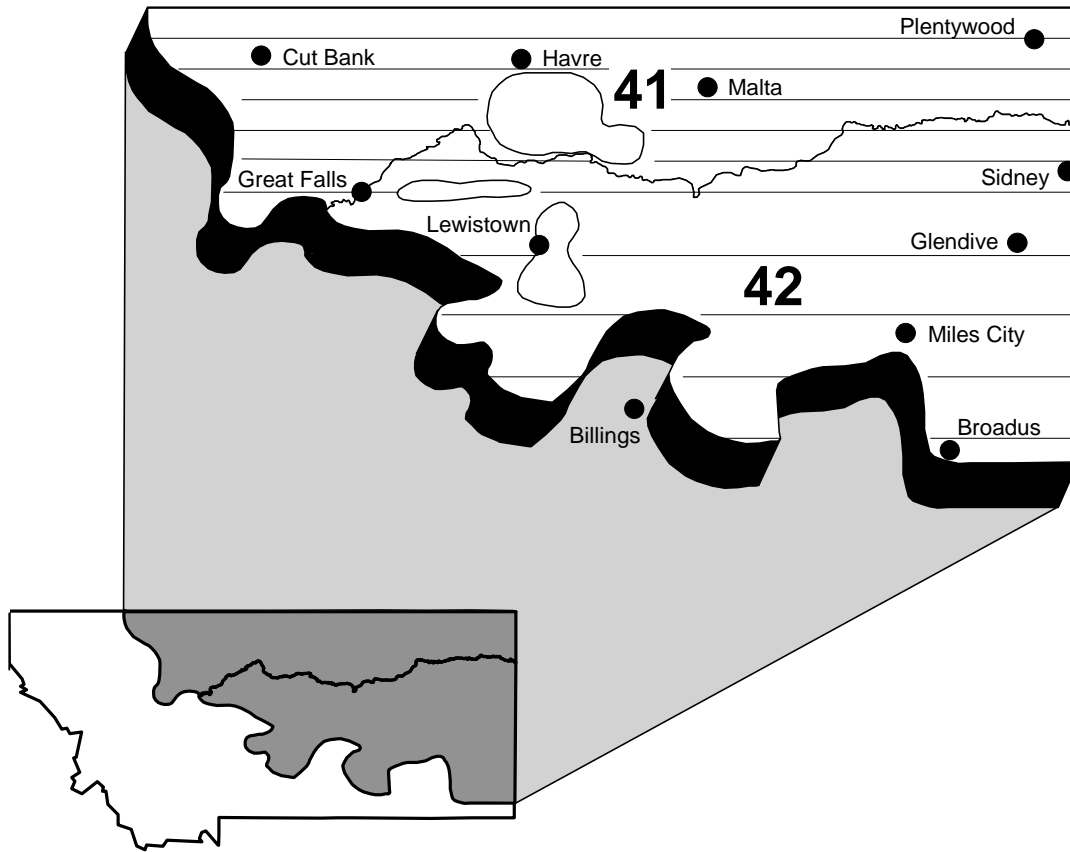


Waterfowl Breeding Population Survey  
for

# MONTANA



2001

**Title:** Waterfowl Breeding Population Survey for Montana

**Strata Surveyed:** 41 and 42

**Dates:** May 5 - 18, 2001

**Data Supplied By:** U.S. Fish and Wildlife Service (USFWS)  
Division of Migratory Bird Management (DMBM)

Aerial Crew:

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**Abstract:**

The 2001 Waterfowl Breeding Population Survey for Montana was completed on May 18 with all segments and transects covered as outlined in the survey design. A general drought condition existed across stratum 41 and 42 with poor habitat conditions in the west improving to good habitat conditions in the east. Pond counts were below the previous year's estimate by 5% (rounded) and below 10-year and long term means by 50% and 42% respectively.

Waterfowl population estimates reflected the dry conditions with declines in all dabbling species from the 10-year and long term means. Mallard showed a 21% decline from 2000, a 35% decline from the 10 year mean, and 19% below the long term mean. Northern pintail showed a similar historic trend, however, 2001 population estimates were up by 34% over the previous year. Population estimates of divers were more variable with short term increases in redhead,

canvasback, and scaup. Canada goose indices changed little from the previous year and 10-year mean remaining well above (65%) the long term mean. Though breeding and potential brood conditions appear to be normal in the eastern portion of the strata extensive areas of drought are expected to yield below average production overall.

### **Methods:**

Procedures followed in conducting the survey are described in the Standard Operating Procedures for Aerial Breeding Ground Surveys in North America, Section III, revised 1987. The survey design for Montana included 12 air/ground comparison segments comprising 6.7% of the total 280 segments flown. Two segments in the northwestern region of stratum 41 were partially omitted due to adverse flying conditions with a corresponding adjustment in the area expansion factor.

Air and ground crew members met in Pierre South Dakota on April 30. Survey flights in Montana were initiated on May 5 and continued through May 18. Flights were canceled on May 6 due to adverse weather conditions and aircraft mechanical problems forced cancellation of flights for 5 days (May 12-17). Data for the western Dakotas was sent to John Solberg for inclusion in the overall South Dakota and North Dakota report.

A Cessna TR182 aircraft (N705) was used to fly the survey over approximately 52 hrs of flight time. Survey personnel included Jim Voelzer as pilot/observer; Ray Bentley as right seat observer; Allison Arnold as ground crew leader, and Vincent Griego as ground crew assistant. This was Jim's 24<sup>th</sup> season flying this particular survey area and Ray's 3<sup>rd</sup> season as observer. 2001 was Allison's 4<sup>th</sup> year as ground crew leader and Vincent's 2<sup>nd</sup> season as assistant.

Aerial observations were collected using onboard PC computers interfaced with the aircraft GPS receiver. Each observation was marked with time and location and processed using software developed by Jack Hodges, USFWS/DMBM, Juneau, Alaska. Field processed data files were then sent to Mark Otto, Population and Habitat Assessment Section (PHAS) USFWS/DMBM and Kristi Wilkins (PHAS) in Laurel, MD for application of visibility correction factors and table compilation.

### **Weather and Habitat Conditions:**

Overall habitat conditions for eastern Montana were fair to poor in 2001. A general improvement of pond numbers, flowing stream drainage, and shoreline vegetation occurred from the front range east toward the North Dakota border. The northeastern and southeastern corners of the state showed good habitat with an area of poor conditions positioned centrally in the general area between Glendive and Glasgow. The U.S. Palmer Drought Index (PDI) and NOAA's drought monitor agree with crew observations classifying central Montana as a "severe" drought area progressing east to "abnormally dry" with the observed improved habitat conditions in the northeast. Total pond estimates were 50% below the ten year mean and 42% below the long term mean (Table 2.) with 2001 being the second driest year on record surpassed only by 1980.

#### Stratum 41 (North of the Missouri River)

This stratum showed pond counts to be very close ( $N = 74,226$ ) to the previous year's estimate with similar trends in areas of poor, fair, and good habitat conditions. Water levels in most basins are below conditions conducive to optimal waterfowl nesting and observations of pair crowding on remaining stock ponds and creeks with little shoreline vegetation supported the general assessment of poor conditions. The northeastern portion of the stratum near Plentywood showed good habitat with most basins full or nearly so and adequate emergent and upland vegetation. This contrasted sharply with the western strata which showed very dry conditions including dry stream beds and basins and though extensive acreage of CRP land was present, little adjacent water was observed for waterfowl. The immediate eastern slope of the front range showed some improvement in conditions with many ponds and particularly extensive systems of meandering stream drainage supported by snow melt rather than precipitation. Overall, current observations in stratum 41 indicate below average nesting conditions which, in turn, portend poor production.

#### Stratum 42 (South of the Missouri River)

This stratum showed a general gradation of habitat conditions from poor in the west improving to good in the east near Miles City and points southeast. A situation similar to that encountered in stratum 41 exists in the areas on the east slope of the front range which are fed by run off; exhibiting good conditions but moving east basins rapidly become dry and evidence of crowding and likely non-nesting birds persist until conditions again improve in the southeast. In these areas stock ponds and natural basins show adequate water as well as adjacent upland vegetation for nesting, including tracts of adjacent CRP land. The area north of Glendive and south of Culbertson was very dry but improving to the north. Nest initiation is predicted to be below normal with average to below average success expected for those pairs that do initiate nesting.

### **Breeding Population Estimates**

Aerial and ground observations indicated that survey timing was appropriate with pairs established on territories and little evidence of transient flocks. By the end of the survey increasing numbers of flocked drakes appeared as expected, but of concern were additional observations that appeared to be molting flocks of mixed sexes. This, leading to the concern that due to the drought and crowding conditions on available ponds, these flocks of mixed sex birds indicated a portion of the population that would forego nesting this year.

Population estimates of dabblers totaled 715,700 in 2001, a slight increase (6.3%) over 2000 estimates but 34% below the 10-year mean and 17.5% below the long term mean (Table 1). This trend was consistent for all species with the exception of mallard and American wigeon which showed declines from 2000 estimates as well as declines from 10-year and long term means. Of the dabbler species, American wigeon populations showed the largest decline from 2000 (-28%), and from the 10-year mean (-54%). Only gadwall indicated an increase from the long term mean

(55%), a trend consistent over the last several years (Appendix 1).

Total diving duck population estimates increased 71% from 2000 and showed increases of 36% and 13.5% over the 10 year and long term means. Considerable trend variations exist between diver species in these strata largely due to generally low overall densities. An example is canvasback which show a 30% decrease from the 10-year mean however the expanded population estimate is only 6500 birds. Ruddy ducks appeared to be doing quite well with large increases over 2000 estimates, and 10-year and long term mean values, however this is a false increase, due mainly to a couple of atypical flock observations that inflated the breeding population estimate. Though not included in diver estimates, mergansers showed a 33.5 % increase from 10-year mean and a greater than 100% increase from the long term mean.

Canada goose estimates decreased only slightly from the previous year (-7%), nearly matched the 10-year mean, and as expected showed an increase (65%) over the long term mean.

The 2001 population index for American coot declined from the previous year by 69%. Coot numbers were also below the 10-year mean by 63% and the long term mean by 67%. As coot are an indicator of the quality and stability of ponds, this data lends further credence to the observation that 2001 was an abnormally dry year.

Population estimates for most species were divided equally between stratum 41 and 42 with exceptions in gadwall and coot. Both species were observed in significantly greater numbers in stratum 41.

Trend graphs #1 through #26 provide a visual depiction of trends in population estimates over long term.

### **Conclusions:**

As in other years, habitat conditions for stratum 41 and 42 are somewhat mosaic with a general trend of poor conditions in the western half improving to good conditions in large sections of the eastern 1/3. Basins in the northwest portions were dry and stream beds were left non-flowing. Existing water showed evidence of pressure from livestock with degraded adjacent upland cover. In what would be considered a wet year this area has potential for considerable waterfowl production however given the current drought conditions overall production is likely to be below average. The eastern 1/3 of the combined strata contained habitats much better suited to successful nesting and brood survival. The southeast and northeast portions displayed lush upland cover, filled basins, larger stream systems, and many older dugout impoundments which have taken on characteristics of natural ponds as far as shoreline and aquatic vegetation. Overall, pond numbers decreased considerably from 10 year and long term means. Dabbler numbers mirrored this trend with similar reductions from mean values. While the eastern portions of the survey unit may provide for normal waterfowl production it may not make up for the dry conditions in the western half and overall production in this survey unit is expected to be below average.

Table 1. Status of waterfowl breeding population estimates (thousands, adjusted for visibility bias) by species and stratum with comparison against the previous year, the previous 10-year mean, and the long-term mean for Montana.

Species/Ponds	Stratum		% Change From						
	41	42	2001 Total	2000 Total	10-Year Mean	Long- Term Mean	2000	10-Year Mean	Long- Term Mean
Ducks									
Dabblers									
Mallard	132.2	107.0	239.1	304.1	368.7	293.7	-21.4%	-35.1%	-18.6%
Am. black duck	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--
Gadwall	124.2	54.9	179.0	125.9	225.4	115.3	42.2%	-20.6%	55.2%
Am. wigeon	23.3	18.3	41.6	57.6	91.5	85.0	-27.8%	-54.5%	-51.1%
Am. green-winged teal	9.7	8.3	18.1	16.5	27.2	21.4	9.3%	-33.8%	-15.8%
Blue-winged teal	43.8	29.0	72.8	50.0	125.2	99.0	45.7%	-41.9%	-26.5%
N. shoveler	53.5	32.6	86.1	60.3	115.2	91.7	42.8%	-25.2%	-6.1%
N. pintail	53.4	25.6	79.0	58.7	129.4	161.6	34.5%	-38.9%	-51.1%
Subtotal	440.0	275.8	715.7	673.1	1082.7	867.7	6.3%	-33.9%	-17.5%
Divers									
Redhead	4.8	0.0	4.8	1.8	5.1	5.9	164.3%	-5.9%	-18.8%
Canvasback	1.2	3.3	4.5	3.5	6.5	5.5	30.0%	-30.3%	-18.2%
Scaups	19.3	12.2	31.5	30.7	25.9	37.3	2.5%	21.6%	-15.7%
Ring-necked duck	2.9	0.0	2.9	0.0	2.5	2.4	--	16.7%	24.5%
Goldeneyes	0.0	0.0	0.0	0.5	0.6	0.8	-100.0%	-100.0%	-100.0%
Bufflehead	0.6	0.0	0.6	1.7	1.1	1.5	-63.2%	-43.8%	-56.5%
Ruddy Duck	20.4	4.5	24.9	2.4	9.3	7.7	959.4%	166.9%	225.0%
Subtotal	49.3	20.0	69.3	40.6	51.1	61.0	70.8%	35.7%	13.5%
Miscellaneous									
Oldsquaw	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	--	--	--
Scoters	0.0	0.0	0.0	0.0	0.1	0.0	--	-100.0%	-100.0%
Mergansers	1.2	3.5	4.8	6.7	3.6	2.3	-28.9%	33.5%	109.1%
Subtotal	1.2	3.5	4.8	6.7	3.7	2.3	-28.9%	28.6%	104.8%
Total Ducks	490.5	299.3	789.8	720.4	1137.4	931.1	9.6%	-30.6%	-15.2%
Canada Goose	48.5	39.8	88.2	94.9	88.9	53.3	-7.0%	-0.7%	65.5%
Am. coot	20.4	1.2	21.6	69.1	59.2	65.6	-68.8%	-63.5%	-67.1%
Ponds	74.2	79.7	154.0	162.6	306.3	264.4	-5.3%	-49.7%	-41.8%

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

Year	Stratum		Total
	41	42	
1974	142.4	66.9	209.2
1975	150.6	128.8	279.4
1976	109.3	126.3	235.5
1977	70.4	88.2	158.6
1978	145.7	156.2	301.9
1979	135.0	106.2	241.2
1980	77.9	74.4	152.3
1981	103.3	73.0	176.3
1982	147.1	126.5	273.5
1983	85.2	88.7	173.9
1984	88.6	117.5	206.2
1985	127.3	160.0	287.3
1986	190.4	206.3	396.7
1987	102.2	127.1	229.3
1988	78.3	92.0	170.3
1989	160.5	177.3	337.8
1990	121.7	124.3	246.0
1991	111.6	130.1	241.6
1992	95.6	140.0	235.5
1993	94.3	100.5	194.8
1994	227.4	251.1	478.5
1995	164.1	184.7	348.8
1996	209.4	174.7	384.1
1997	154.3	160.2	314.5
1998	149.4	176.0	325.4
1999	227.6	149.8	377.3
2000	74.6	88.0	162.6
2001	74.2	79.7	154.0
10-year Mean	150.8	155.5	306.3
Long-term Mean	131.3	133.1	264.4
Percent Change:			
From 2000	-0.4%	-9.4%	-5.3%
From 10-year Mean	-50.8%	-48.7%	-49.7%
From Long-term Mean	-43.4%	-40.1%	-41.8%

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

Species/Ponds	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
<b>Ducks</b>										
<b>Dabblers</b>										
Mallard	363.3	489.4	320.9	198.5	291.3	311.5	273.9	374.2	261.3	198.2
Am. black duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gadwall	147.9	130.5	100.0	93.7	94.3	53.3	49.1	15.5	11.8	69.6
Am. wigeon	36.8	43.2	63.6	68.6	85.8	92.6	58.3	129.8	99.2	76.8
Am. green-winged teal	22.5	18.4	29.9	20.5	8.6	28.2	11.5	31.7	51.5	21.9
Blue-winged teal	137.5	133.3	82.9	53.2	149.9	99.3	87.1	17.0	8.5	77.7
N. shoveler	65.7	83.1	98.6	78.0	109.6	64.9	65.5	61.1	47.2	58.1
N. pintail	287.4	262.9	277.3	72.2	156.4	191.2	124.3	240.6	167.7	116.8
Subtotal	1061.2	1160.7	973.1	584.9	895.9	840.9	669.7	870.0	647.3	619.2
<b>Divers</b>										
Redhead	2.6	4.2	12.4	1.4	2.6	2.0	2.4	0.0	2.4	1.0
Canvasback	3.1	0.5	1.6	3.5	5.5	3.6	5.6	6.7	9.6	1.3
Scaups	27.8	44.7	43.0	27.0	50.0	33.2	15.6	39.5	49.2	35.8
Ring-necked duck	3.3	0.9	7.4	2.9	0.2	0.0	0.0	0.0	0.0	2.1
Goldeneyes	0.0	1.3	0.0	0.0	0.6	0.0	0.0	8.8	2.4	0.0
Bufflehead	1.3	1.3	0.4	2.1	1.4	0.4	0.0	1.7	0.6	1.7
Ruddy Duck	0.0	2.7	1.7	1.5	22.3	0.6	1.3	5.7	3.1	1.8
Subtotal	38.1	55.7	66.4	38.3	82.7	39.9	25.0	62.4	67.4	43.8
<b>Miscellaneous</b>										
Oldsquaw	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	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mergansers	1.4	0.0	7.7	0.7	0.0	0.0	0.0	0.7	0.8	3.5
Subtotal	1.4	0.0	7.8	0.7	0.0	0.0	0.0	0.7	0.8	3.5
Total Ducks	1100.7	1216.4	1047.3	623.9	978.6	880.8	694.6	933.1	715.5	666.6
Canada Goose	19.0	0.0	44.9	42.2	42.2	50.4	61.2	31.6	14.0	22.1
Am. coot	13.9	19.4	23.4	58.1	31.0	22.3	9.6	17.5	38.0	22.2
Ponds										209.2
<b>Ducks</b>										
<b>Dabblers</b>										
Mallard	478.4	168.0	171.0	282.5	258.3	256.2	245.8	323.5	230.1	189.8
Am. black duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gadwall	72.9	55.3	19.7	174.8	78.6	83.5	119.9	95.1	71.0	38.3
Am. wigeon	110.6	99.7	77.1	157.0	87.9	148.9	65.2	89.4	77.9	73.0
Am. green-winged teal	53.1	13.6	3.9	18.2	40.1	9.9	9.1	13.4	18.9	10.6
Blue-winged teal	98.3	207.1	93.8	93.9	117.5	103.4	81.8	211.0	79.9	52.1
N. shoveler	100.2	102.2	31.1	179.2	189.6	52.2	121.8	160.7	61.8	65.0
N. pintail	259.2	226.0	118.5	348.9	324.8	146.6	157.3	306.9	88.3	99.8
Subtotal	1172.8	871.9	514.9	1254.7	1096.7	800.7	801.0	1200.0	627.9	528.6
<b>Divers</b>										
Redhead	0.7	2.7	3.2	7.0	14.7	4.4	25.0	15.0	10.5	19.2
Canvasback	2.1	16.2	3.2	6.4	10.4	4.8	5.4	12.5	5.0	3.5
Scaups	26.4	29.9	34.4	72.1	88.6	36.8	35.8	61.0	47.1	53.3
Ring-necked duck	0.0	1.4	0.2	0.8	0.0	0.9	0.9	2.4	16.3	3.0
Goldeneyes	0.0	0.0	0.6	0.0	1.1	1.6	0.0	0.0	0.0	0.6
Bufflehead	0.4	0.6	0.0	1.3	3.6	1.0	2.4	5.6	0.4	1.8
Ruddy Duck	2.6	1.9	1.2	14.1	12.4	0.7	17.1	17.8	9.1	11.8
Subtotal	32.2	52.7	42.8	101.7	130.8	50.1	86.6	114.2	88.3	93.1
<b>Miscellaneous</b>										
Oldsquaw	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Mergansers	1.4	0.8	2.7	1.9	4.1	0.0	8.5	1.8	0.0	1.4
Subtotal	1.4	0.8	2.7	1.9	4.1	0.0	8.5	1.8	0.2	1.4
Total Ducks	1206.4	925.4	560.3	1358.3	1231.5	850.8	896.0	1316.0	716.5	623.1
Canada Goose	23.1	27.0	26.3	27.9	41.6	36.6	31.3	37.1	34.6	51.1
Am. coot	13.8	59.5	16.4	83.1	319.4	104.2	197.7	53.3	42.9	103.5
Ponds	279.4	235.5	158.6	301.9	241.2	152.3	176.3	273.5	173.9	206.2



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

Species/Ponds	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Ducks										
Dabblers										
Mallard	152.0	156.9	240.9	218.0	282.8	148.4	222.7	239.9	288.6	368.7
Am. black duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gadwall	40.8	33.8	32.6	30.7	128.5	56.7	96.9	154.4	181.5	182.9
Am. wigeon	58.7	52.0	64.9	44.0	58.8	126.2	70.3	88.2	65.5	137.7
Am. green-winged teal	6.4	6.2	6.0	12.0	17.0	15.7	12.4	16.3	8.4	34.0
Blue-winged teal	38.6	21.6	40.2	83.5	65.9	76.3	77.7	89.0	60.3	186.4
N. shoveler	34.1	69.3	73.2	33.7	58.6	86.3	51.5	27.1	92.7	194.3
N. pintail	56.5	95.9	146.0	61.6	58.0	131.2	43.1	75.5	130.4	244.5
Subtotal	387.0	435.6	603.8	483.6	669.6	640.6	574.7	690.4	827.4	1348.5
Divers										
Redhead	2.7	3.6	3.4	2.7	7.0	7.8	6.4	5.5	5.3	3.4
Canvasback	2.1	2.8	1.0	2.1	5.1	10.8	1.0	5.6	9.3	12.5
Scaups	20.0	33.4	44.7	55.9	46.9	33.1	25.2	14.0	28.3	28.6
Ring-necked duck	4.3	7.1	0.4	1.2	3.8	0.4	0.5	3.9	4.0	5.0
Goldeneyes	1.3	2.5	0.0	0.0	1.1	0.6	0.7	0.0	1.5	0.0
Bufflehead	1.0	0.4	0.0	4.1	1.7	6.0	2.2	1.3	0.4	0.3
Ruddy Duck	8.0	4.6	0.6	25.1	5.8	9.2	38.0	9.2	1.8	4.7
Subtotal	39.3	54.5	50.2	91.2	71.4	67.9	73.9	39.6	50.6	54.5
Miscellaneous										
Oldsquaw	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mergansers	0.7	2.8	1.9	1.4	2.1	0.0	4.2	1.3	1.0	0.8
Subtotal	0.7	2.8	1.9	1.4	2.1	0.0	4.2	1.3	1.0	0.8
Total Ducks	427.1	492.9	656.0	576.2	743.1	708.6	652.8	731.3	879.0	1403.7
Canada Goose	49.4	32.9	39.4	67.1	79.3	97.7	70.8	90.5	103.3	76.3
Am. coot	145.2	32.1	27.2	95.5	65.9	153.4	52.9	15.3	58.3	56.8
Ponds	287.3	396.7	229.3	170.3	337.8	246.0	241.6	235.5	194.8	478.5

Species/Ponds	1995	1996	1997	1998	1999	2000	2001
Ducks							
Dabblers							
Mallard	366.0	386.9	641.2	549.5	319.0	304.1	239.1
Am. black duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gadwall	359.3	201.7	513.5	232.7	205.3	125.9	179.0
Am. wigeon	116.9	100.2	122.4	92.9	63.1	57.6	41.6
Am. green-winged teal	30.3	56.1	58.1	13.3	27.2	16.5	18.1
Blue-winged teal	94.4	89.3	138.1	225.5	241.5	50.0	72.8
N. shoveler	81.4	109.3	209.1	90.5	235.6	60.3	86.1
N. pintail	154.5	135.6	209.3	110.9	131.8	58.7	79.0
Subtotal	1202.8	1079.1	1891.7	1315.4	1223.5	673.1	715.7
Divers							
Redhead	3.4	8.1	4.3	6.1	6.3	1.8	4.8
Canvasback	8.0	4.6	9.6	6.1	4.9	3.5	4.5
Scaups	21.4	35.9	32.7	14.1	28.0	30.7	31.5
Ring-necked duck	7.0	0.4	0.0	2.1	2.4	0.0	2.9
Goldeneyes	0.4	0.0	0.9	0.7	1.4	0.5	0.0
Bufflehead	0.5	0.0	2.2	1.5	1.1	1.7	0.6
Ruddy Duck	7.0	1.2	8.9	11.8	8.3	2.4	24.9
Subtotal	47.7	50.1	58.6	42.4	52.5	40.6	69.3
Miscellaneous							
Oldsquaw	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scoters	0.0	0.3	0.5	0.0	0.0	0.0	0.0
Mergansers	2.6	3.1	1.9	3.0	11.3	6.7	4.8
Subtotal	2.6	3.4	2.4	3.0	11.8	6.7	4.8
Total Ducks	1253.1	1132.6	1952.7	1360.8	1287.9	720.4	789.8
Canada Goose	98.6	106.6	78.5	84.9	84.2	94.9	88.2
Am. coot	33.2	38.8	80.1	12.8	174.7	69.1	21.6
Ponds	348.8	384.1	314.5	325.4	377.3	162.6	154.0

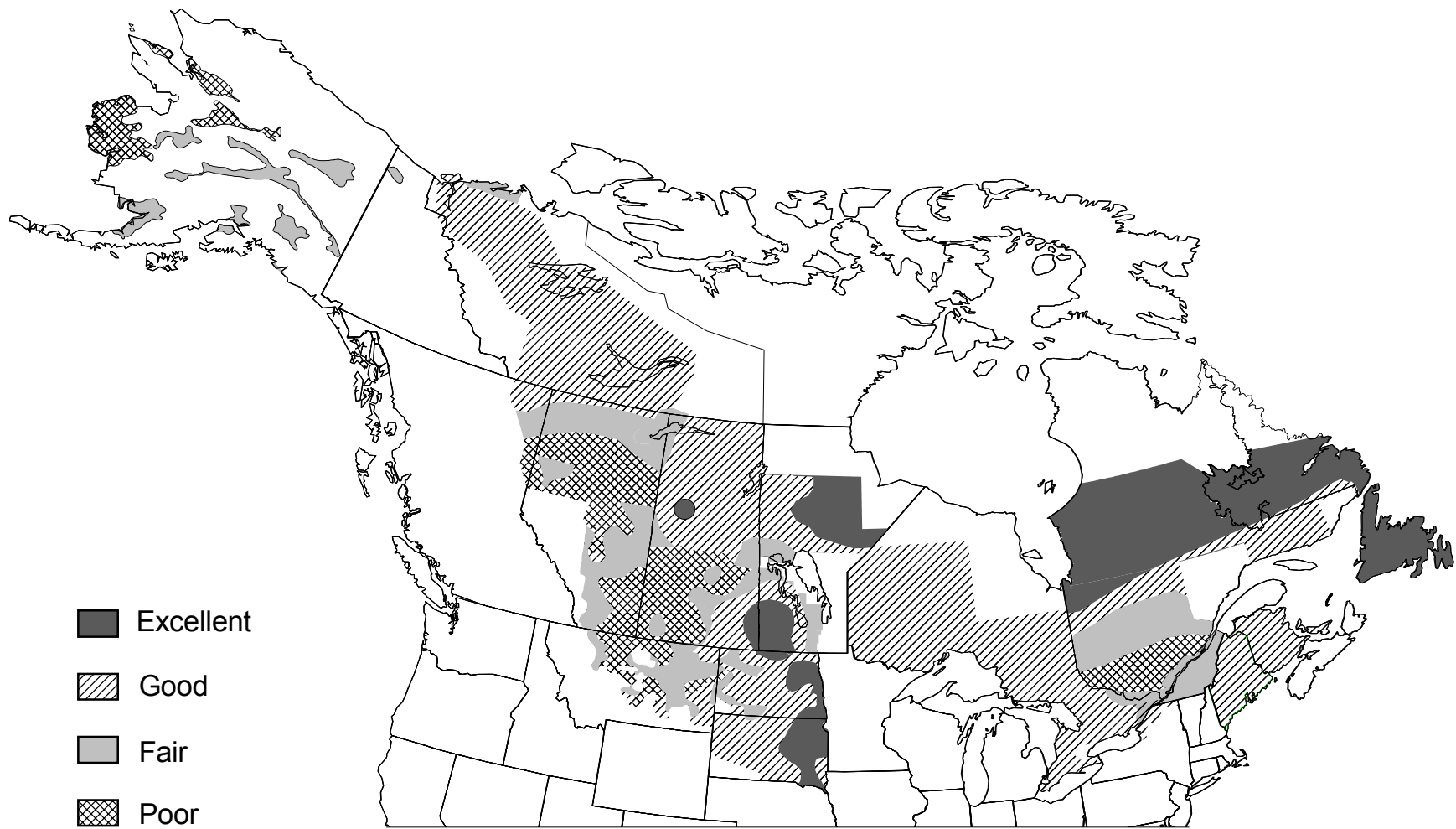


Figure 1. Preliminary breeding waterfowl habitat conditions during May 2001, as judged by U.S. Fish & Wildlife Service Flyway Biologists.

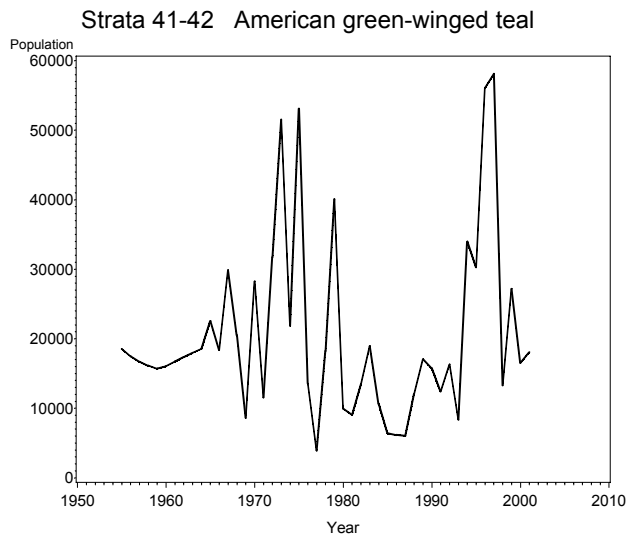
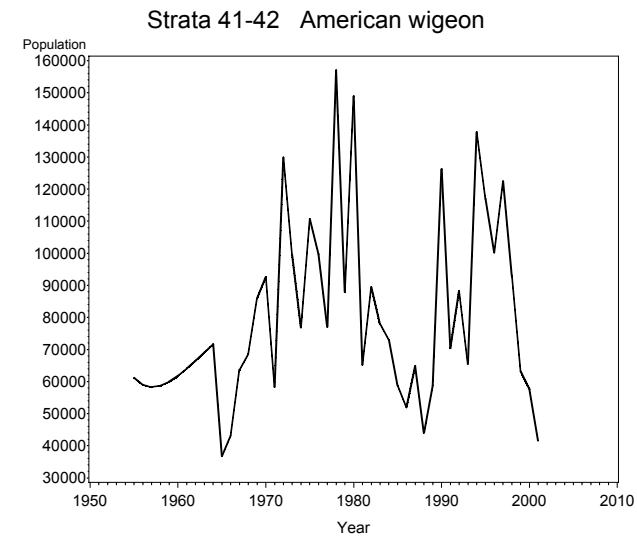
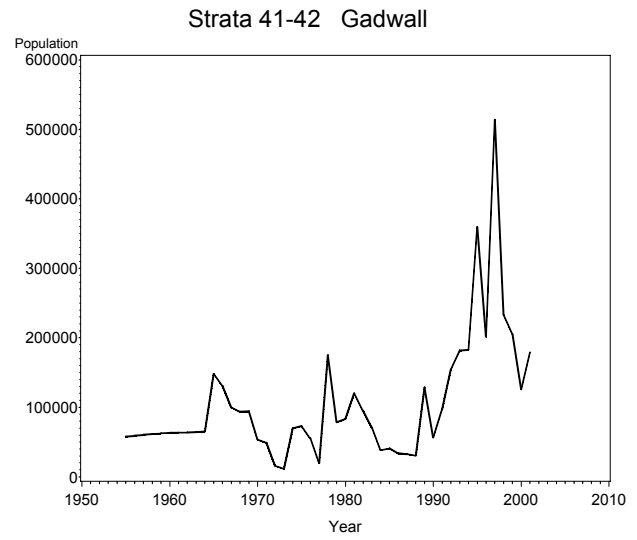
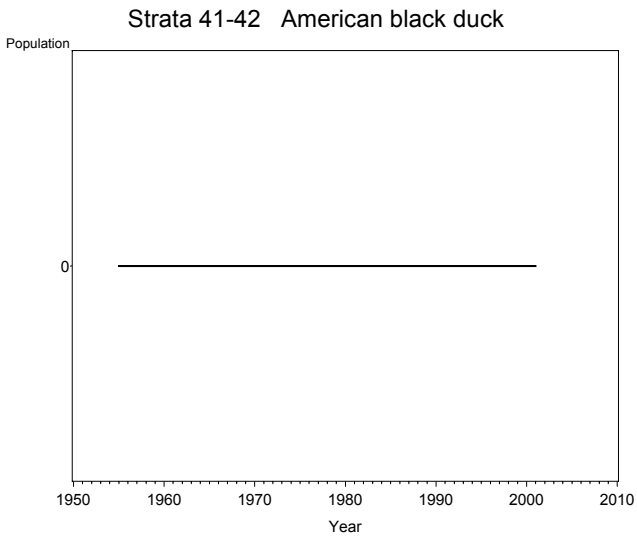
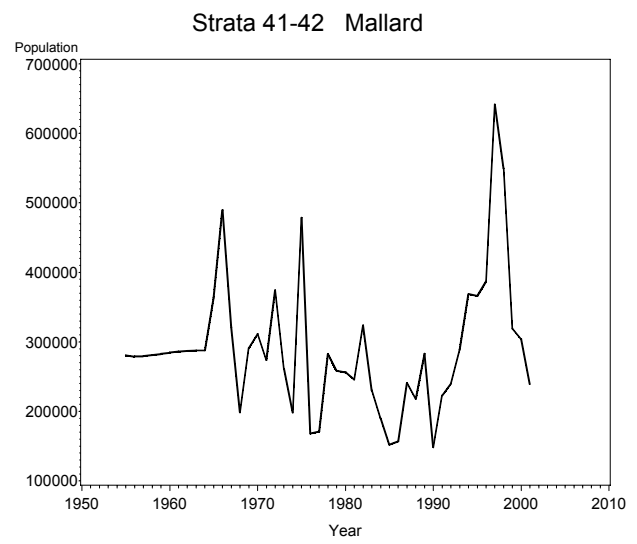
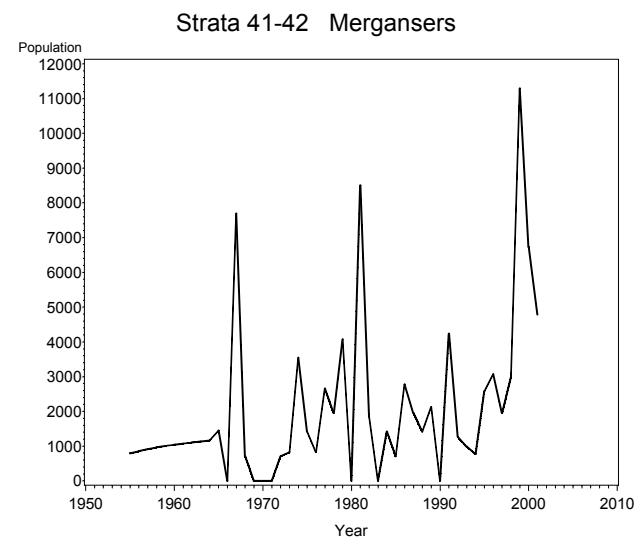


Figure 2. Population indices for the individual waterfowl species and ponds on an annual basis.

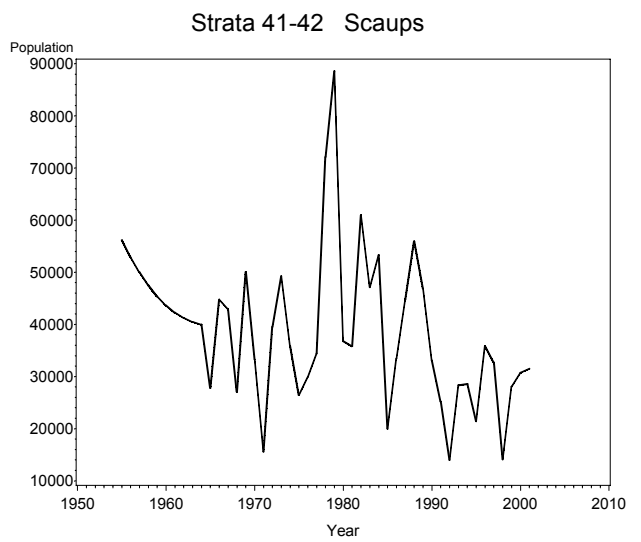
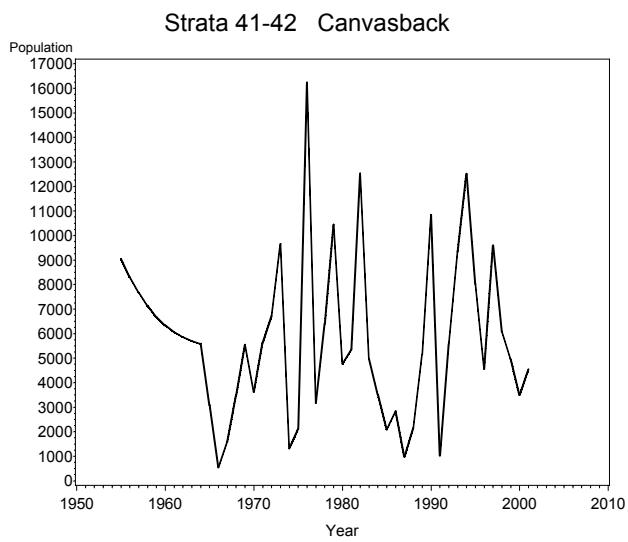
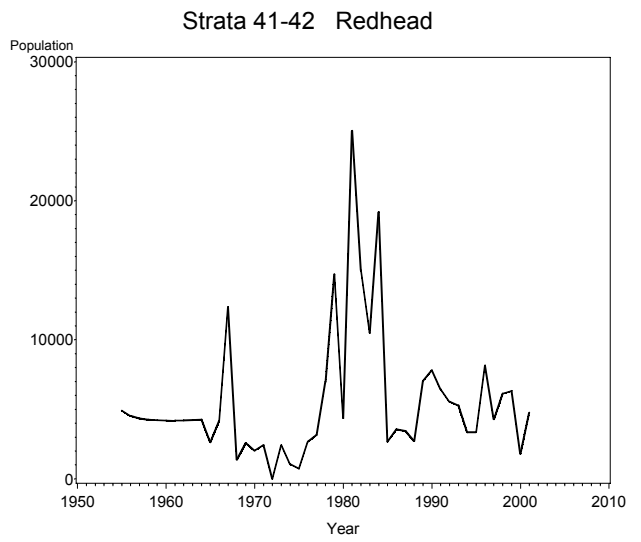
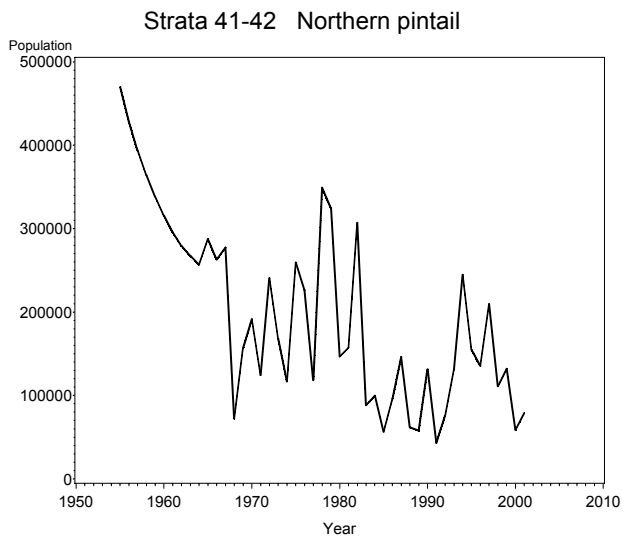
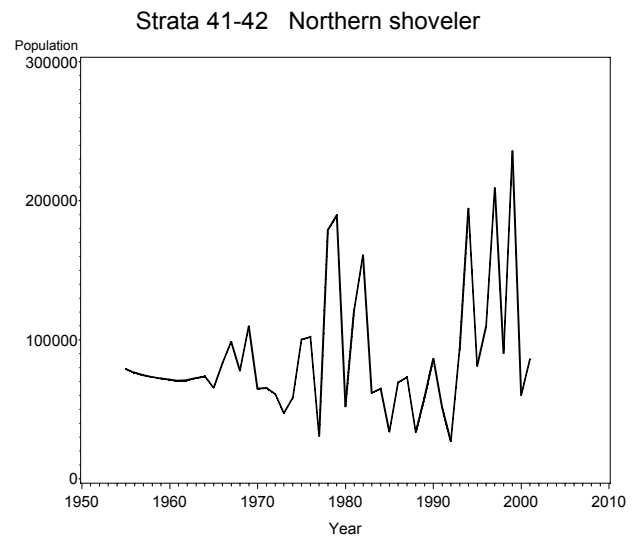
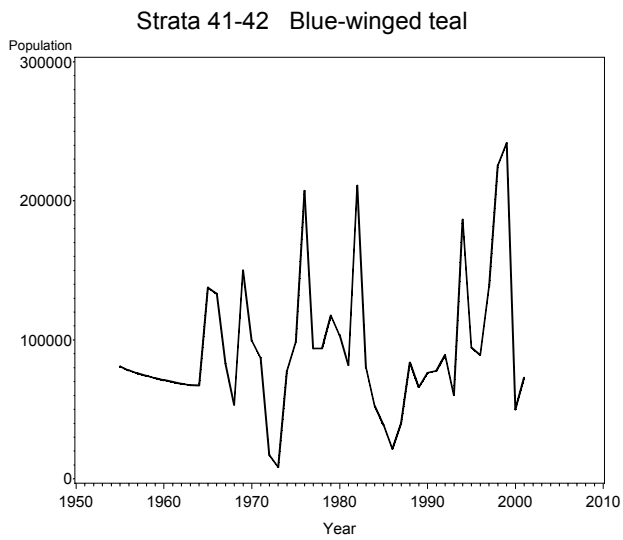
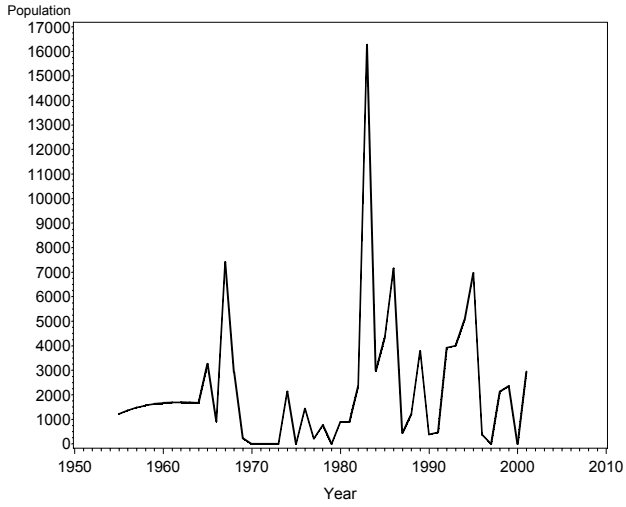
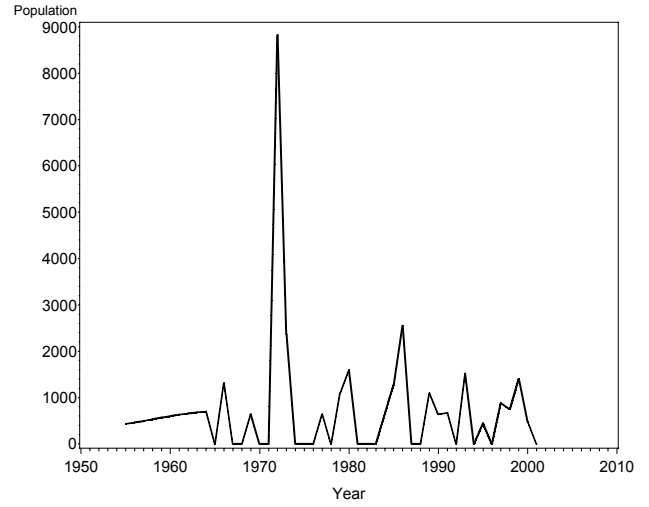


Figure 2 continued.

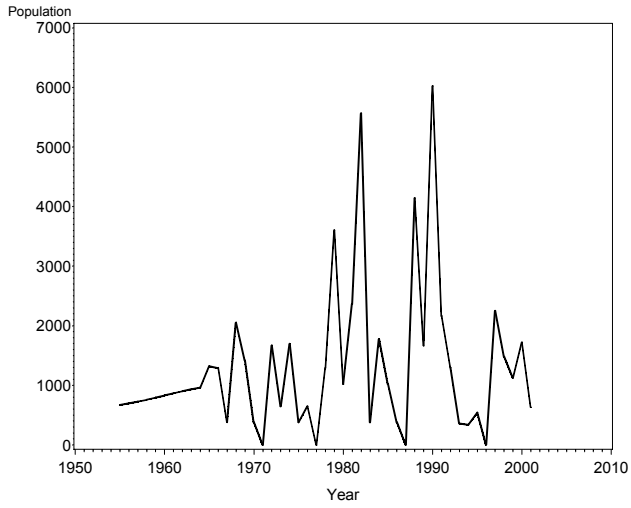
Strata 41-42 Ring-necked duck



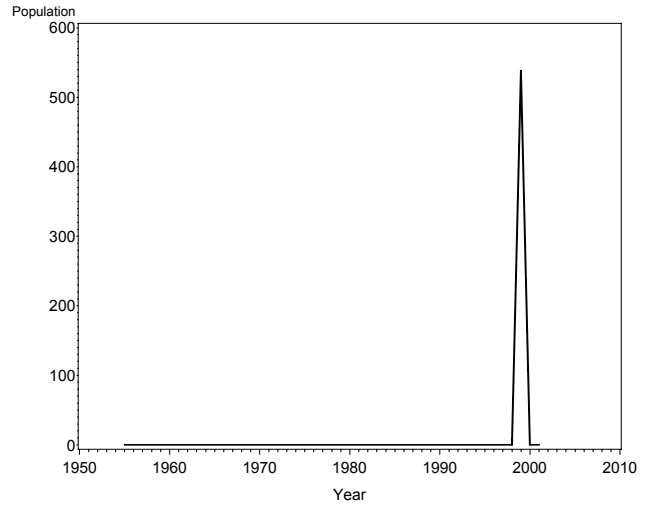
Strata 41-42 Goldeneyes



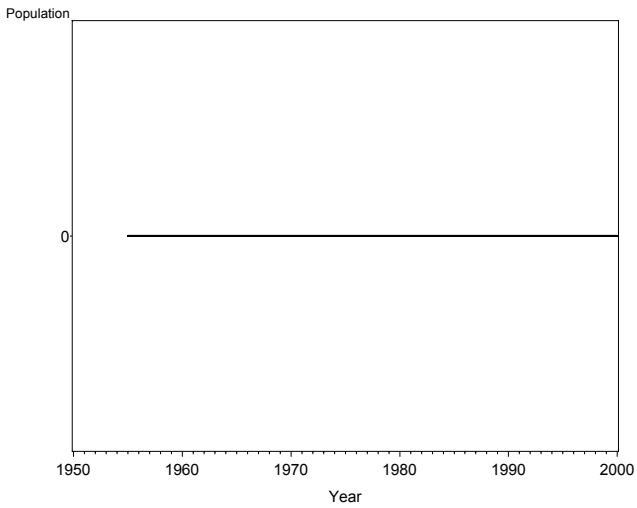
Strata 41-42 Bufflehead



Strata 41-42 Oldsquaw



Strata 41-42 Common Eider



Strata 41-42 Scoters

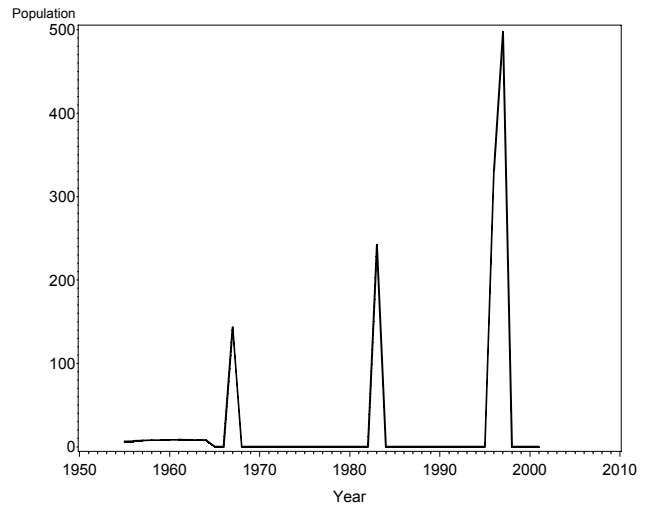


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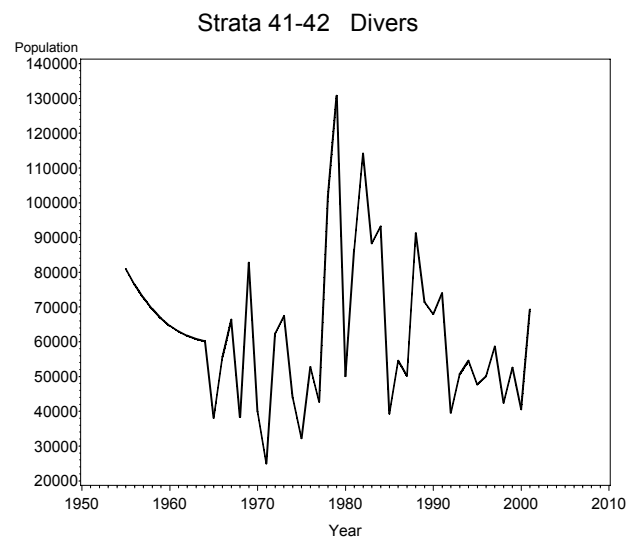
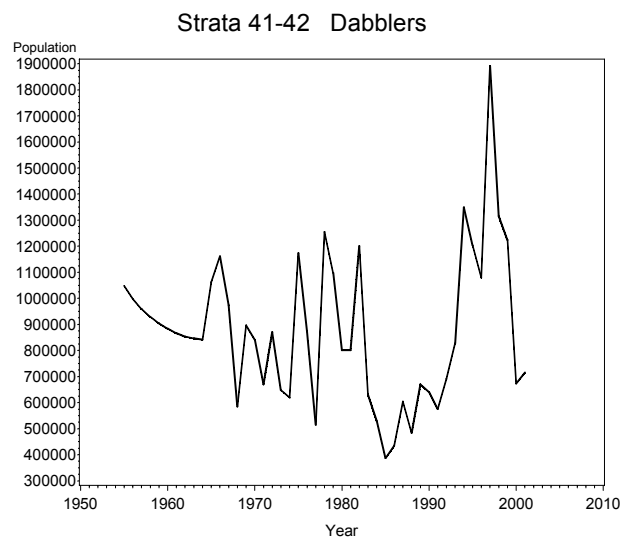
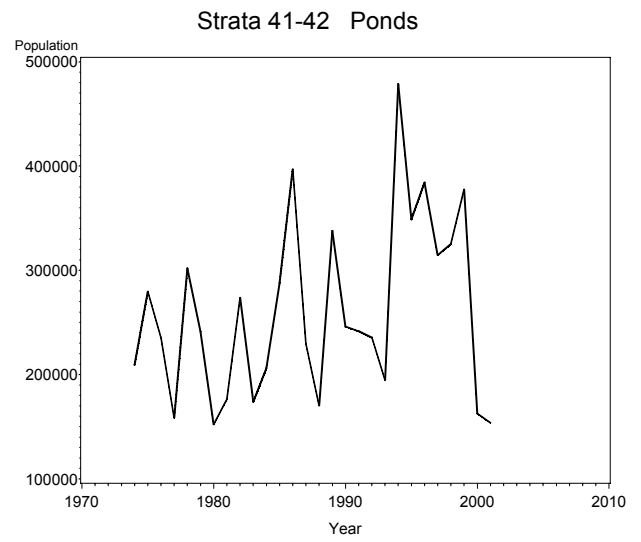
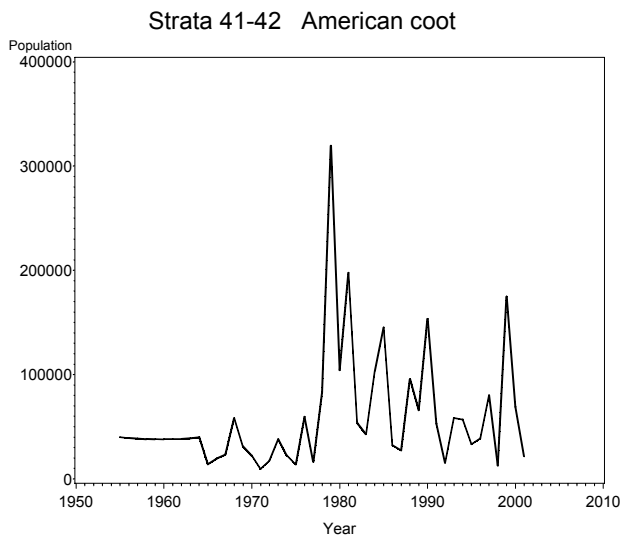
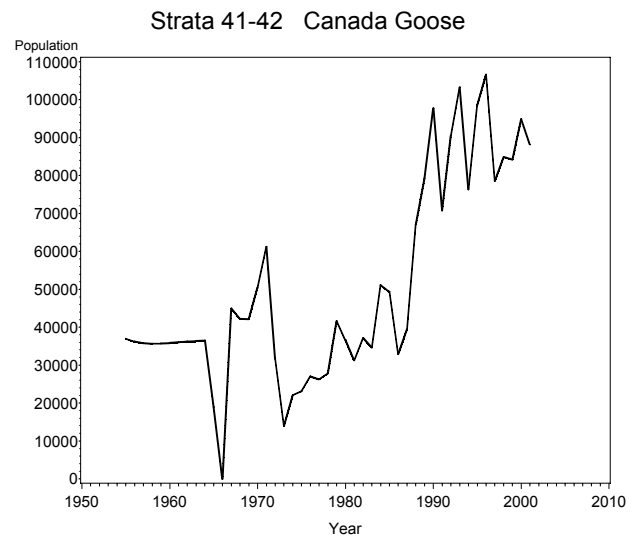
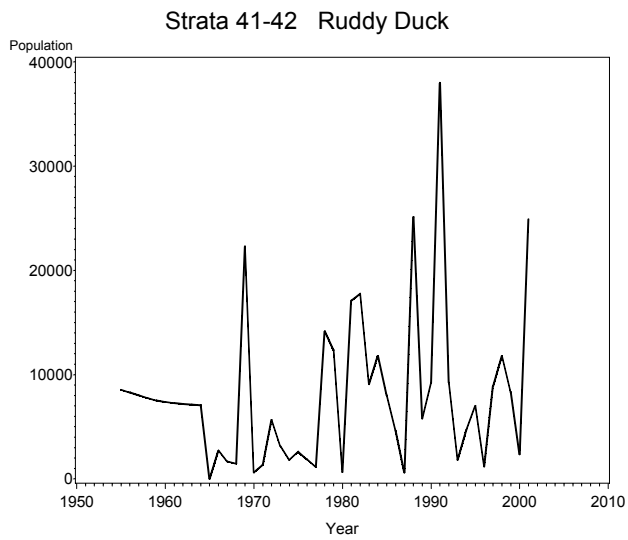


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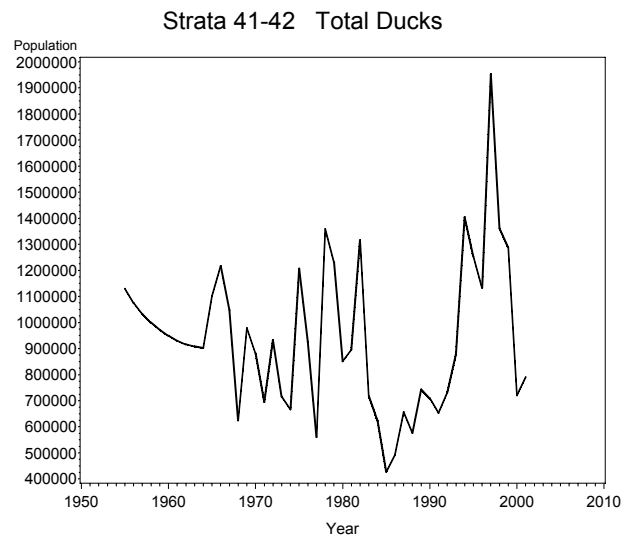
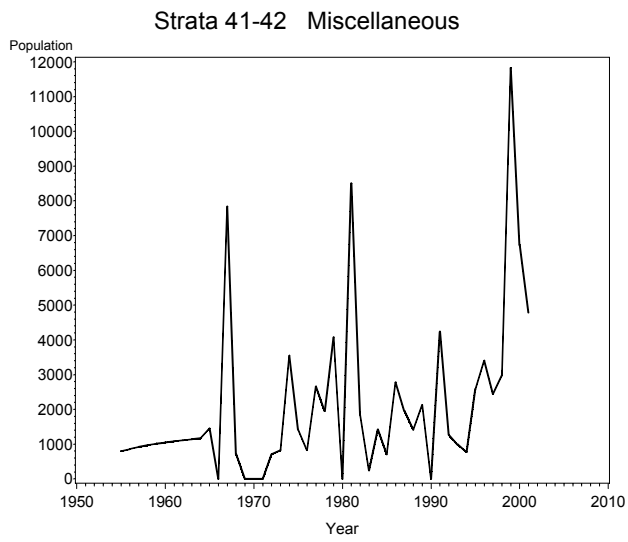


Figure 2 continued.