Cumulative Percent |
|---|---|---|---|---|---|---|
| | Male | Female | Unknown | | | |
| Nov. 28 | 4 | 4 | 0 | 8 | 1 | 1 |
| Nov. 29 | 130 | 25 | 0 | 155 | 11 | 12 |
| Nov. 30 | 110 | 37 | 1 | 148 | 11 | 23 |
| Dec. 1 | 100 | 32 | 1 | 133 | 9 | 32 |
| Dec. 2 | 89 | 37 | 3 | 129 | 9 | 41 |
| Dec. 3 | 58 | 26 | 1 | 85 | 6 | 47 |
| Dec. 4 | 62 | 30 | 1 | 93 | 7 | 54 |
| Dec. 5 | 101 | 43 | 6 | 150 | 11 | 65 |
| Dec. 6 | 77 | 38 | 0 | 115 | 8 | 73 |
| Dec. 7 | 57 | 15 | 0 | 72 | 5 | 78 |
| Dec. 8 | 36 | 20 | 1 | 57 | 4 | 82 |
| Dec. 9 | 48 | 26 | 0 | 74 | 5 | 87 |
| Dec. 10 | 25 | 14 | 1 | 40 | 3 | 90 |
| Dec. 11 | 24 | 9 | 1 | 34 | 2 | 92 |
| Dec. 12 | 47 | 39 | 2 | 88 | 6 | 98 |
| Dec. 13 | 11 | 14 | 0 | 25 | 2 | 100 |
| Unknown | 51 | 29 | 116 | 196 | - | - |
| Total | 1,030 | 438 | 134 | 1,602 | 100 | 100 |

Table 71. Marten harvest by county and sex, 1992-93 season.

| County | Sex | | | Total |
|---|---|---|---|---|
| | Male | Female | Unknown | |
| Beltrami | 1 | 0 | 0 | 1 |
| Cook | 128 | 52 | 0 | 180 |
| Itasca | 14 | 9 | 5 | 28 |
| Koochiching | 145 | 59 | 2 | 206 |
| Lake | 270 | 86 | 1 | 357 |
| St. Louis | 444 | 210 | 12 | 666 |
| Unknown | 28 | 22 | 114 | 164 |
| Total | 1,030 | 438 | 134 | 1,602 |

Table 72. Comparison of marten harvest by county, 1986-92.[a]

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

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

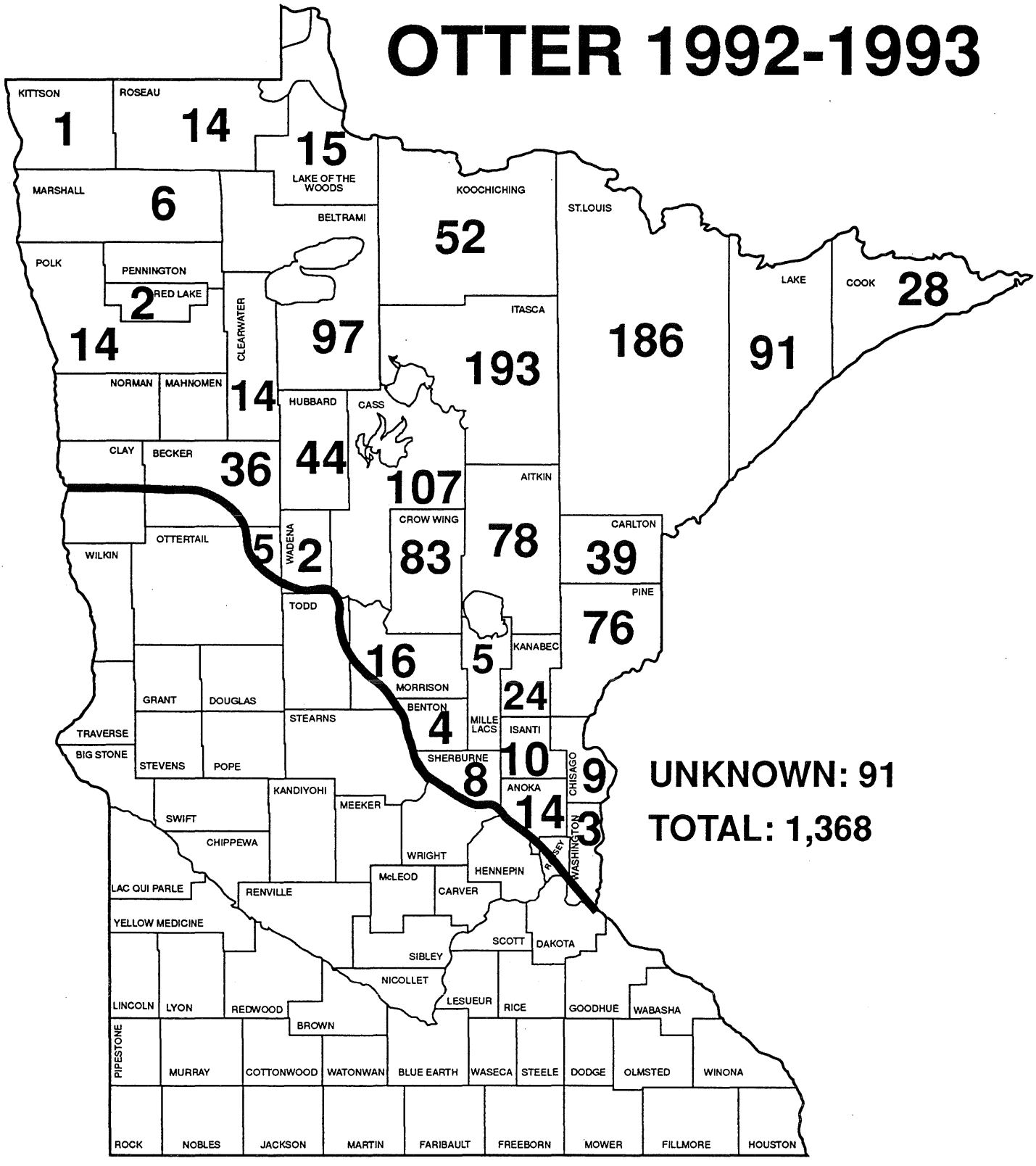



**Figure 42. Otter harvest by county, 1992-1993.**

Table 73. Otter harvest by 5-day interval and sex, 1992-93 season.

| Interval | Sex | | | Total | % of Known Total | Cumulative Percent |
|---|---|---|---|---|---|---|
| | Male | Female | Unknown | | | |
| Oct. 24-28 | 53 | 19 | 3 | 75 | 6 | 6 |
| Oct. 29-Nov. 2 | 67 | 52 | 15 | 134 | 11 | 17 |
| Nov. 3-7 | 73 | 84 | 14 | 171 | 14 | 31 |
| Nov. 8-12 | 75 | 41 | 4 | 120 | 10 | 41 |
| Nov. 13-17 | 56 | 40 | 6 | 102 | 9 | 50 |
| Nov. 18-22 | 51 | 34 | 3 | 88 | 7 | 57 |
| Nov. 23-27 | 34 | 34 | 8 | 76 | 6 | 63 |
| Nov. 28-Dec. 2 | 63 | 54 | 1 | 118 | 10 | 73 |
| Dec. 3-7 | 47 | 36 | 8 | 91 | 8 | 81 |
| Dec. 8-12 | 36 | 25 | 9 | 70 | 6 | 87 |
| Dec. 13-17 | 34 | 21 | 8 | 63 | 5 | 92 |
| Dec. 18-22 | 20 | 21 | 0 | 41 | 3 | 95 |
| Dec. 23-27 | 8 | 10 | 3 | 21 | 2 | 97 |
| Dec. 28-Jan. 1 | 17 | 6 | 1 | 24 | 2 | 99 |
| Jan. 2-3[a] | 7 | 2 | 0 | 9 | 1 | 100 |
| Unknown | 55 | 37 | 73 | 165 | - | - |
| Total | 696 | 516 | 156 | 1,368 | 100 | 100 |

[a] 2-day interval.

Table 74. Otter harvest by county and sex, 1992-93 season.

| County | Sex | | | Total |
|---|---|---|---|---|
| | Male | Female | Unknown | |
| Aitkin | 47 | 28 | 3 | 78 |
| Anoka | 7 | 7 | 0 | 14 |
| Becker | 22 | 14 | 0 | 36 |
| Beltrami | 55 | 42 | 0 | 97 |
| Benton | 3 | 1 | 0 | 4 |
| Carlton | 26 | 13 | 0 | 39 |
| Cass | 54 | 44 | 9 | 107 |
| Chisago | 9 | 0 | 0 | 9 |
| Clearwater | 9 | 5 | 0 | 14 |
| Cook | 19 | 9 | 0 | 28 |
| Crow Wing | 43 | 40 | 0 | 83 |
| Hubbard | 25 | 18 | 1 | 44 |
| Isanti | 7 | 3 | 0 | 10 |
| Itasca | 60 | 50 | 83 | 193 |
| Kanabec | 13 | 11 | 0 | 24 |
| Kittson | 1 | 0 | 0 | 1 |
| Koochiching | 28 | 24 | 0 | 52 |
| Lake | 47 | 40 | 4 | 91 |
| Lake of the Woods | 11 | 4 | 0 | 15 |
| Marshall | 2 | 4 | 0 | 6 |
| Mille Lacs | 3 | 2 | 0 | 5 |
| Morrison | 8 | 8 | 0 | 16 |
| Ottertail | 2 | 3 | 0 | 5 |
| Pine | 32 | 42 | 0 | 76 |
| Polk | 9 | 5 | 0 | 14 |
| Red Lake | 0 | 2 | 0 | 2 |
| Roseau | 8 | 6 | 0 | 14 |
| St. Louis | 108 | 75 | 4 | 187 |
| Sherburne | 5 | 3 | 0 | 8 |
| Wadena | 1 | 1 | 0 | 2 |
| Washington | 1 | 0 | 2 | 3 |
| Unknown | 15 | 10 | 66 | 91 |
| Total | 680 | 516 | 172 | 1,368 |

Table 75. Comparison of otter harvest by county, 1982-1992.

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