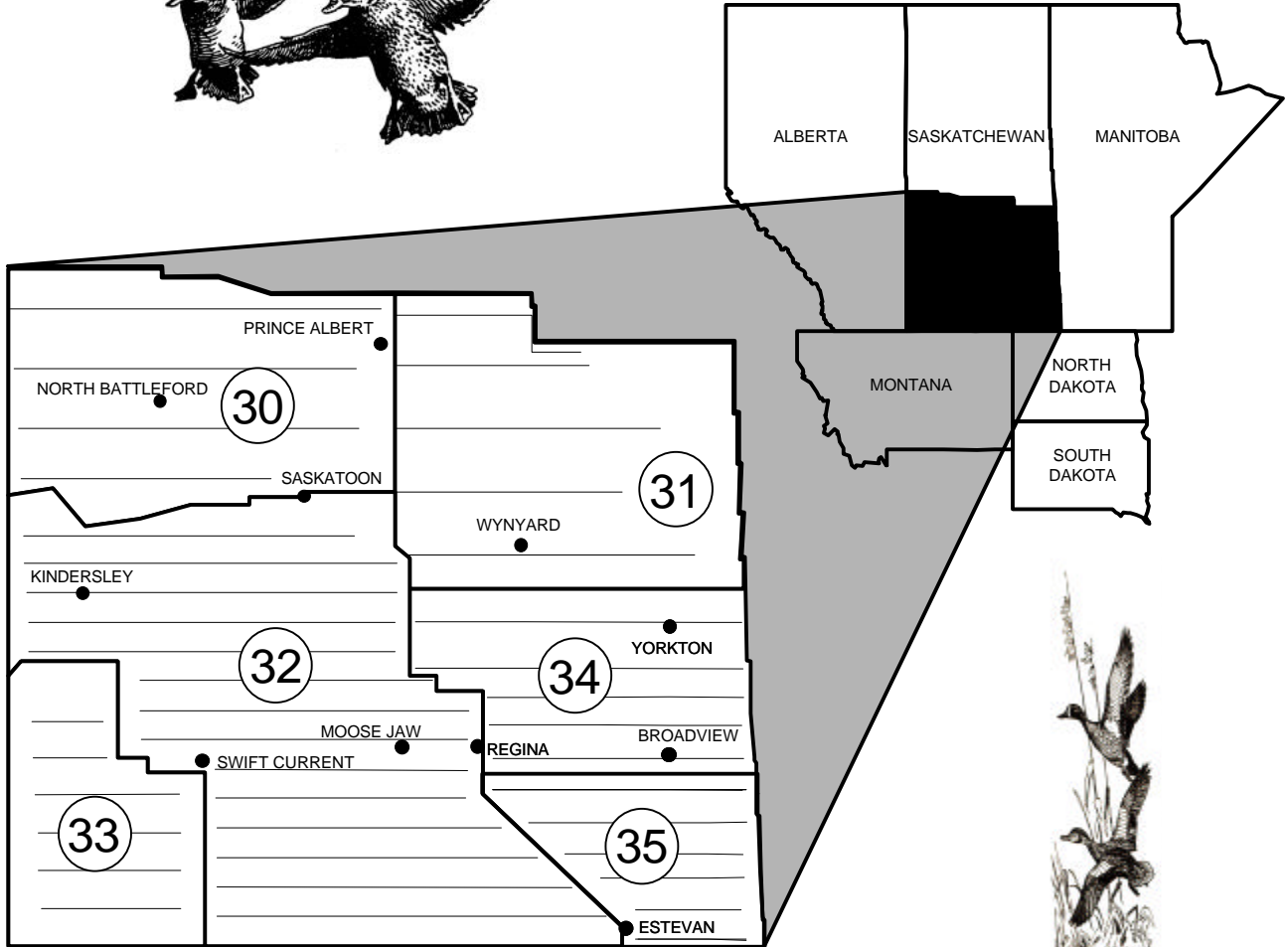
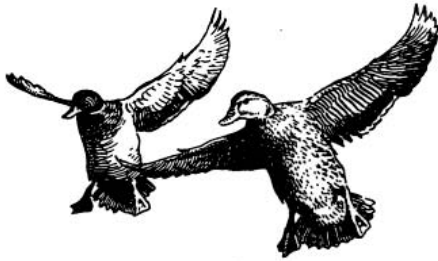


WATERFOWL BREEDING POPULATION SURVEY

SOUTHERN SASKATCHEWAN

2004



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

AND

ENVIRONMENT CANADA
CANADIAN WILDLIFE SERVICE



TITLE: Waterfowl Breeding Population Survey for Southern Saskatchewan
STRATA SURVEYED: 30, 31, 32, 33, 34, and 35
DATES: May 6 – May 28, 2004
DATA SUPPLIED BY: United States Fish and Wildlife Service (USFWS)
Canadian Wildlife Service (CWS)

Strata 30, 31, 32, and 33

Aerial Crew

Pilot/Observer Philip Thorpe, Flyway Biologist, USFWS
Observer Thomas Lewis, Wildlife Biologist, USFWS

Ground Crew

Crew Leaders: Dan Nieman, Wildlife Biologist, CWS
Jack Smith, Wildlife Technician, CWS
Keith Warner, Wildlife Technician, CWS

Assistants:

Kevin Dufour, Wildlife Biologist, CWS
Kelly Cochrane, Student Technician, CWS
Phyllis Nieman, Volunteer, CWS
Chad Wilkinson, Student Technician, CWS
Amanda Williams, Contractor, Ducks Unlimited Canada

Strata 34 and 35

Aerial Crew

Pilot/Observer: Rod King, Flyway Biologist, USFWS
Observer: Chris Reighn, Wildlife Biologist, USFWS

Ground Crew

Crew

Crew Leaders: Dale Caswell, Chief - Waterfowl Mgmt. Division, CWS
Marc Schuster, Wildlife Technician, CWS
Pat Rakowski, Wildlife Biologist, CWS
Jim Leafloor, Wildlife Biologist, CWS
Cory Lindgren, Contractor, Ducks Unlimited Canada

Assistants:

Nathan Wiebe, Student Technician, CWS
Cameron Meuckon, Student Technician, CWS
Jason Caswell, Student Technician, CWS
Frank Baldwin Jr., Student Technician, CWS

ABSTRACT: The 2004 Waterfowl Breeding Population and Habitat Survey of Southern Saskatchewan was conducted 6-28 May and was consistent in design and coverage to previous year's surveys. Although Southern Saskatchewan received above average precipitation over the winter, a dry, warm, and windy April and several years of drought resulted in poor runoff and left wetland habitat in only marginal condition for arriving waterfowl. The May pond estimate was 31.8% lower than the 2003 estimate, 30.3% lower than the 10-year mean, and 25.6% lower than the long-term mean. The total duck population estimate (5,786,400) was 37.8%, 25.4%, and 21.5% lower than the 2003 estimate, the 10-year mean, and the long-term mean, respectively. Percent changes for selected species compared to 2003, the 10-year mean, and the long-term mean are as follows: mallards, -23.7%, -19.5%, -22.9%; blue-winged teal, -39.8%, -24.4%, -4.7%; northern pintail, -52.3%, -32.5%, -61.8%; canvasbacks, -37.9%, -44.9%, -34.3%; scaup (greater and lesser), -26.5%, -45.6%, -56.2%. Fair production is expected from the majority of the survey area, except in the western portions of stratum 32 and southern half of stratum 30, where poor production is expected due to poor wetland and upland habitat conditions.

METHODS: The procedures used in conducting this year's annual survey are described in the Standard Operating Procedures for Aerial Waterfowl Breeding Population and Habitat Surveys in North America, Section III (A), (revised 1987). No changes were made this year in survey methodology or aerial coverage (Table 1).

A survey program (written by John I. Hodges, USFWS-Alaska) provided the basis for recording observations and transcribing data into electronic format. This software integrates point locations {from the aircraft Global Positioning System unit (GPS)} with each bird or pond observation (See Thorpe 2000 for a more detailed description of the survey program).

Air-ground comparison transects (35 in strata 30-33; 16 in strata 34-35) were used to provide visibility correction factors for waterfowl, American coot, and pond numbers. The following 9 air-grounds were not completed by the ground crew because of a lack of funding: Cabri Lake, Elfros, Environ, Grand Coulee, Gravelbourg, Hendon, Kincaid, Neidpath, and Waldheim. In addition, Hanley, Lawson, Midnight Lake, and Peterson air-grounds were shortened from 11 miles to 9 miles, 18 miles to 10 miles, 17 miles to 11 miles, and 18 miles to 8 miles, respectively. All air-grounds were completed in strata 34 and 35.

The aircrew in strata 30-33 remained the same as 2003; however, a new observer was used in strata 34-35. Personnel changes were also made in both ground crews (i.e., 3 new crew members in 30-33 and 1 new crew member in 34-35), but crew leaders remained the same. All new personnel were provided initial training in duck identification, pond classification, and survey procedures and all were closely monitored for accuracy in identification and compliance with established procedures throughout the survey.

The survey was initiated 6 May and was completed 28 May. Two Cessna 206s (1 on amphibian floats in strata 34-35) were used as survey aircraft in all strata. Approximately 87 and 22 hours of flight time were required to complete the survey within strata 30-33 and strata 34-35, respectively. Weather and ground crew related delays amounted to 4 days and 3 days in strata 30-33 and strata 34-35, respectively.

WEATHER AND HABITAT CONDITIONS:

Above average fall and winter temperatures, combined with low soil moisture, resulted in a poor frost seal during the winter. As a result, the majority of the grainbelt had poor run-off despite the fact that some areas in the south received record snowfall during the winter (Saskatchewan Watershed Authority 2004). Most of the moisture was absorbed into the ground and very little remained on the surface as ephemeral or temporary wetlands (i.e., sheetwater) for migrating and breeding waterfowl to use. The long-term drought across the survey area has also impacted upland habitat and much of the survey area's nesting cover was in poor condition during the survey.

Fall (September – October) precipitation was average across most of the survey area except for areas of below average precipitation in the northeast and southeast grainbelt and areas of above average precipitation in the northwest and southwest grainbelt (Agriculture and Agri-food Canada 2004). Winter (November – March) precipitation was average in the northeast and central grainbelt, above average in the south-central grasslands, and below to well below average in the western grainbelt and in central areas of the eastern Parklands.

Reports indicate that the period between April and June had above average precipitation and below average temperatures; however, April was drier and warmer than average and strong winds (>30 kph) were recorded on 27 days during the month. May began like April, but by mid-month the weather pattern changed. A snowstorm moved across the southern grasslands and dropped up to 30 cm of snow as the storm moved across the Province and into Manitoba, where higher amounts were received. Southeast Saskatchewan received most of the snow. Snow depths tapered off to the northwest and Regina received only a dusting from the storm. For the remainder of the month the southern grasslands received well above average rainfall and temperatures remained well below average (2-4° C). June remained below average for temperatures and above average for precipitation across the survey area.

The May pond estimate (1,461,300) was 31.8% lower than the 2003 estimate (2,143,000), 30.3% lower than the 10-year mean, and 25.6% lower than the long-term mean (Table 2, Fig. 1). The 2004 May pond estimate was the 16th lowest (driest) on record and was a further reminder that much of the survey area remained in a drought.

The drought in the northwest Parklands (stratum 30) was still evident, although improvement was seen and wetland numbers were slightly higher (8.3%) than in 2003 (Table 2). Most of the stratum is still under the influence of a drought and wetland and upland habitats need several years of moisture to recover.

Wetland and upland habitats in the northeast Parklands (stratum 31) were similar to 2003 with some improvement in the southwestern portion of the stratum. The northwestern areas of the stratum were still dry and in poor condition during the survey.

Pond estimates in stratum 32 were much lower (56.3%) than in 2003; however, snow and rain received during May, but after the 2004 survey, reportedly has recharged wetlands. Upland nesting cover appeared heavily grazed and in poor condition.

Although the pond estimate for stratum 33 was lower than the 2003 estimate, stratum 33 was the only stratum that remained above the 10-year and long-term mean and was the 9th highest (wettest) estimate on record. Residual vegetation that could be used for nesting also appeared good for early nesting species, particularly in the southern half of the stratum.

Except for the record dry year of 2002, stratum 34 had the lowest pond estimate since 1993 and did not benefit from the mid-May snowstorm. Similar to the southwestern grasslands, the

southeastern Parklands (stratum 35) were somewhat dry until mid-May when 20-30 cm of snow covered the stratum.

Below average temperatures and above average precipitation delayed agricultural activities across the Province this year. Haying was reported to be at least 2-weeks behind normal and the delay should benefit nesting waterfowl, likewise, fieldwork related to seeding and summer fallowing also was behind schedule (Saskatchewan Agriculture, Food, and Rural Revitalization 2004).

BREEDING POPULATION ESTIMATES: The 2004 total duck population estimate for Southern Saskatchewan decreased 37.8% from the 2003 estimate, 25.4% from the 10-year mean, and 21.5% from the long-term mean (Table 3). All waterfowl and coot estimates were lower than 2003 estimates. The 2004 total dabbling duck population estimate decreased 37.4% from 2003 and was 21.3% below the long-term mean. (Table 3, Appendix 1). All dabbling duck estimates were below the 10-year mean and only gadwall and northern shoveler estimates were above the long-term mean. The gadwall estimate, although down from 2003, was the 6th highest estimate on record (Appendix 1). The northern pintail estimate was 52.3% lower than 2003, 61.8% lower than the long-term mean, and was the 10th lowest estimate in the 50 years of survey records. The American wigeon estimate (128,100) was the lowest on record.

The total diving duck population estimate was 40.2% lower than the 2003 estimate (Table 3). Redhead, canvasback, and scaup estimates were all lower than their 2003 estimates, 10-year, and long-term means. The 2004 scaup estimate was the 4th lowest estimate on record (Appendix 1).

Although the American coot estimate was 15.4% and 27.8% lower than the 2003 estimate and the 10-year mean, it remained 20.4% higher than the long-term mean (Table 3). The Canada goose estimate also was down when compared to the 2003 and 10-year mean, but was 169.7% above the long-term mean and was the 7th highest estimate on record (Appendix 1).

CONCLUSIONS:

The 2004 Southern Saskatchewan survey marked the 50th year for use of breeding season estimates as the official population estimate for most North American duck species, but dry conditions and low population estimates made it a disappointing anniversary year. Spring reports of above average precipitation, especially in the grasslands where wetland habitat had shown improvement in 2003, raised expectations that 2004 would be a very good year for duck populations in the Province. However, upon our arrival it became apparent that the excess moisture received over winter was gone and the expected good runoff had not occurred. A winter frost seal in the soil did not form because several years of drought has left low soil moistures across the Province. This allowed spring runoff to soak directly into the ground instead of ponding on the surface and forming ephemeral and temporary wetlands (i.e., sheetwater) or recharging larger wetland basins. Despite widespread above average precipitation that was received during the latter half of May and most of June, conditions were not favorable to arriving ducks in April and they may have left for areas more conducive to nesting and brood rearing. Reports from northern survey areas indicated a strong overflight of typical prairie nesting ducks (e.g., pintails, blue-winged teal). Unfortunately, when rains came in late May and June, many ducks had already come and then gone on to areas with better habitat conditions. For the ducks that remained in Southern Saskatchewan this year, wetland habitat and upland nesting cover has improved dramatically across the survey area especially in the southern grasslands and

eastern Parklands. The questions this year are, is it too late for good production to occur and will recruitment be hindered by the cool, wet weather. Without widespread ground studies both questions are difficult to answer. Below average temperatures and wet conditions have been shown to reduce duckling survival (Krapu et al. 2000, Krapu 2004). In addition, when compared to early broods late broods have lower survival rates (Rotella and Ratti 1992, Krapu et al. 2000). When considering these studies, our predictions for production and recruitment (even with the improved conditions) are poor in the western grasslands, northwest and northern parklands and fair across the remainder of the survey area except for some good areas along the U.S. border and portions of stratum 31, 34, and 35.

Although the drought in Southern Saskatchewan has taken a toll on upland nesting cover and wetland habitat, the recent rains have improved habitat dramatically. The precipitation was widespread across the survey area and upland and wetland habitat has improved markedly since the May survey. If current conditions are maintained with average precipitation, most of the survey area will have good to excellent wetland and upland habitat in 2005.

ACKNOWLEDGMENTS

We would be unable to complete the survey without the hard work and cooperation of the Canadian Wildlife Service ground crew - thanks. Tim Moser provided helpful comments that improved this report.

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Colorado.

Submitted by: Philip Thorpe

Date: July 15, 2004

Table 1. Survey design and May 2004 coverage for Southern Saskatchewan.

| | Stratum | | | | | | Total |
|-----------------------------------|---------|---------|--------|---------|--------|--------|---------|
| | 30 | 31 | 32 | 33 | 34 | 35 | |
| Survey design: | | | | | | | |
| Square miles in stratum | 18,570 | 21,086 | 37,911 | 11,345 | 13,164 | 9,044 | 111,120 |
| Square miles in sample- waterfowl | 153.0 | 144.0 | 571.5 | 90.0 | 175.5 | 126.0 | 1,260.0 |
| Square miles in sample- ponds | 76.50 | 72.00 | 285.75 | 45.00 | 87.75 | 63.00 | 630.00 |
| Linear miles in sample | 612 | 576 | 2,286 | 360 | 702 | 504 | 5,040 |
| Number of transects in sample | 4 | 5 | 14 | 6 | 5 | 6 | 40 |
| Number of segments in sample | 34 | 32 | 127 | 20 | 39 | 28 | 280 |
| Expansion factor | 121.373 | 146.431 | 66.336 | 126.056 | 75.009 | 71.778 | |
| May 2004 coverage: | | | | | | | |
| Square miles in sample- waterfowl | 153.0 | 144.0 | 571.5 | 90.0 | 175.5 | 126.0 | 1260.0 |
| Square miles in sample- ponds | 76.50 | 72.00 | 285.75 | 45.00 | 87.75 | 63.00 | 630.00 |
| Linear miles in sample | 612 | 576 | 2,286 | 360 | 702 | 504 | 5,040 |
| Number of transects in sample | 4 | 5 | 14 | 6 | 5 | 6 | 40 |
| Number of segments in sample | 34 | 32 | 127 | 20 | 39 | 28 | 280 |
| Expansion factor | 121.373 | 146.431 | 66.336 | 126.056 | 75.009 | 71.778 | |

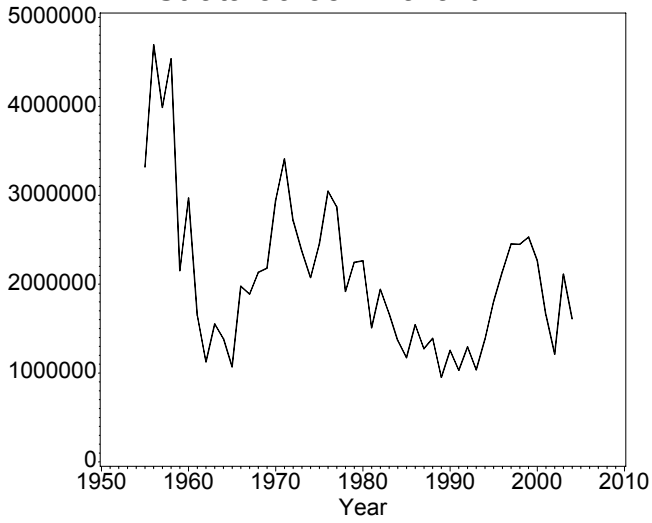
Table 2. Long-term trend in adjusted May pond estimates (thousands) by stratum with comparisons to the previous year, the previous 10-year mean, and the long-term mean for Southern Saskatchewan (1961-2004).

| Year | Stratum | | | | | | Total |
|---------------------|---------|--------|--------|--------|--------|--------|--------|
| | 30 | 31 | 32 | 33 | 34 | 35 | |
| 1961 | 142.2 | 219.4 | 252.2 | 80.3 | 58.9 | 41.8 | 794.9 |
| 1962 | 160.3 | 383.4 | 311.1 | 45.2 | 269.4 | 59.9 | 1229.3 |
| 1963 | 145.0 | 198.5 | 268.9 | 43.3 | 239.1 | 129.7 | 1024.5 |
| 1964 | 196.9 | 357.3 | 322.6 | 64.7 | 481.8 | 394.0 | 1817.2 |
| 1965 | 327.9 | 439.9 | 610.1 | 112.2 | 435.1 | 332.2 | 2257.4 |
| 1966 | 350.8 | 587.3 | 595.1 | 133.0 | 569.7 | 388.5 | 2624.3 |
| 1967 | 282.3 | 642.1 | 688.8 | 194.9 | 545.1 | 299.0 | 2652.2 |
| 1968 | 231.4 | 329.6 | 404.2 | 65.1 | 123.6 | 58.5 | 1212.5 |
| 1969 | 386.7 | 469.7 | 781.8 | 140.0 | 267.1 | 179.6 | 2225.0 |
| 1970 | 278.1 | 603.7 | 733.4 | 102.6 | 721.3 | 518.1 | 2957.1 |
| 1971 | 294.3 | 407.0 | 495.3 | 120.4 | 608.7 | 391.7 | 2317.4 |
| 1972 | 349.1 | 646.2 | 357.2 | 63.1 | 546.0 | 302.8 | 2264.4 |
| 1973 | 266.8 | 466.6 | 326.8 | 85.7 | 227.6 | 117.0 | 1490.4 |
| 1974 | 427.6 | 836.7 | 755.0 | 122.9 | 943.1 | 460.9 | 3546.3 |
| 1975 | 395.3 | 806.1 | 785.7 | 192.7 | 763.9 | 480.9 | 3424.7 |
| 1976 | 201.9 | 399.0 | 553.4 | 96.8 | 656.6 | 670.8 | 2578.5 |
| 1977 | 176.1 | 254.7 | 265.7 | 44.5 | 338.7 | 170.3 | 1250.0 |
| 1978 | 274.1 | 393.6 | 566.4 | 161.6 | 545.5 | 280.7 | 2221.8 |
| 1979 | 433.4 | 697.5 | 660.4 | 130.2 | 667.8 | 480.9 | 3070.1 |
| 1980 | 265.4 | 311.3 | 358.2 | 48.1 | 273.3 | 137.2 | 1393.6 |
| 1981 | 145.9 | 160.5 | 126.2 | 28.4 | 97.3 | 52.6 | 611.0 |
| 1982 | 283.6 | 629.7 | 704.5 | 119.0 | 247.5 | 210.4 | 2194.7 |
| 1983 | 384.9 | 715.4 | 711.9 | 96.0 | 464.6 | 323.3 | 2696.2 |
| 1984 | 283.1 | 548.3 | 266.9 | 35.2 | 260.3 | 131.9 | 1525.8 |
| 1985 | 622.3 | 737.1 | 722.9 | 108.0 | 560.4 | 207.8 | 2958.5 |
| 1986 | 343.8 | 402.5 | 615.2 | 112.8 | 529.1 | 346.3 | 2349.6 |
| 1987 | 223.8 | 260.9 | 347.5 | 150.9 | 251.5 | 184.3 | 1418.9 |
| 1988 | 217.6 | 378.7 | 149.1 | 37.1 | 213.8 | 63.4 | 1059.8 |
| 1989 | 208.1 | 220.6 | 222.9 | 71.1 | 63.9 | 73.1 | 859.7 |
| 1990 | 213.0 | 284.9 | 277.1 | 56.8 | 453.6 | 97.4 | 1382.8 |
| 1991 | 194.8 | 213.2 | 437.3 | 157.1 | 257.8 | 144.8 | 1405.1 |
| 1992 | 247.9 | 376.4 | 349.8 | 34.5 | 378.3 | 229.1 | 1615.9 |
| 1993 | 167.7 | 189.6 | 337.3 | 94.0 | 203.0 | 96.3 | 1087.9 |
| 1994 | 407.3 | 564.7 | 742.9 | 178.0 | 472.3 | 288.0 | 2653.1 |
| 1995 | 344.9 | 680.9 | 343.5 | 52.7 | 561.0 | 331.4 | 2314.4 |
| 1996 | 408.3 | 666.9 | 1041.4 | 197.6 | 573.0 | 381.6 | 3268.9 |
| 1997 | 461.6 | 497.4 | 972.1 | 163.4 | 578.1 | 319.5 | 2992.0 |
| 1998 | 146.5 | 284.6 | 345.0 | 49.3 | 403.0 | 241.8 | 1470.2 |
| 1999 | 313.1 | 344.4 | 807.0 | 93.5 | 614.9 | 362.3 | 2535.3 |
| 2000 | 214.4 | 272.9 | 322.5 | 36.6 | 348.1 | 209.2 | 1403.7 |
| 2001 | 139.7 | 202.4 | 378.9 | 42.0 | 480.1 | 292.8 | 1535.7 |
| 2002 | 72.9 | 127.4 | 193.8 | 68.5 | 157.3 | 15.1 | 634.9 |
| 2003 | 136.8 | 275.5 | 851.1 | 258.7 | 333.6 | 287.2 | 2143.0 |
| 2004 | 148.2 | 277.8 | 372.2 | 156.8 | 281.6 | 224.8 | 1461.3 |
| 10-year Mean | 264.6 | 391.7 | 599.8 | 114.0 | 452.1 | 272.9 | 2095.1 |
| Long-term Mean | 273.7 | 429.9 | 496.7 | 99.7 | 413.6 | 250.8 | 1964.4 |
| Percent Change: | | | | | | | |
| From 2003 | 8.3% | 0.9% | -56.3% | -39.4% | -15.6% | -21.7% | -31.8% |
| From 10-year Mean | -44.0% | -29.1% | -37.9% | 37.5% | -37.7% | -17.6% | -30.3% |
| From Long-term Mean | -45.9% | -35.4% | -25.1% | 57.2% | -31.9% | -10.4% | -25.6% |

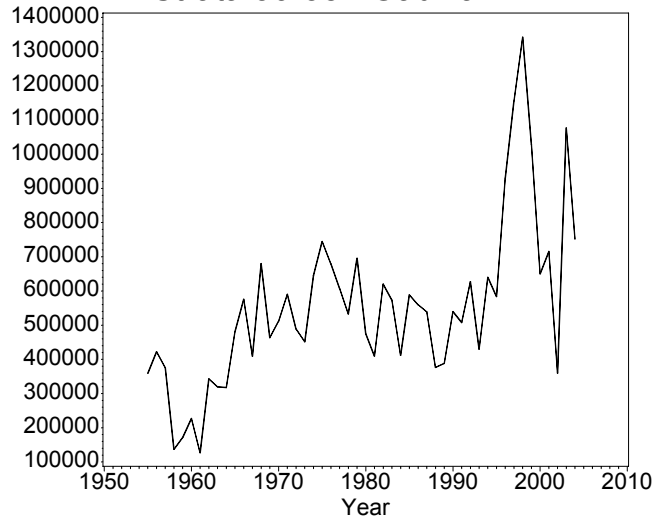
Table 3. Status of waterfowl breeding population estimates (thousands, adjusted for visibility bias) by species and stratum with comparisons to the previous year, the previous 10-year mean, and the long-term mean for Southern Saskatchewan, May 2004.

| Species/Ponds | Stratum | | | | | | % Change From | | | | | | |
|-----------------------|--------------|---------------|---------------|--------------|--------------|--------------|---------------|---------------|-----------------|-----------------------|---------------|-----------------|-----------------------|
| | 30 | 31 | 32 | 33 | 34 | 35 | 2004 Total | 2003 Total | 10-Year mean | Long- term mean | 2003 | 10-Year mean | Long- term mean |
| Dabbling ducks | | | | | | | | | | | | | |
| Mallard | 208.4 | 268.7 | 536.8 | 177.5 | 266.7 | 151.4 | 1609.5 | 2110.7 | 1999.9 | 2088.5 | -23.7% | -19.5% | -22.9% |
| Am. black duck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 0.5 | 0.2 | -100.0% | -100.0% | -100.0% |
| Gadwall | 64.7 | 154.6 | 336.7 | 68.7 | 82.5 | 44.6 | 751.8 | 1076.6 | 848.1 | 548.6 | -30.2% | -11.4% | 37.0% |
| Am. wigeon | 22.2 | 19.0 | 56.2 | 15.8 | 10.3 | 4.6 | 128.1 | 218.9 | 283.1 | 434.0 | -41.5% | -54.8% | -70.5% |
| Am. green-winged teal | 22.7 | 45.0 | 27.5 | 8.4 | 15.7 | 5.0 | 124.3 | 272.6 | 280.5 | 229.0 | -54.4% | -55.7% | -45.7% |
| Blue-winged teal | 71.2 | 155.9 | 400.5 | 122.0 | 274.7 | 130.5 | 1154.7 | 1918.3 | 1526.5 | 1211.5 | -39.8% | -24.4% | -4.7% |
| N. shoveler | 47.5 | 117.0 | 313.9 | 120.7 | 132.0 | 52.4 | 783.6 | 1437.7 | 981.2 | 631.2 | -45.5% | -20.1% | 24.1% |
| N. pintail | 23.6 | 49.1 | 203.8 | 172.3 | 11.3 | 13.5 | 473.7 | 993.4 | 701.7 | 1240.7 | -52.3% | -32.5% | -61.8% |
| Subtotal | 460.3 | 809.4 | 1875.4 | 685.4 | 793.3 | 402.0 | 5025.7 | 8028.8 | 6621.6 | 6383.6 | -37.4% | -24.1% | -21.3% |
| Diving ducks | | | | | | | | | | | | | |
| Redhead | 5.8 | 46.4 | 36.4 | 3.0 | 29.7 | 9.9 | 131.2 | 271.3 | 260.1 | 190.6 | -51.6% | -49.6% | -31.2% |
| Canvasback | 22.5 | 27.2 | 26.6 | 10.8 | 28.1 | 5.7 | 120.9 | 194.8 | 219.6 | 184.0 | -37.9% | -44.9% | -34.3% |
| Scaup | 31.9 | 54.0 | 62.9 | 10.2 | 21.1 | 4.7 | 184.8 | 251.4 | 339.7 | 421.8 | -26.5% | -45.6% | -56.2% |
| Ring-necked duck | 0.9 | 5.3 | 4.8 | 0.9 | 4.8 | 2.9 | 19.6 | 27.2 | 43.8 | 27.6 | -28.0% | -55.2% | -28.9% |
| Goldeneyes | 8.6 | 6.9 | 0.0 | 0.0 | 0.0 | 0.6 | 16.0 | 64.8 | 40.0 | 22.4 | -75.3% | -60.0% | -28.6% |
| Bufflehead | 16.9 | 21.7 | 1.0 | 0.4 | 6.2 | 9.0 | 55.2 | 99.4 | 75.7 | 34.8 | -44.4% | -27.1% | 58.8% |
| Ruddy Duck | 31.6 | 79.4 | 64.3 | 0.0 | 49.9 | 4.7 | 229.9 | 358.2 | 153.4 | 102.6 | -35.8% | 49.9% | 124.1% |
| Subtotal | 118.2 | 240.8 | 196.1 | 25.2 | 139.7 | 37.6 | 757.7 | 1267.0 | 1132.2 | 983.9 | -40.2% | -33.1% | -23.0% |
| Miscellaneous | | | | | | | | | | | | | |
| Long-tailed duck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | -- | -100.0% | -100.0% |
| Eiders | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -- | -- | -- |
| Scoters | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.7 | 3.3 | -100.0% | -100.0% | -100.0% |
| Mergansers | 0.9 | 0.6 | 0.8 | 0.0 | 0.9 | 0.0 | 3.1 | 2.4 | 6.5 | 4.8 | 26.8% | -53.0% | -36.3% |
| Subtotal | 0.9 | 0.6 | 0.8 | 0.0 | 0.9 | 0.0 | 3.1 | 2.7 | 7.3 | 8.1 | 12.5% | -57.9% | -62.0% |
| Total ducks | 579.5 | 1050.7 | 2072.2 | 710.6 | 933.8 | 439.6 | 5786.4 | 9298.6 | 7761.1 | 7375.5 | -37.8% | -25.4% | -21.5% |
| Canada goose | 39.0 | 57.6 | 70.4 | 7.9 | 54.4 | 38.0 | 267.2 | 391.9 | 275.9 | 99.1 | -31.8% | -3.1% | 169.7% |
| Am. coot | 41.6 | 267.5 | 90.4 | 56.0 | 74.5 | 6.3 | 536.3 | 633.9 | 742.4 | 445.6 | -15.4% | -27.8% | 20.4% |
| Ponds | 148.2 | 277.8 | 372.2 | 156.8 | 281.6 | 224.8 | 1461.3 | 2143.0 | 2095.1 | 1964.4 | -31.8% | -30.3% | -25.6% |

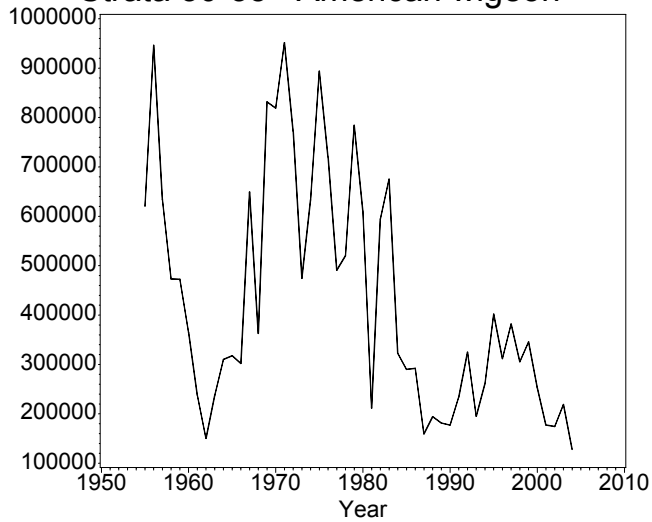
Strata 30-35 Mallard



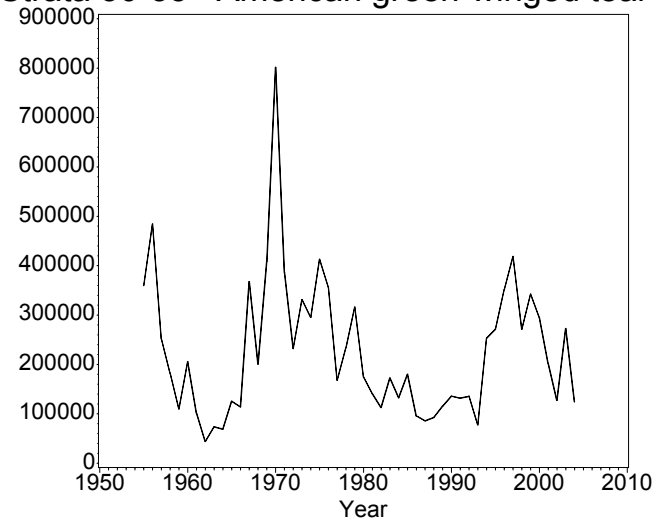
Strata 30-35 Gadwall



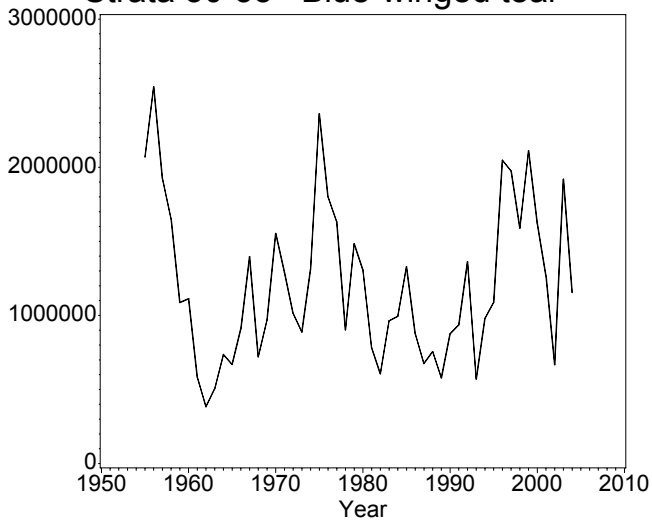
Strata 30-35 American wigeon



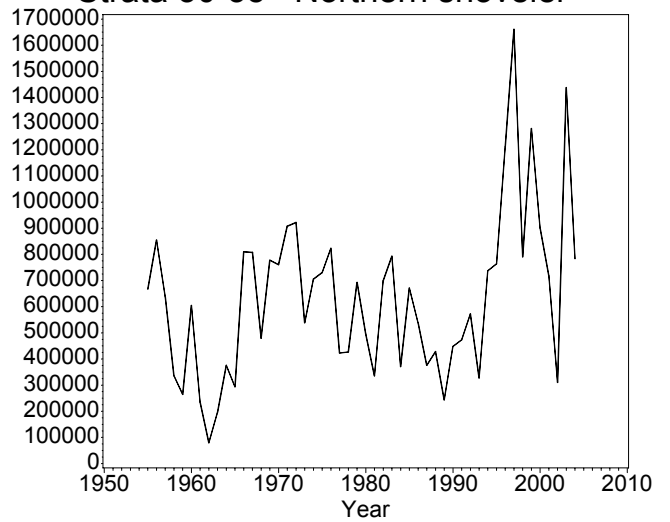
Strata 30-35 American green-winged teal



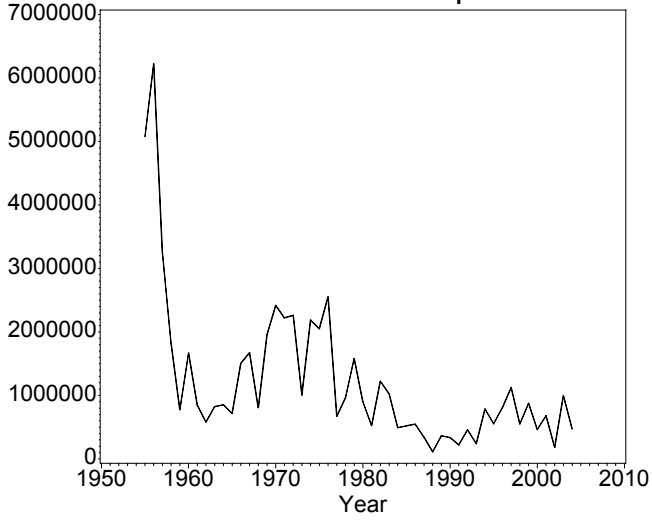
Strata 30-35 Blue-winged teal



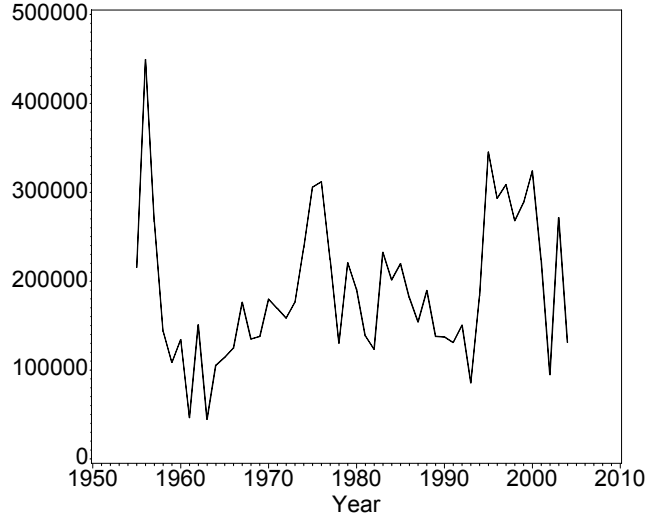
Strata 30-35 Northern shoveler



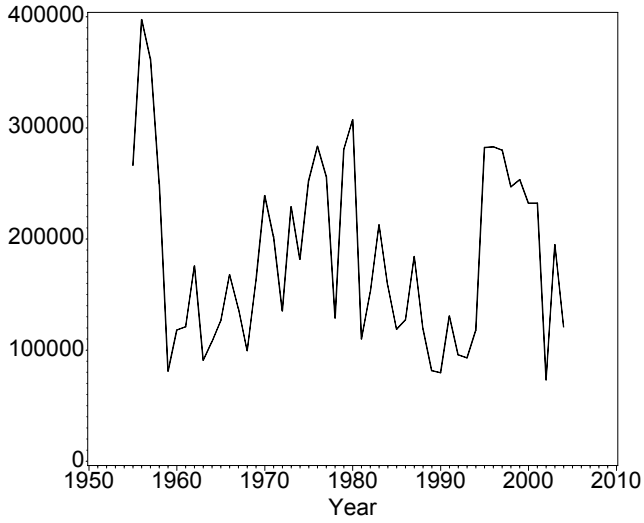
Strata 30-35 Northern pintail



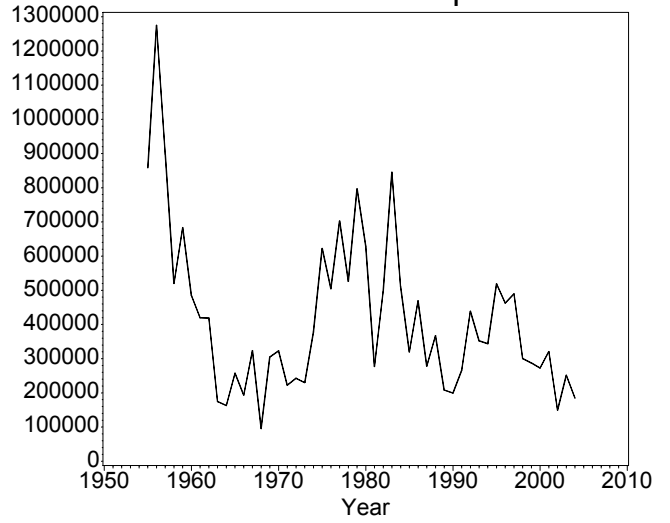
Strata 30-35 Redhead



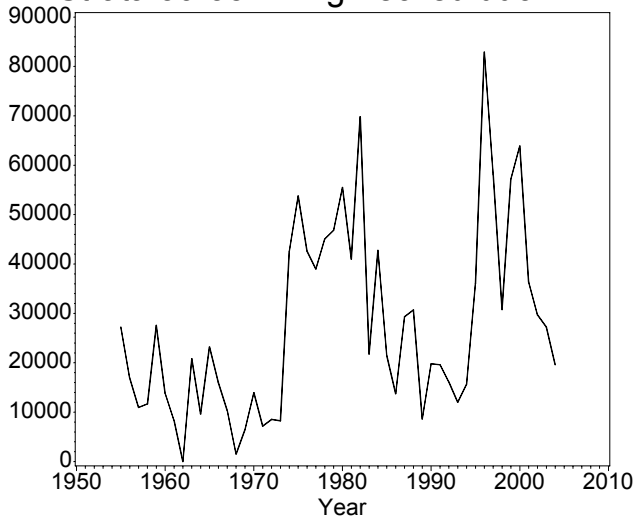
Strata 30-35 Canvasback



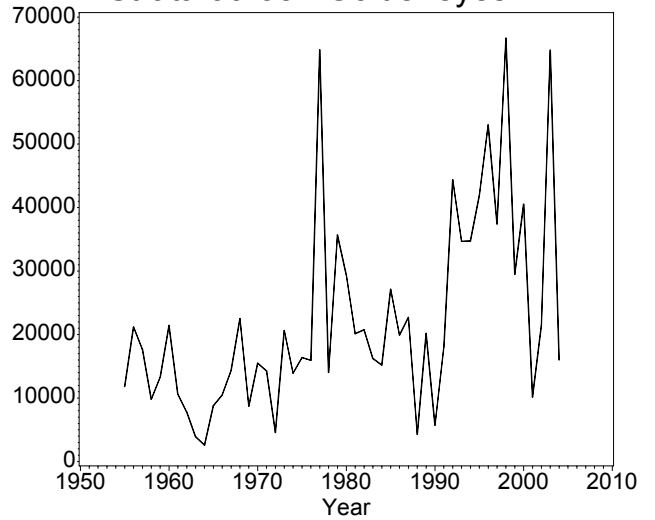
Strata 30-35 Scaups



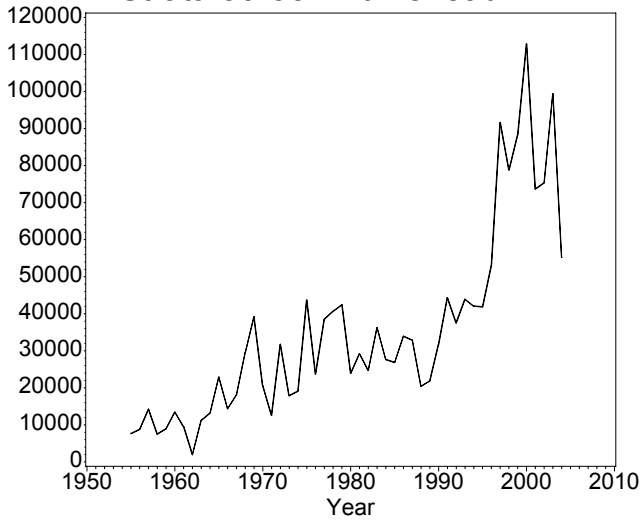
Strata 30-35 Ring-necked duck



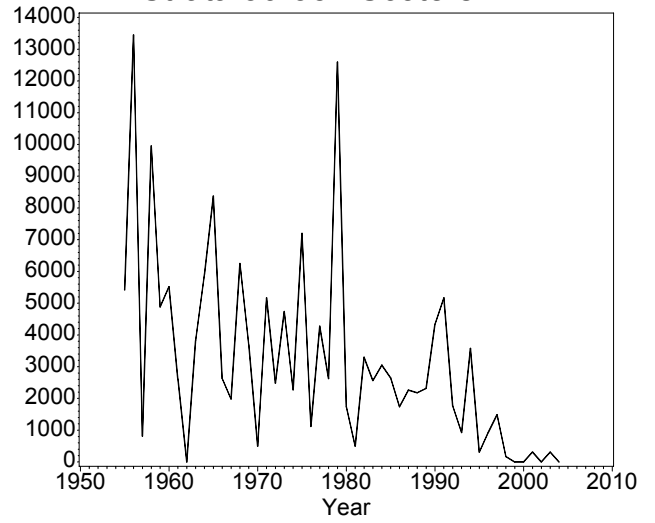
Strata 30-35 Goldeneyes



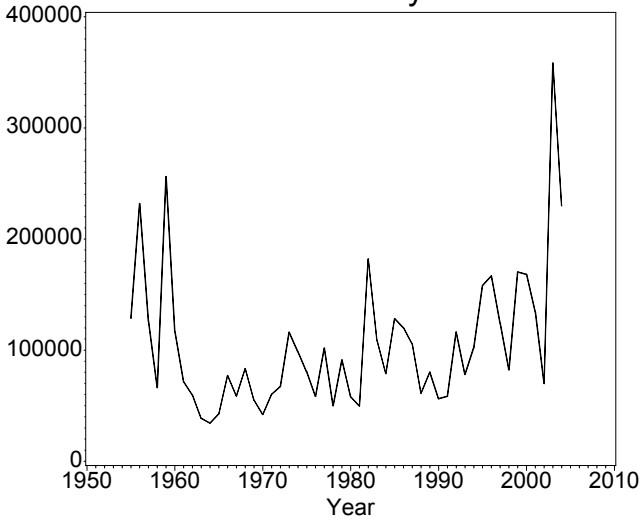
Strata 30-35 Bufflehead



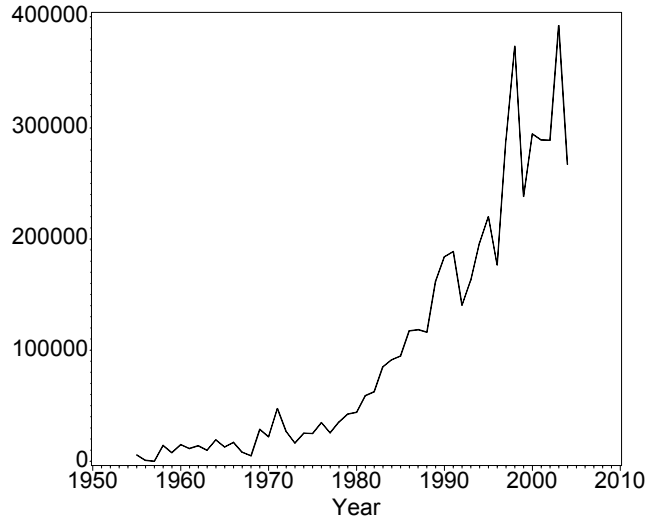
Strata 30-35 Scoters



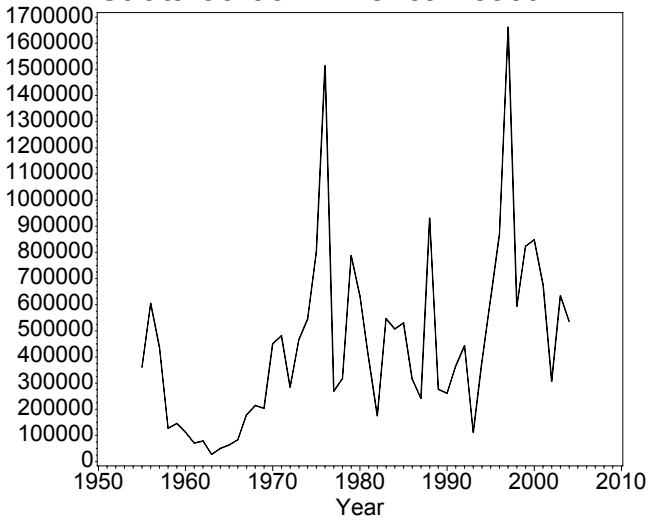
Strata 30-35 Ruddy Duck



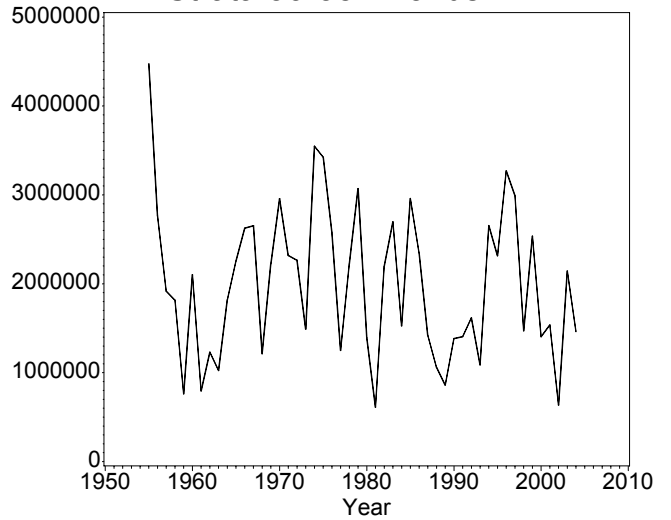
Strata 30-35 Canada Goose



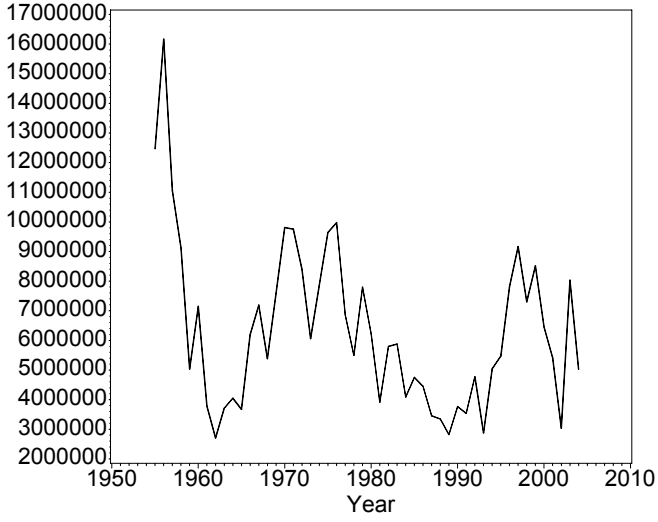
Strata 30-35 American coot



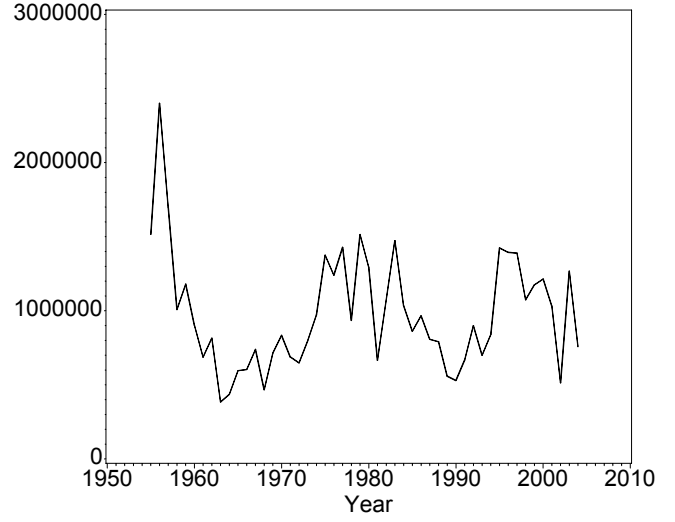
Strata 30-35 Ponds



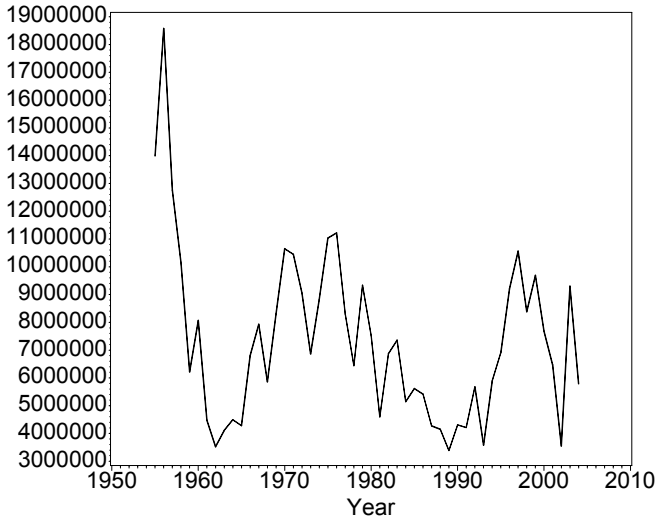
Strata 30-35 Dabblers



Strata 30-35 Divers



Strata 30-35 Total Ducks



Appendix 1. Long-term trend in adjusted waterfowl breeding population estimates (thousands) for Southern Saskatchewan.

| Species/Ponds | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 |
|-----------------------|----------------|----------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Dabbling ducks | | | | | | | | | | |
| Mallard | 3317.2 | 4691.4 | 3987.9 | 4534.0 | 2152.2 | 2967.5 | 1649.7 | 1125.9 | 1551.4 | 1387.3 |
| Am. black duck | 0.3 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Gadwall | 359.0 | 422.1 | 375.7 | 136.7 | 171.4 | 227.0 | 126.8 | 342.7 | 319.4 | 317.6 |
| Am. wigeon | 620.4 | 946.2 | 634.0 | 473.1 | 472.6 | 365.2 | 238.0 | 150.2 | 237.3 | 310.1 |
| Am. green-winged teal | 359.6 | 484.3 | 252.0 | 182.3 | 110.0 | 205.5 | 101.7 | 44.2 | 73.8 | 69.1 |
| Blue-winged teal | 2068.5 | 2542.7 | 1924.3 | 1650.7 | 1087.0 | 1112.8 | 583.0 | 383.8 | 504.9 | 735.8 |
| N. shoveler | 667.1 | 854.4 | 637.9 | 335.4 | 264.5 | 604.3 | 233.9 | 79.8 | 196.9 | 375.3 |
| N. pintail | 5076.5 | 6222.2 | 3245.9 | 1813.0 | 775.0 | 1665.5 | 846.7 | 581.1 | 823.9 | 853.4 |
| Subtotal | 12468.6 | 16163.3 | 11058.3 | 9125.2 | 5032.7 | 7147.9 | 3779.8 | 2707.7 | 3707.6 | 4048.5 |
| Diving ducks | | | | | | | | | | |
| Redhead | 215.4 | 449.1 | 266.8 | 143.5 | 108.6 | 134.2 | 46.6 | 150.7 | 44.6 | 105.3 |
| Canvasback | 266.2 | 397.4 | 362.0 | 249.7 | 81.2 | 118.1 | 121.0 | 175.7 | 90.9 | 107.7 |
| Scaup | 858.3 | 1274.7 | 898.1 | 520.0 | 683.1 | 484.5 | 419.5 | 418.8 | 174.4 | 162.9 |
| Ring-necked duck | 27.2 | 16.9 | 10.9 | 11.7 | 27.6 | 13.8 | 8.4 | 0.0 | 20.8 | 9.6 |
| Goldeneyes | 11.8 | 21.2 | 17.7 | 9.8 | 13.3 | 21.4 | 10.6 | 7.8 | 3.9 | 2.6 |
| Bufflehead | 7.6 | 8.8 | 14.2 | 7.5 | 9.0 | 13.4 | 9.5 | 2.0 | 11.2 | 13.2 |
| Ruddy Duck | 128.7 | 231.8 | 126.1 | 66.2 | 256.1 | 116.8 | 71.4 | 59.6 | 38.5 | 34.3 |
| Subtotal | 1515.3 | 2399.9 | 1695.9 | 1008.4 | 1178.8 | 902.1 | 686.9 | 814.5 | 384.4 | 435.5 |
| Miscellaneous | | | | | | | | | | |
| Long-tailed duck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Eiders | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Scoters | 5.4 | 13.4 | 0.8 | 10.0 | 4.9 | 5.5 | 2.6 | 0.0 | 3.8 | 5.9 |
| Mergansers | 0.5 | 0.0 | 0.0 | 0.0 | 0.4 | 11.4 | 2.6 | 0.0 | 9.4 | 2.4 |
| Subtotal | 5.9 | 13.4 | 0.8 | 10.0 | 5.3 | 16.9 | 5.2 | 0.0 | 13.2 | 8.3 |
| Total ducks | 13989.9 | 18576.6 | 12755.0 | 10143.5 | 6216.9 | 8066.8 | 4471.9 | 3522.2 | 4105.2 | 4492.3 |
| Canada goose | 5.6 | 0.8 | 0.0 | 14.2 | 7.8 | 15.0 | 11.4 | 13.9 | 9.9 | 19.2 |
| Am. coot | 360.7 | 604.7 | 438.8 | 127.5 | 145.3 | 112.0 | 70.5 | 79.0 | 27.4 | 50.5 |
| Ponds | | | | | | | 794.9 | 1229.3 | 1024.5 | 1817.2 |

| Species/Ponds | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 |
|-----------------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|
| Dabbling ducks | | | | | | | | | | |
| Mallard | 1069.9 | 1975.6 | 1888.4 | 2132.2 | 2180.0 | 2945.5 | 3407.2 | 2711.5 | 2369.1 | 2073.8 |
| Am. black duck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 |
| Gadwall | 481.2 | 575.4 | 409.2 | 679.9 | 463.5 | 511.5 | 590.2 | 488.8 | 451.5 | 644.7 |
| Am. wigeon | 317.7 | 302.1 | 649.1 | 362.8 | 831.7 | 819.3 | 951.4 | 772.3 | 474.4 | 633.2 |
| Am. green-winged teal | 125.3 | 114.2 | 367.7 | 200.7 | 408.8 | 801.4 | 386.9 | 232.2 | 331.2 | 295.4 |
| Blue-winged teal | 669.1 | 909.7 | 1395.7 | 720.2 | 966.6 | 1552.6 | 1291.4 | 1012.9 | 887.9 | 1312.2 |
| N. shoveler | 293.6 | 809.9 | 807.7 | 479.4 | 777.4 | 760.7 | 907.7 | 921.9 | 538.4 | 705.2 |
| N. pintail | 716.6 | 1504.8 | 1671.1 | 809.2 | 1956.2 | 2417.2 | 2222.0 | 2261.6 | 1006.3 | 2186.0 |
| Subtotal | 3673.4 | 6191.7 | 7188.9 | 5384.3 | 7584.0 | 9808.1 | 9757.0 | 8401.2 | 6058.7 | 7850.5 |
| Diving ducks | | | | | | | | | | |
| Redhead | 114.1 | 124.6 | 176.0 | 134.9 | 137.8 | 179.6 | 169.3 | 158.6 | 176.3 | 237.6 |
| Canvasback | 126.5 | 167.8 | 137.5 | 99.5 | 162.4 | 238.9 | 202.1 | 135.3 | 228.9 | 181.8 |
| Scaup | 257.3 | 193.5 | 323.4 | 95.6 | 305.0 | 322.8 | 222.4 | 242.6 | 230.4 | 377.9 |
| Ring-necked duck | 23.2 | 16.0 | 10.4 | 1.5 | 6.5 | 13.9 | 7.2 | 8.5 | 8.2 | 42.6 |
| Goldeneyes | 8.8 | 10.5 | 14.3 | 22.5 | 8.7 | 15.5 | 14.3 | 4.6 | 20.6 | 13.9 |
| Bufflehead | 22.9 | 14.4 | 18.1 | 29.5 | 39.2 | 20.5 | 12.6 | 31.7 | 17.9 | 19.1 |
| Ruddy Duck | 42.6 | 77.1 | 58.7 | 83.3 | 55.0 | 42.1 | 60.2 | 67.2 | 116.0 | 98.5 |
| Subtotal | 595.4 | 603.9 | 738.3 | 466.9 | 714.6 | 833.4 | 688.0 | 648.4 | 798.3 | 971.4 |
| Miscellaneous | | | | | | | | | | |
| Long-tailed duck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Eiders | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Scoters | 8.4 | 2.6 | 2.0 | 6.2 | 3.7 | 0.5 | 5.2 | 2.5 | 4.7 | 2.3 |
| Mergansers | 5.2 | 0.0 | 0.0 | 1.0 | 1.4 | 8.8 | 1.3 | 0.0 | 2.2 | 0.5 |
| Subtotal | 13.6 | 2.6 | 2.0 | 7.2 | 5.1 | 9.3 | 6.4 | 2.5 | 6.9 | 2.7 |
| Total ducks | 4282.4 | 6798.2 | 7929.2 | 5858.5 | 8303.7 | 10650.8 | 10451.5 | 9052.1 | 6864.0 | 8824.6 |
| Canada goose | 12.8 | 16.9 | 8.0 | 4.9 | 28.6 | 22.1 | 47.3 | 26.7 | 16.4 | 25.2 |
| Am. coot | 63.6 | 83.4 | 179.0 | 214.3 | 203.8 | 450.3 | 481.5 | 284.9 | 465.9 | 544.3 |
| Ponds | 2257.4 | 2624.3 | 2652.2 | 1212.5 | 2225.0 | 2957.1 | 2317.4 | 2264.4 | 1490.4 | 3546.3 |

Appendix 1 (continued). Long-term trend in adjusted waterfowl breeding population estimates (thousands) for Southern Saskatchewan.

| Species/Ponds | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 |
|-----------------------|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Dabbling ducks | | | | | | | | | | |
| Mallard | 2449.2 | 3044.7 | 2869.3 | 1917.6 | 2244.2 | 2263.0 | 1509.8 | 1941.1 | 1670.1 | 1364.7 |
| Am. black duck | 0.4 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Gadwall | 744.6 | 679.4 | 607.5 | 532.9 | 695.5 | 474.6 | 409.5 | 619.7 | 573.3 | 411.8 |
| Am. wigeon | 893.7 | 720.1 | 490.7 | 519.9 | 784.1 | 610.4 | 211.7 | 594.3 | 675.0 | 322.3 |
| Am. green-winged teal | 412.8 | 356.5 | 168.1 | 233.9 | 316.0 | 174.3 | 140.9 | 112.9 | 172.4 | 132.7 |
| Blue-winged teal | 2360.2 | 1799.6 | 1631.3 | 902.4 | 1482.8 | 1307.2 | 781.5 | 605.9 | 963.2 | 993.6 |
| N. shoveler | 730.3 | 822.9 | 422.7 | 426.7 | 692.4 | 494.7 | 335.3 | 699.0 | 792.8 | 370.9 |
| N. pintail | 2050.3 | 2549.6 | 672.5 | 961.8 | 1579.9 | 897.6 | 526.2 | 1222.0 | 1029.4 | 492.1 |
| Subtotal | 9641.5 | 9972.8 | 6862.2 | 5495.0 | 7795.1 | 6221.8 | 3914.8 | 5795.0 | 5876.3 | 4088.1 |
| Diving ducks | | | | | | | | | | |
| Redhead | 305.7 | 311.7 | 224.3 | 130.3 | 220.5 | 190.9 | 138.4 | 123.4 | 232.2 | 201.6 |
| Canvasback | 252.9 | 283.3 | 256.5 | 129.0 | 280.9 | 307.2 | 110.1 | 151.9 | 212.7 | 157.7 |
| Scaup | 622.2 | 504.6 | 702.2 | 526.2 | 796.5 | 629.0 | 277.1 | 496.6 | 844.8 | 510.2 |
| Ring-necked duck | 53.8 | 42.6 | 39.0 | 45.1 | 46.8 | 55.5 | 41.0 | 69.8 | 21.8 | 42.7 |
| Goldeneyes | 16.4 | 15.9 | 64.8 | 14.0 | 35.7 | 29.4 | 20.1 | 20.8 | 16.2 | 15.2 |
| Bufflehead | 43.7 | 23.8 | 38.5 | 40.7 | 42.4 | 23.9 | 29.2 | 24.7 | 36.2 | 27.6 |
| Ruddy Duck | 80.3 | 58.4 | 101.8 | 50.0 | 91.1 | 57.9 | 49.7 | 181.9 | 108.5 | 78.9 |
| Subtotal | 1374.9 | 1240.3 | 1427.2 | 935.2 | 1514.0 | 1293.8 | 665.7 | 1069.1 | 1472.5 | 1033.8 |
| Miscellaneous | | | | | | | | | | |
| Long-tailed duck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Eiders | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Scoters | 7.2 | 1.1 | 4.3 | 2.6 | 12.6 | 1.7 | 0.5 | 3.3 | 2.6 | 3.0 |
| Mergansers | 7.5 | 5.3 | 3.4 | 6.5 | 13.0 | 6.8 | 14.6 | 3.4 | 5.9 | 17.7 |
| Subtotal | 14.7 | 6.4 | 7.6 | 9.1 | 25.6 | 8.6 | 15.0 | 6.7 | 8.5 | 20.8 |
| Total ducks | 11031.1 | 11219.5 | 8297.0 | 6439.4 | 9334.7 | 7524.2 | 4595.6 | 6870.8 | 7357.3 | 5142.7 |
| Canada goose | 25.0 | 34.8 | 25.6 | 35.3 | 42.4 | 44.0 | 59.0 | 62.5 | 85.0 | 91.3 |
| Am. coot | 799.8 | 1513.0 | 269.4 | 317.8 | 787.2 | 634.2 | 395.1 | 175.4 | 546.7 | 507.4 |
| Ponds | 3424.7 | 2578.5 | 1250.0 | 2221.8 | 3070.1 | 1393.6 | 611.0 | 2194.7 | 2696.2 | 1525.8 |

| Species/Ponds | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Dabbling ducks | | | | | | | | | | |
| Mallard | 1173.3 | 1542.6 | 1273.3 | 1389.2 | 951.7 | 1253.7 | 1031.1 | 1293.4 | 1036.4 | 1380.3 |
| Am. black duck | 0.0 | 0.0 | 0.9 | 0.0 | 0.0 | 0.0 | 0.5 | 0.3 | 0.0 | 0.0 |
| Gadwall | 588.4 | 559.9 | 539.1 | 376.2 | 387.9 | 539.5 | 507.7 | 626.9 | 429.6 | 639.8 |
| Am. wigeon | 290.1 | 292.3 | 159.4 | 194.1 | 181.4 | 177.3 | 234.3 | 324.9 | 195.2 | 261.0 |
| Am. green-winged teal | 179.9 | 95.9 | 85.8 | 92.7 | 115.5 | 135.7 | 131.8 | 135.6 | 77.8 | 253.2 |
| Blue-winged teal | 1327.3 | 876.5 | 674.8 | 755.3 | 578.4 | 875.5 | 936.7 | 1362.4 | 570.1 | 980.2 |
| N. shoveler | 671.0 | 538.8 | 375.8 | 428.3 | 243.8 | 447.8 | 473.4 | 571.9 | 327.4 | 737.5 |
| N. pintail | 520.6 | 545.9 | 343.8 | 113.8 | 363.7 | 336.7 | 221.0 | 456.9 | 240.4 | 785.2 |
| Subtotal | 4750.7 | 4451.8 | 3453.1 | 3349.6 | 2822.5 | 3766.1 | 3536.4 | 4772.4 | 2876.8 | 5037.1 |
| Diving ducks | | | | | | | | | | |
| Redhead | 219.6 | 181.6 | 154.3 | 189.3 | 137.8 | 137.2 | 131.1 | 150.3 | 85.7 | 183.5 |
| Canvasback | 118.8 | 127.2 | 184.2 | 119.0 | 81.5 | 79.7 | 130.5 | 95.7 | 93.0 | 117.7 |
| Scaup | 319.8 | 468.9 | 278.2 | 366.9 | 208.1 | 199.3 | 265.4 | 438.6 | 352.1 | 343.9 |
| Ring-necked duck | 21.4 | 13.7 | 29.3 | 30.7 | 8.6 | 19.8 | 19.6 | 16.1 | 12.0 | 15.7 |
| Goldeneyes | 27.1 | 19.9 | 22.7 | 4.3 | 20.2 | 5.7 | 18.0 | 44.4 | 34.7 | 34.8 |
| Bufflehead | 26.9 | 33.9 | 32.9 | 20.4 | 21.9 | 31.7 | 44.3 | 37.6 | 43.9 | 42.1 |
| Ruddy Duck | 128.3 | 120.2 | 105.6 | 61.2 | 80.1 | 56.2 | 58.5 | 116.1 | 78.1 | 102.2 |
| Subtotal | 861.8 | 965.5 | 807.1 | 791.9 | 558.2 | 529.7 | 667.4 | 898.7 | 699.5 | 839.8 |
| Miscellaneous | | | | | | | | | | |
| Long-tailed duck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.6 |
| Eiders | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Scoters | 2.6 | 1.7 | 2.3 | 2.2 | 2.3 | 4.3 | 5.2 | 1.8 | 0.9 | 3.6 |
| Mergansers | 1.9 | 0.0 | 6.9 | 5.8 | 3.7 | 7.9 | 6.5 | 3.8 | 3.5 | 2.3 |
| Subtotal | 4.5 | 1.7 | 9.1 | 8.0 | 6.0 | 12.3 | 11.6 | 5.6 | 4.8 | 6.5 |
| Total ducks | 5617.0 | 5419.1 | 4269.3 | 4149.5 | 3386.6 | 4308.1 | 4215.4 | 5676.7 | 3581.0 | 5883.3 |
| Canada goose | 94.7 | 117.3 | 118.4 | 116.2 | 162.2 | 184.0 | 188.7 | 140.5 | 163.1 | 196.6 |
| Am. coot | 530.6 | 315.0 | 241.7 | 930.7 | 276.2 | 261.5 | 366.6 | 442.6 | 111.8 | 383.3 |
| Ponds | 2958.5 | 2349.6 | 1418.9 | 1059.8 | 859.7 | 1382.8 | 1405.1 | 1615.9 | 1087.9 | 2653.1 |

Appendix 1 (continued). Long-term trend in adjusted waterfowl breeding population estimates (thousands) for Southern Saskatchewan.

| Species/Ponds | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|-----------------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Dabbling ducks | | | | | | | | | | |
| Mallard | 1808.5 | 2142.7 | 2450.8 | 2448.7 | 2528.6 | 2266.7 | 1649.7 | 1212.5 | 2110.7 | 1609.5 |
| Am. black duck | 0.4 | 0.0 | 0.0 | 3.3 | 0.4 | 0.4 | 0.0 | 0.0 | 0.8 | 0.0 |
| Gadwall | 583.6 | 930.1 | 1155.3 | 1342.0 | 1028.7 | 650.0 | 715.4 | 359.7 | 1076.6 | 751.8 |
| Am. wigeon | 401.8 | 311.8 | 381.9 | 305.5 | 345.5 | 253.1 | 177.3 | 174.5 | 218.9 | 128.1 |
| Am. green-winged teal | 271.3 | 351.2 | 418.5 | 271.2 | 342.2 | 294.8 | 202.3 | 127.3 | 272.6 | 124.3 |
| Blue-winged teal | 1088.4 | 2046.6 | 1974.4 | 1589.0 | 2110.9 | 1622.4 | 1267.5 | 667.1 | 1918.3 | 1154.7 |
| N. shoveler | 763.9 | 1212.8 | 1660.7 | 790.5 | 1281.3 | 899.8 | 718.1 | 310.2 | 1437.7 | 783.6 |
| N. pintail | 554.2 | 807.4 | 1123.9 | 551.8 | 875.2 | 463.6 | 680.0 | 181.8 | 993.4 | 473.7 |
| Subtotal | 5472.2 | 7802.8 | 9165.4 | 7302.2 | 8512.9 | 6450.9 | 5410.3 | 3033.2 | 8028.8 | 5025.7 |
| Diving ducks | | | | | | | | | | |
| Redhead | 345.1 | 293.2 | 308.5 | 268.1 | 288.3 | 323.8 | 224.3 | 94.9 | 271.3 | 131.2 |
| Canvasback | 282.3 | 283.0 | 280.1 | 246.9 | 253.4 | 232.2 | 232.2 | 73.3 | 194.8 | 120.9 |
| Scaup | 518.6 | 462.5 | 489.5 | 300.2 | 287.4 | 272.8 | 320.6 | 149.7 | 251.4 | 184.8 |
| Ring-necked duck | 36.0 | 82.9 | 58.1 | 30.8 | 57.2 | 63.9 | 36.3 | 29.7 | 27.2 | 19.6 |
| Goldeneyes | 41.9 | 53.0 | 37.4 | 66.7 | 29.5 | 40.5 | 10.2 | 21.4 | 64.8 | 16.0 |
| Bufflehead | 41.9 | 53.0 | 91.6 | 78.8 | 88.4 | 112.8 | 73.7 | 75.4 | 99.4 | 55.2 |
| Ruddy Duck | 158.1 | 166.7 | 124.1 | 82.3 | 170.3 | 168.2 | 134.3 | 70.0 | 358.2 | 229.9 |
| Subtotal | 1423.9 | 1394.2 | 1389.2 | 1073.7 | 1174.5 | 1214.2 | 1031.5 | 514.2 | 1267.0 | 757.7 |
| Miscellaneous | | | | | | | | | | |
| Long-tailed duck | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Eiders | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Scoters | 0.3 | 0.9 | 1.5 | 0.2 | 0.0 | 0.0 | 0.3 | 0.0 | 0.3 | 0.0 |
| Mergansers | 7.5 | 4.0 | 6.5 | 6.8 | 2.6 | 9.2 | 21.2 | 3.0 | 2.4 | 3.1 |
| Subtotal | 7.9 | 4.9 | 7.9 | 6.9 | 2.6 | 9.2 | 21.5 | 3.0 | 2.7 | 3.1 |
| Total ducks | 6903.9 | 9201.9 | 10562.5 | 8382.9 | 9690.0 | 7674.2 | 6463.3 | 3550.3 | 9298.6 | 5786.4 |
| Canada goose | 220.0 | 176.8 | 289.6 | 373.3 | 238.4 | 294.4 | 289.1 | 288.9 | 391.9 | 267.2 |
| Am. coot | 625.2 | 868.1 | 1661.1 | 594.3 | 823.7 | 848.5 | 679.2 | 306.8 | 633.9 | 536.3 |
| Ponds | 2314.4 | 3268.9 | 2992.0 | 1470.2 | 2535.3 | 1403.7 | 1535.7 | 634.9 | 2143.0 | 1461.3 |