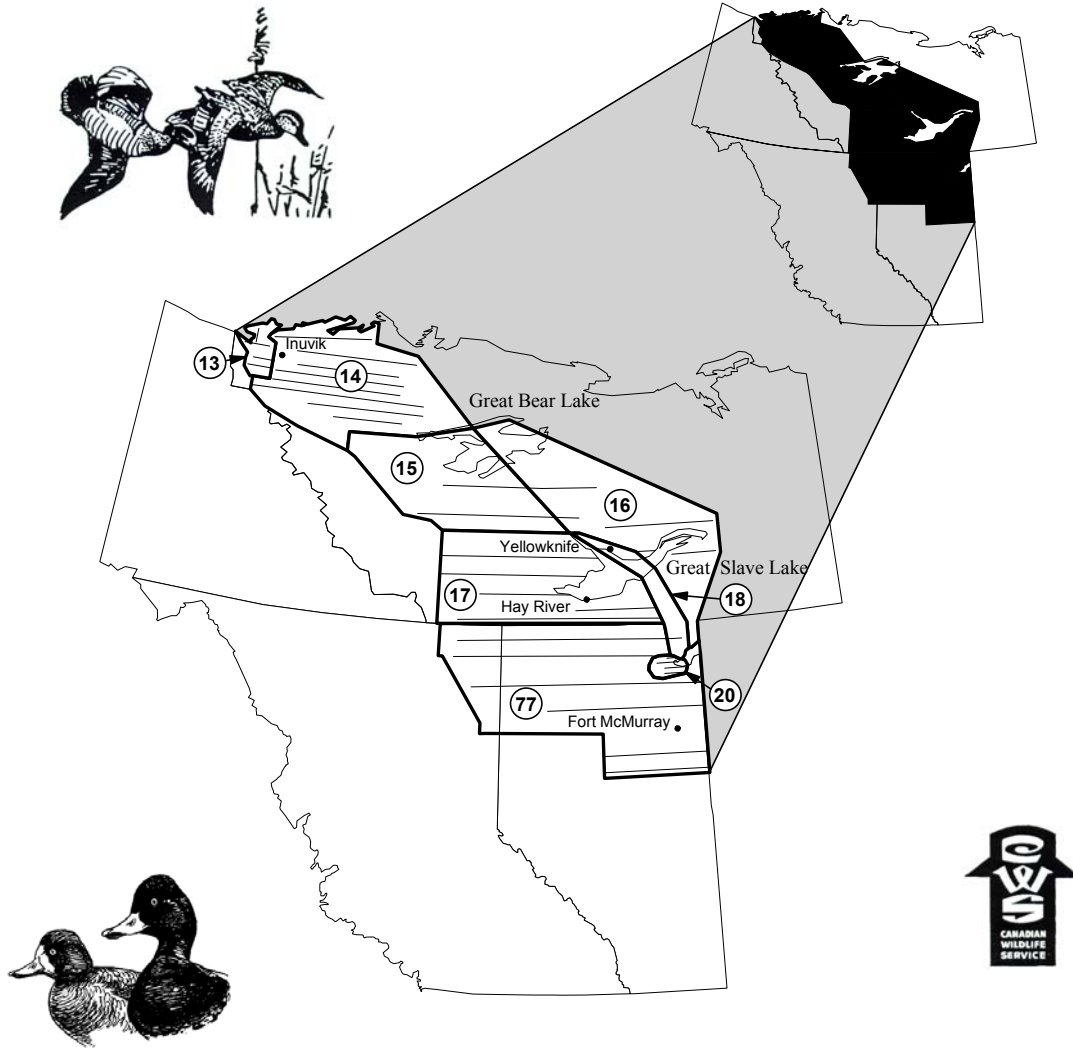


2008

NORTHERN ALBERTA, NORTHEASTERN BRITISH COLUMBIA AND THE NORTHWEST TERRITORIES



The data presented in this report are preliminary. Final estimates are available from the U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Patuxent Wildlife Research Center, Laurel, Maryland 20708-4016.

TITLE: Waterfowl Breeding Population and Habitat Survey for
Northern Alberta, Northeastern British Columbia, and the
Northwest Territories (Mackenzie District)

ABSTRACT:

Total duck numbers were up from 2007, (19.2%). Dabblers were up, (25.6%); divers were up, (17.1%); and miscellaneous species were slightly up, (0.8%). Spring arrived about two weeks late in the entire survey unit with the exception of Stratum 20, the Peace-Athabasca Delta. Early waterfowl nesters were probably adversely affected by the late spring. There was evidence of a waterfowl over flight of some magnitude from the prairie areas in 2008. Data is presented in Table 1, Figure 1, and Appendix 1.

METHODS:

This survey was conducted using procedures found in the Standard Operating Procedures for Aerial Breeding Ground and Habitat Survey, Section IV (A), revised 1977. Two new Sony Vaio computers, using a program developed by the Migratory Bird Office, Juneau, AK, and the Division of Migratory Bird Management, Laurel, MD, were used to record and process field data. The pilot/observer had previously flown the survey area twenty-four out of the last twenty-five years as either pilot/observer or observer. The right seat observer was new to this particular survey area, but has had considerable aerial waterfowl survey experience.

Transect flights within Strata 77 through 13 were flown using N783, a Cessna Soloy-206 amphibian aircraft. The survey was initiated out of Edmonton, Alberta on May 22 and completed on June 18 at Norman Wells, NWT. It involved approximately 134 hours of aircraft flight time covering approximately 10,500 total miles, of which were 5,490 miles on 36 transects, and comprising 305 segments. Survey dates for individual stratum are as follows: Stratum **77**, May 26- June 1; Stratum **20**, May 29; Stratum **17**, June 2-7; Stratum **18**, June 1-5; Stratum **16**, June 5-10; Stratum **15**, June 7-10; Stratum **14**, June 11-20; and Stratum **13**, June 15. Eight segments were not flown because of either adverse weather or low fuel reserves. The new Sony computers worked well during the survey. The pilot computer used the Garmin 396 GPS signal for latitude/longitude "hits", and the observer's computer use a Bluetooth Trine GPS unit mounted in the rear window. Eleven days were lost to weather delays and mandatory crew rest.

SPRING HABITAT CONDITIONS

Northern Alberta and Northeastern British Columbia

Above average winter and early spring precipitation produced good levels of water in beaver flowages, lower drainage basins, shallow wetlands flats, bogs, small streams, rivers, and small and medium sized lakes. All had normal water levels. Even though spring arrived later than normal, all mid-size and large lakes were ice free, even at higher elevations on the Caribou and Birch Mountains.

All of stratum 77 experienced a later than normal spring, with a cold snap during the first of May potentially delaying early nesting efforts. This area was rated as good.

Athabasca Delta

Even with the late spring, the Athabasca Delta is two to three weeks ahead of the rest of Alberta in Stratum 77. Spring water levels in the Peace and Athabasca Rivers directly determine flood levels in the Delta. The largest lake, Lake Claire, was wide open, with no ice. The Delta experienced a below normal flooding this spring. All of the wetlands surveyed associated with Lakes Baril, Claire, Hilda, Mamawi, and Richardson had lower than normal water levels. Many of the smaller connected wetlands were dry or almost dry, and the normally deeper sloughs also had reduced water levels. There was less water and habitat available for spring breeding waterfowl. This stratum was rated as fair.

Northwest Territories (Mackenzie District)

Precipitation the past year was above average for the Territories. The entire area was rated as good with the exception of a very small area in the south central part. This area was rated as fair as the snowmelt and early spring precipitation had produced flooded conditions in beaver flowages and shallow wetlands, thus restricting available waterfowl habitat. All small and mid-sized lakes were either ice free or had sufficient water margins for waterfowl to initiate nesting. Spring was also late here in the Territories, possibly adversely affecting the early nesters.

SUMMARY:

Habitat conditions for nesting waterfowl was rated as good for most of the survey area. The exception was Stratum 20, which had lower water levels, and a small portion of Stratum 17 in the Northwest Territories. Spring was about two weeks later than normal, which may adversely affect early nesters. The timing of the survey was excellent, with good ratios of mallard pairs/mallard drakes throughout the time period.

BREEDING POPULATION ESTIMATES:

The long-term trend in adjusted waterfowl breeding population estimates is presented in

Table 1. The 2008 waterfowl breeding population data listed by stratum for survey area 10 is also in Table 1, along with the comparison for 2007, and the ten-year and long-term means. Total ducks indicated a 19.2% increase from 2007, a 15.3% increase from the ten-year mean, and a -13.5% decrease from the long-term mean.

The dabbling duck populations estimate increased 25.6% from 2007, increased 31.2% from the ten-year mean, and increased 10.5% below the long-term mean. The only dabbling species whose population estimate indicated a slight decrease was the American widgeon (-4.7%).

The breeding population estimate for diving ducks also increased in 2008 (17.1%). Estimates were slightly above the ten-year mean (2.9%) and well below the long-term mean (-24.6%). Diver species whose estimates increased in 2008 included redhead (11.3%), scaup (42.3%), bufflehead (12.4%) and ruddy duck (542.2%). Diver species whose estimates decreased this year included canvasback (-49.2%), ring-necked duck (-18.1%) and goldeneye (-58.0%).

Concerning miscellaneous species, long-tailed duck increased (61.3%) from 2007, however scoters decreased (-2.9%) and mergansers decreased (-6.4%).

CONCLUSIONS:

1. A waterfowl over flight into boreal occurred in 2008. A much higher number of "prairie ducks" were observed throughout northern Alberta and the southern portion of the Northwest Territories. During the survey period, habitat conditions in northern Alberta and northeastern British Columbia were rated as good. The Peace- Athabasca Delta was rated as fair because of reduced spring flooding. Water levels were reduced, especially in shallow wetlands, in much of the available waterfowl habitat in the Delta.
2. The Mackenzie River Valley and adjacent drainage "opened up rather late, with possible adverse effect on early waterfowl nesters. Virtually all the waterfowl habitat in the Territories was rated as good.
3. Waterfowl production should be up from last year for all waterfowl. However dabbling production, especially early nesters, maybe down somewhat because of the late spring. Production for divers should be similar to 2007, with the exception of canvasback and goldeneye, which should be down. Production of miscellaneous species should be slightly down because observed ducks on the survey was less than 2007.

Table 1: Status of waterfowl population estimates (thousands, adjusted for visibility bias), by species and stratum with comparison for the previous year, the previous 10-year mean, and the long-term mean for Northern Alberta, Northeastern British Columbia, and the Northwest Territories.

Species/Ponds	Stratum 2008									% Change From						
	13	14	15	16	17	18	20	77	2008 Total	2007 Total	10-Year Mean	Long-term Mean	2007	10-Year Mean	Long-term Mean	
Ducks																
Dabblers																
Mallard	37.4	74.2	92.9	26.3	139.9	50.4	30.3	268.4	719.8	562.6	592.0	762.1	27.9	21.6	-5.6	
American Black Duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	--	--	-100.0	
Gadwall	6.7	0.0	0.0	0.0	9.9	0.0	4.0	20.5	41.1	18.1	32.4	20.1	127.0	26.8	105.1	
American wigeon	246.3	163.9	17.3	25.6	95.5	81.6	10.0	135.5	775.8	813.8	681.1	794.8	-4.7	13.9	-2.4	
American Green-winged teal	28.1	79.2	101.9	53.8	204.7	20.6	7.1	429.8	925.2	700.3	679.2	639.3	32.1	36.2	44.7	
Blue-winged teal	0.0	0.0	0.0	0.0	38.4	0.0	25.0	131.3	194.7	102.1	100.3	143.9	90.8	94.1	35.3	
Northern shoveler	44.7	14.4	13.0	9.6	34.2	0.0	23.8	50.8	190.4	141.0	165.4	162.4	35.0	15.1	17.2	
Northern pintail	81.3	88.5	29.6	32.9	47.7	3.5	6.7	22.1	312.4	178.3	157.6	335.6	75.2	98.2	-6.9	
Subtotal	444.4	420.3	254.7	148.3	570.3	156.1	107.1	1058.5	3159.6	2516.2	2407.9	2858.3	25.6	31.2	10.5	
Divers																
Redhead	0.0	0.0	0.0	2.1	1.4	0.0	2.8	3.2	9.6	8.7	12.4	17.1	11.3	-22.4	-43.6	
Canvasback	14.3	7.1	0.0	0.0	1.2	0.0	19.6	0.0	42.2	83.2	74.8	54.9	-49.2	-43.5	-23.0	
Scaups	67.5	514.1	186.1	198.2	237.0	114.4	13.4	168.4	1499.0	1053.6	1398.1	2344.5	42.3	7.2	-36.1	
Ring-necked duck	10.0	5.5	1.9	2.8	41.2	52.8	3.3	58.5	175.9	214.7	254.1	151.0	-18.1	-30.8	16.5	
Goldeneye's	7.0	1.7	3.4	5.0	25.2	0.0	11.9	22.5	76.5	182.1	66.8	90.9	-58.0	14.6	-15.8	
Bufflehead	1.8	3.0	6.2	12.1	81.4	46.5	13.2	240.0	404.2	359.6	334.9	275.4	12.4	20.7	46.8	
Ruddy Duck	0.0	0.0	0.0	0.0	5.5	3.9	1.2	12.3	23.0	3.6	25.9	22.6	542.2	-11.4	1.8	
Subtotal	100.5	531.5	197.4	220.2	393.0	217.6	65.4	505.0	2230.5	1905.5	2167.1	2956.4	17.1	2.9	-24.6	
Miscellaneous																
Mergansers	0.7	14.9	7.7	37.5	10.7	5.0	3.0	6.6	86.0	91.9	81.8	73.6	-6.4	5.0	16.8	
Long-tailed duck	0.0	37.0	5.5	2.7	0.9	0.0	0.0	0.0	46.2	28.7	72.9	227.3	61.3	-36.6	-79.7	
Eiders	0.0	9.9	0.0	0.0	0.0	0.0	0.0	0.0	9.9	1.6	0.2	0.6	516.6	6066.0	1463.1	
Scoters	8.7	277.4	49.1	113.9	13.7	28.2	0.0	9.7	500.6	515.7	501.9	856.3	-2.9	-0.3	-41.5	
Subtotal	9.4	339.1	62.3	154.2	25.2	33.2	3.0	16.3	642.6	637.8	656.8	1157.9	0.8	-2.2	-44.5	
Total Ducks	554.2	1290.8	514.5	522.6	988.6	406.9	175.4	1579.7	6032.7	5059.6	5231.8	6972.6	19.2	15.3	-13.5	
Canada Goose	2.3	20.3	37.3	32.3	23.9	0.0	1.1	110.1	227.4	225.7	147.7	149.1	0.7	54.0	52.5	
American coot	0.0	0.0	0.0	0.0	14.3	0.0	9.5	2.4	26.2	3.4	53.8	52.3	676.5	-51.2	-49.8	

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

Species/Ponds	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964
Ducks										
Dabblers										
Mallard	1299.6	1148.0	816.6	1019.1	2016.3	687.2	1862.4	1102.5	1027.7	1171.1
American Black Duck	0.6	0.6	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0
Gadwall	0.6	0.0	1.6	0.6	0.3	0.0	1.3	9.1	0.0	2.5
American wigeon	1331.7	1102.1	1105.7	724.4	1828.5	1539.9	1586.6	819.6	788.4	1185.4
American Green-winged teal	878.0	675.0	529.0	643.6	1726.9	851.5	1067.8	387.3	874.8	1062.1
Blue-winged teal	204.0	159.2	25.5	107.5	360.3	355.7	385.9	162.9	34.1	365.2
Northern shoveler	256.4	162.1	94.0	170.1	537.7	193.3	389.7	187.2	76.9	473.7
Northern pintail	1078.4	608.1	543.8	920.6	2426.1	685.8	1226.7	441.3	298.0	445.1
Subtotal	5049.2	3855.1	3116.2	3585.9	8899.9	4313.4	6520.2	3109.9	3099.9	4705.1
Divers										
Redhead	31.9	27.5	19.6	11.5	46.8	23.8	35.1	56.0	12.9	44.6
Canvasback	45.4	18.4	15.1	63.2	70.7	56.8	37.0	27.8	91.7	69.2
Scaups	2423.2	2297.7	2300.5	2020.8	3629.0	2347.7	2724.1	2620.7	2919.7	2572.7
Ring-necked duck	189.9	200.6	114.1	91.3	393.4	164.5	69.3	122.9	112.5	137.1
Goldeneye's	202.8	93.6	88.5	142.2	492.6	122.8	264.6	230.1	32.2	127.1
Bufflehead	156.1	173.7	152.4	132.2	238.8	209.7	160.7	209.2	151.9	233.9
Ruddy Duck	19.6	15.1	6.9	8.7	44.7	23.5	17.5	1.2	22.2	2.1
Subtotal	3068.9	2826.6	2697.1	2470.1	4916.1	2948.9	3308.3	3267.9	3343.3	3186.8
Miscellaneous										
Mergansers										
Long-tailed duck	101.0	52.5	74.8	127.2	95.3	137.4	131.6	53.2	94.5	82.5
Eiders	450.0	347.8	380.1	451.6	607.7	367.3	432.4	278.7	163.4	522.2
Scoters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	1416.2	1219.3	1322.7	1043.0	1602.3	1606.7	1252.5	721.9	759.8	1290.2
Subtotal	1967.3	1619.5	1777.6	1621.8	2305.3	2111.4	1816.5	1053.8	1017.7	1894.9
Total Ducks	10085.4	8301.2	7590.9	7677.8	16121.3	9373.7	11645.0	7431.7	7460.8	9786.9
Canada Goose	361.6	414.0	148.6	285.5	502.8	264.6	131.3	90.7	232.5	17.7
American coot	28.2	3.0	0.0	0.0	156.8	3.9	38.8	19.2	8.7	7.5

Species/Ponds	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
Ducks										
Dabblers										
Mallard	589.9	675.9	604.6	730.0	530.8	753.1	807.6	1132.1	696.4	575.4
American Black Duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gadwall	6.1	1.9	6.7	0.3	0.3	14.3	1.3	10.7	8.6	0.9
American wigeon	909.0	888.2	456.1	384.6	578.6	850.7	766.1	851.9	912.5	492.0
American Green-winged teal	649.9	800.5	457.8	492.7	204.7	358.4	429.8	569.3	535.4	242.2
Blue-winged teal	173.3	52.1	9.6	5.3	14.7	21.0	33.0	81.8	10.0	31.7
Northern shoveler	165.5	180.8	113.0	101.6	42.4	57.7	108.5	157.3	142.2	72.5
Northern pintail	392.4	190.1	105.4	197.1	74.8	100.0	85.4	426.3	351.0	227.3
Subtotal	2886.1	2789.5	1753.2	1911.6	1446.3	2155.2	2231.7	3229.5	2656.1	1642.1
Divers										
Redhead	6.8	5.0	18.6	9.5	5.3	8.3	6.1	10.3	5.6	2.9
Canvasback	44.6	120.5	21.0	93.0	61.6	30.4	40.5	16.8	21.0	10.4
Scaups	2607.5	2490.3	2741.4	1970.3	2523.7	2719.4	2934.8	5090.7	3328.3	2795.1
Ring-necked duck	225.5	159.6	133.7	94.3	54.9	108.4	105.9	59.7	106.9	42.2
Goldeneye's	119.3	34.7	60.3	24.3	35.0	17.6	30.7	33.3	39.3	36.2
Bufflehead	191.9	241.5	182.2	212.9	277.7	230.1	354.0	291.2	236.8	277.7
Ruddy Duck	2.1	17.5	11.1	0.6	0.9	1.8	2.4	15.2	15.0	6.7
Subtotal	3197.8	3069.1	3168.2	2404.8	2959.2	3115.9	3474.5	5517.2	3752.9	3171.2
Miscellaneous										
Mergansers										
Long-tailed duck	96.9	52.5	48.4	14.3	30.2	44.9	16.1	29.2	32.1	21.1
Eiders	320.8	460.2	402.3	165.1	460.3	283.3	224.6	105.7	181.4	218.8
Scoters	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal	965.9	611.8	712.7	606.7	855.5	1172.6	640.6	1093.5	905.4	1098.0
Subtotal	1383.6	1124.5	1163.4	786.1	1346.0	1500.9	881.3	1228.4	1118.8	1338.0
Total Ducks	7467.5	6983.1	6084.8	5102.6	5751.5	6772.1	6587.5	9975.1	7527.9	6151.2
Canada Goose	68.7	152.7	134.4	70.4	85.3	131.5	122.4	111.8	64.4	38.3
American coot	3.4	35.5	1.0	43.7	9.8	4.0	3.2	6.8	27.0	29.7

Appendix. 1: Continued.

Species/Ponds	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Ducks										
Dabblers										
Mallard	731.9	314.7	770.4	739.4	794.9	896.2	719.2	534.1	928.4	482.6
American Black Duck	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gadwall	0.0	5.2	17.6	10.2	32.3	43.8	52.5	51.0	2.5	23.1
American wigeon	650.3	538.8	846.7	993.4	729.6	992.2	916.0	589.3	556.3	1187.1
American Green-winged teal	468.3	225.6	370.6	678.7	582.6	585.6	626.2	692.4	842.9	468.5
Blue-winged teal	55.9	111.7	474.5	213.6	187.2	367.8	283.9	159.3	107.5	92.9
Northern shoveler	116.3	81.9	256.2	64.4	79.7	207.4	204.5	77.9	74.5	140.9
Northern pintail	381.6	246.5	532.6	244.2	196.2	289.6	314.5	103.7	392.0	399.6
Subtotal	2404.3	1524.6	3268.6	2944.0	2602.5	3382.7	3116.8	2207.6	2904.1	2794.7
Divers										
Redhead	2.4	3.1	23.4	20.2	12.4	28.7	18.4	7.2	9.9	33.8
Canvasback	32.0	37.6	48.1	29.9	28.3	59.6	113.3	48.7	55.3	51.6
Scaups	3215.2	2529.6	2900.0	2676.5	3166.2	3063.0	3028.7	2516.7	3230.8	3667.5
Ring-necked duck	73.3	61.9	179.8	153.5	90.3	101.7	94.6	61.2	101.1	89.1
Goldeneye's	33.6	47.5	74.5	112.2	169.7	184.0	108.2	74.1	69.5	298.8
Bufflehead	294.8	267.0	258.7	278.8	328.0	293.9	244.1	185.1	406.3	442.9
Ruddy Duck	4.0	1.6	26.8	8.3	7.8	19.0	28.8	23.0	118.2	51.7
Subtotal	3655.3	2948.2	3511.3	3279.4	3802.8	3750.0	3636.0	2916.1	3991.2	4635.3
Miscellaneous										
Mergansers	33.6	83.6	126.1	165.3	121.1	136.2	50.3	58.7	70.3	104.6
Long-tailed duck	196.2	176.1	193.7	180.1	626.4	322.0	171.8	193.7	113.0	601.3
Eiders	0.0	0.0	0.0	0.0	3.2	0.0	0.0	3.0	0.0	0.0
Scoters	769.7	725.0	922.2	1202.6	1400.9	1101.8	1024.9	846.6	1077.6	1295.4
Subtotal	999.4	984.6	1242.0	1548.0	2151.7	1560.0	1247.0	1102.0	1260.8	2001.2
Total Ducks	7059.0	5457.5	8021.8	7771.3	8557.0	8692.7	7999.8	6225.7	8156.2	9431.2
Canada Goose	89.4	57.8	45.2	61.8	69.7	58.7	131.4	77.1	172.5	67.8
American coot	11.8	0.0	295.1	59.8	5.1	337.0	128.9	54.8	133.9	47.1

Species/Ponds	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Ducks										
Dabblers										
Mallard	632.2	1194.9	705.4	1006.8	581.6	565.9	536.0	501.4	595.1	350.5
American Black Duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gadwall	13.7	48.9	13.0	18.3	28.1	44.1	49.9	58.0	48.8	42.6
American wigeon	692.2	469.7	832.3	818.5	598.6	426.7	687.4	580.9	652.1	382.2
American Green-winged teal	615.6	765.6	991.9	882.9	905.7	677.1	396.1	485.0	488.4	575.5
Blue-winged teal	118.4	382.2	250.6	370.5	76.3	29.2	79.9	156.6	205.0	99.1
Northern shoveler	108.9	204.8	210.2	239.5	184.6	160.6	160.9	184.1	216.5	101.7
Northern pintail	276.3	175.7	218.9	188.2	178.2	146.6	218.3	266.7	226.0	92.3
Subtotal	2457.3	3241.8	3222.4	3524.7	2553.0	2050.1	2128.4	2232.7	2431.9	1643.9
Divers										
Redhead	9.8	30.6	4.9	15.7	20.1	16.0	40.0	10.6	40.8	7.9
Canvasback	14.1	47.1	27.8	61.5	81.1	30.0	74.5	46.8	68.9	27.0
Scaups	2375.4	2315.4	2518.1	2267.3	2339.3	1843.2	1936.5	1658.2	1701.9	1845.7
Ring-necked duck	80.5	64.8	90.9	164.2	127.5	114.8	113.7	106.9	184.2	136.8
Goldeneye's	93.9	149.2	42.2	53.3	76.6	30.8	39.8	44.1	51.0	96.9
Bufflehead	249.1	318.2	386.2	370.5	358.6	272.7	264.3	208.5	247.6	310.7
Ruddy Duck	16.2	92.9	8.6	17.8	44.5	34.7	38.4	43.5	59.6	7.7
Subtotal	2839.0	3018.2	3078.7	2950.2	3047.7	2342.3	2507.1	2118.6	2353.8	2432.7
Miscellaneous										
Mergansers	69.9	31.9	64.2	40.9	67.9	52.2	42.3	119.9	61.8	106.7
Long-tailed duck	267.7	113.7	270.2	231.1	279.3	43.6	76.3	47.0	64.6	79.1
Eiders	16.2	2.9	0.0	2.0	4.5	0.0	0.0	0.0	0.0	0.0
Scoters	1045.4	909.0	1188.9	748.6	1129.0	432.7	647.4	549.1	633.8	372.6
Subtotal	1399.3	1057.5	1523.3	1022.6	1480.8	528.5	765.9	716.0	760.2	558.4
Total Ducks	6695.5	7317.5	7824.4	7497.6	7081.4	4920.9	5401.5	5067.3	5545.9	4634.9
Canada Goose	172.8	163.9	326.5	261.6	154.0	120.2	161.4	144.5	174.9	93.0
American coot	47.8	32.0	70.1	227.8	131.7	38.4	70.9	51.0	29.9	10.7

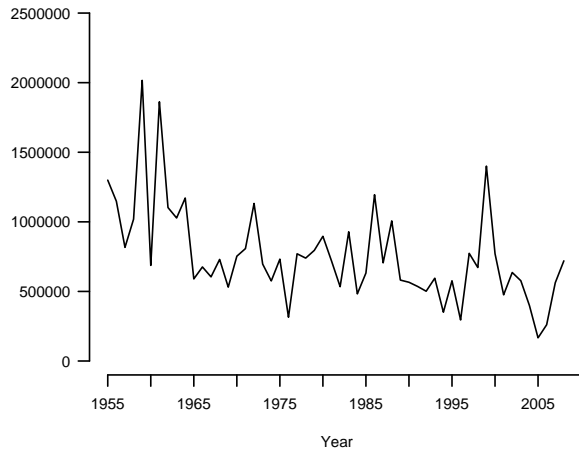
Appendix. 1: Continued

Species/Ponds	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ducks										
Dabblers										
Mallard	576.5	295.1	773.7	671.8	1400.3	771.2	475.7	635.9	576.8	398.4
American Black Duck	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gadwall	34.3	9.6	24.4	39.9	69.9	42.7	24.5	30.7	19.0	27.0
American wigeon	694.8	394.0	983.7	687.2	952.8	677.5	666.4	627.4	812.4	516.8
American Green-winged teal	605.5	281.7	440.2	616.4	810.4	954.8	671.0	744.2	727.0	739.4
Blue-winged teal	90.0	30.9	86.8	156.6	56.2	28.1	43.2	98.7	239.4	108.1
Northern shoveler	65.0	41.7	90.9	306.9	140.6	148.9	102.7	213.8	244.5	133.3
Northern pintail	88.4	38.3	175.1	173.1	162.9	209.5	169.1	171.7	151.5	171.4
Subtotal	2154.5	1091.3	2574.8	2651.9	3593.0	2832.6	2152.5	2522.4	2770.7	2094.4
Divers										
Redhead	6.6	5.5	26.7	17.4	11.9	7.8	6.2	16.0	9.9	16.1
Canvasback	109.6	45.6	66.7	39.1	116.9	72.9	37.9	95.0	71.3	84.4
Scaups	1657.9	1294.4	1473.4	1355.4	1926.6	1440.0	1266.9	1640.1	1597.8	1422.7
Ring-necked duck	125.1	99.3	359.5	285.4	303.9	450.3	224.9	154.7	285.7	184.7
Goldeneye's	31.0	22.9	17.5	55.7	44.2	56.1	30.0	27.5	35.7	18.1
Bufflehead	323.1	235.1	387.9	269.9	410.9	248.8	317.9	292.5	387.1	316.7
Ruddy Duck	15.2	10.4	24.0	16.1	70.5	14.7	8.8	44.5	36.1	18.2
Subtotal	2268.5	1713.2	2355.6	2038.8	2885.0	2290.5	1892.5	2270.5	2423.6	2061.0
Miscellaneous										
Mergansers	59.5	30.6	49.1	47.3	86.7	172.5	90.4	74.5	114.3	41.3
Long-tailed duck	93.7	47.1	107.7	50.5	111.6	48.2	57.3	104.3	83.2	116.3
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scoters	407.2	359.9	679.0	282.9	525.2	549.0	531.1	503.6	695.2	635.3
Subtotal	560.4	437.6	835.8	380.6	723.6	769.6	678.9	682.4	892.7	792.9
Total Ducks	4983.4	3242.0	5766.1	5071.4	7201.6	5892.7	4723.9	5475.3	6087.1	4948.3
Canada Goose	162.4	151.8	79.1	82.2	163.8	115.9	165.0	189.8	129.8	120.2
American coot	5.6	3.6	10.6	91.7	17.1	67.0	38.3	198.1	44.7	66.6

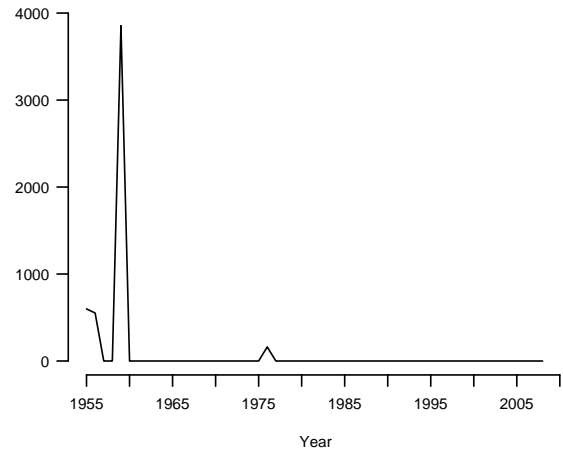
Species/Ponds	2005	2006	2007	2008
Ducks				
Dabblers				
Mallard	166.4	260.6	562.6	719.8
American Black Duck	0.0	0.0	0.0	0.0
Gadwall	16.5	36.1	18.1	41.1
American wigeon	530.5	525.8	813.8	775.8
American Green-winged teal	280.2	547.8	700.3	925.2
Blue-winged teal	30.4	140.3	102.1	194.7
Northern shoveler	100.5	121.6	141.0	190.4
Northern pintail	91.8	96.8	178.3	312.4
Subtotal	1216.2	1729.0	2516.2	3159.6
Divers				
Redhead	18.6	11.8	8.7	9.6
Canvasback	72.4	74.9	83.2	42.2
Scaups	1218.5	1059.2	1053.6	1499.0
Ring-necked duck	244.8	192.2	214.7	175.9
Goldeneye's	13.6	205.0	182.1	76.5
Bufflehead	399.1	346.7	359.6	404.2
Ruddy Duck	22.1	24.7	3.6	23.0
Subtotal	1989.0	1914.5	1905.5	2230.5
Miscellaneous				
Mergansers	34.2	65.2	91.9	86.0
Long-tailed duck	69.4	59.3	28.7	46.2
Eiders	0.0	0.0	1.6	9.9
Scoters	371.2	409.7	515.7	500.6
Subtotal	474.9	534.3	637.8	642.6
Total Ducks	3680.1	4177.8	5059.6	6032.7
Canada Goose	136.7	147.7	225.7	227.4
American coot	4.9	6.0	3.4	26.2

Appendix 2: Long-term trends in adjusted waterfowl breeding population estimates for Northern Alberta, Northeastern British Columbia, and the Northwest Territories.

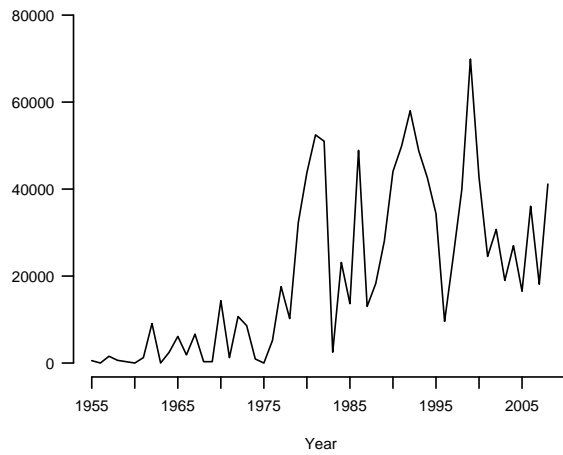
Strata 13,14,15,16,17,18,20,77 Mallard



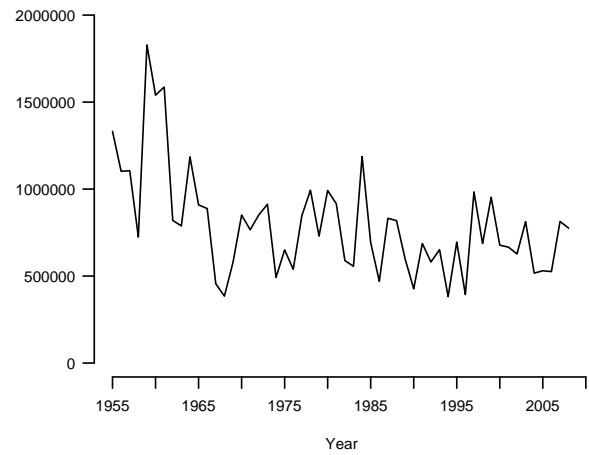
Strata 13,14,15,16,17,18,20,77 American Black Duck



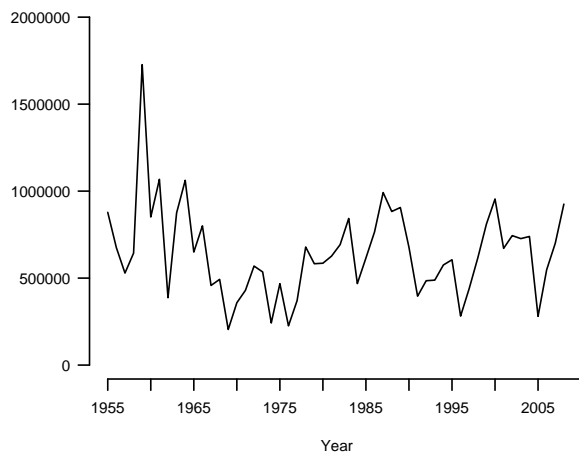
Strata 13,14,15,16,17,18,20,77 Gadwall



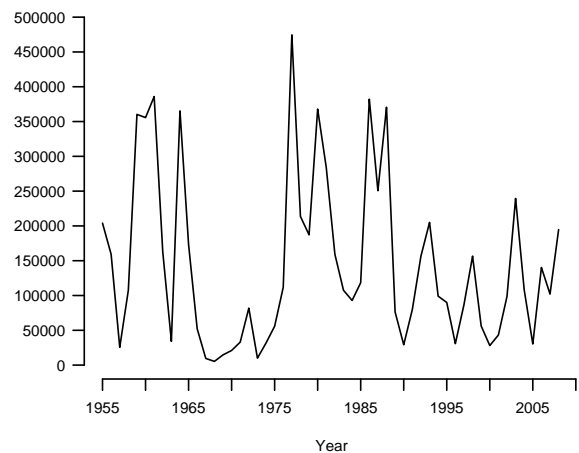
Strata 13,14,15,16,17,18,20,77 American wigeon



Strata 13,14,15,16,17,18,20,77 American Green-winged teal

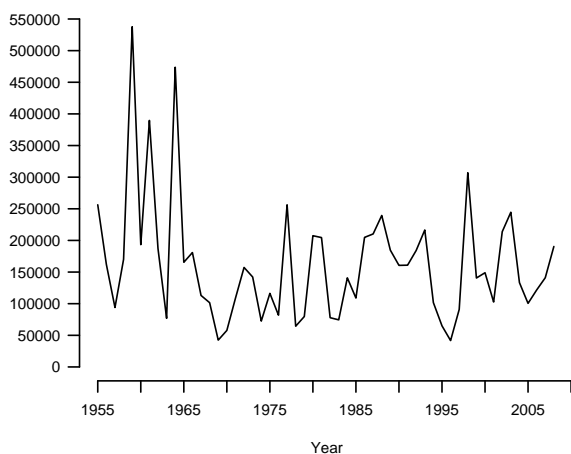


Strata 13,14,15,16,17,18,20,77 Blue-winged teal

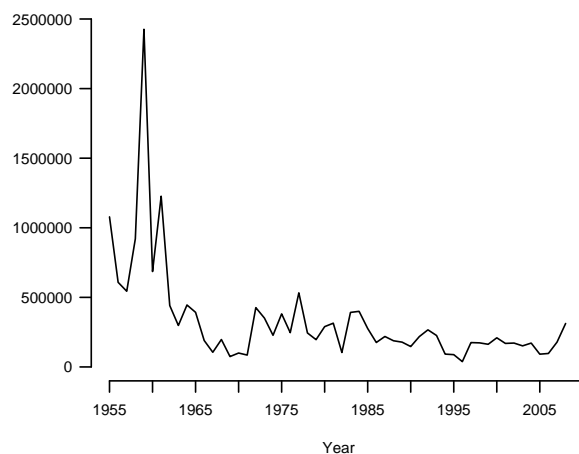


Appendix 2: Continued.

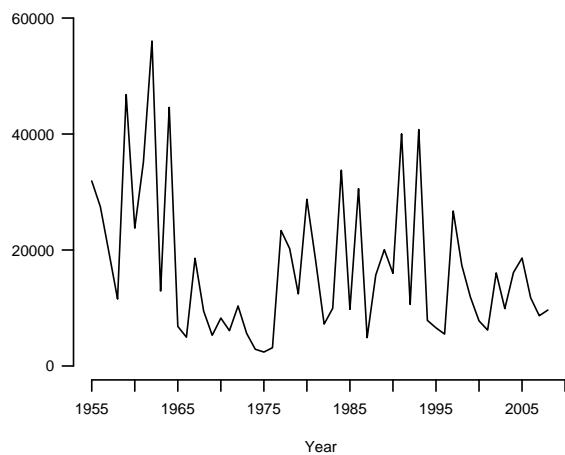
Strata 13,14,15,16,17,18,20,77 Northern shoveler



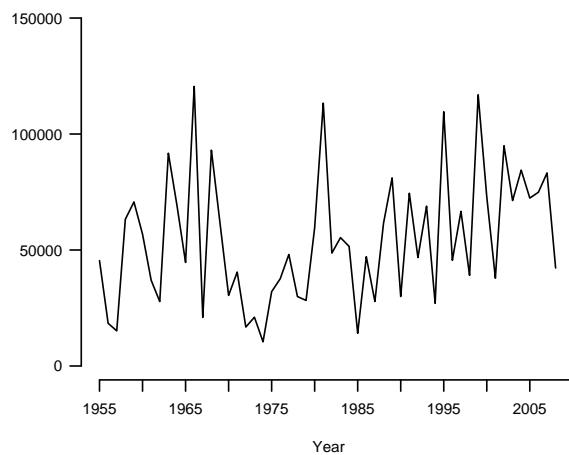
Strata 13,14,15,16,17,18,20,77 Northern pintail



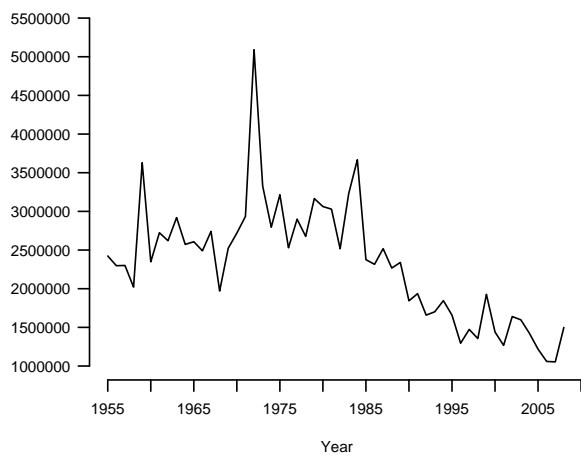
Strata 13,14,15,16,17,18,20,77 Redhead



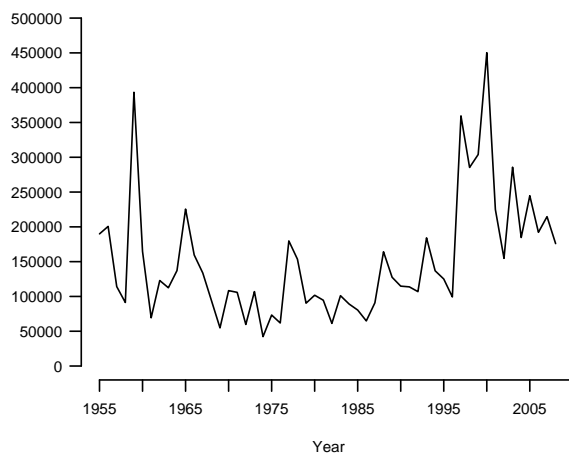
Strata 13,14,15,16,17,18,20,77 Canvasback



Strata 13,14,15,16,17,18,20,77 Scaups

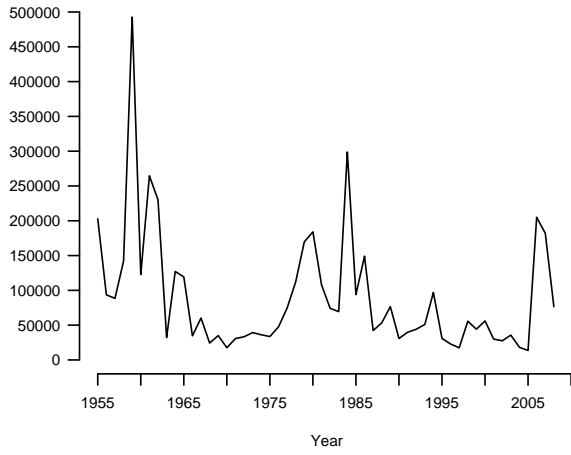


Strata 13,14,15,16,17,18,20,77 Ring-necked duck

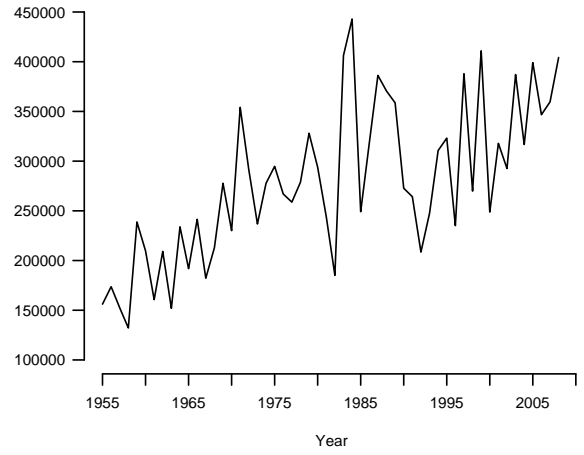


Appendix 2: Continued.

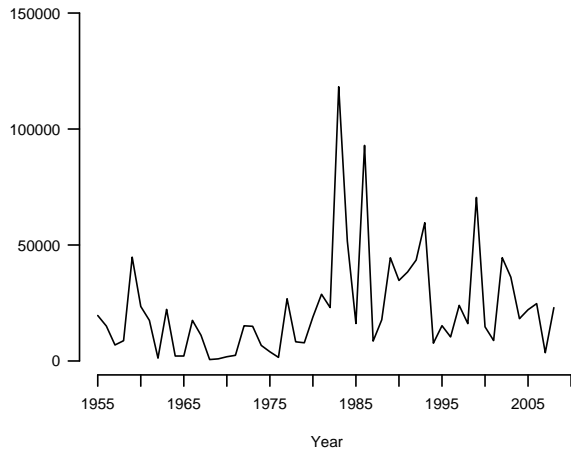
Strata 13,14,15,16,17,18,20,77 Goldeneye's



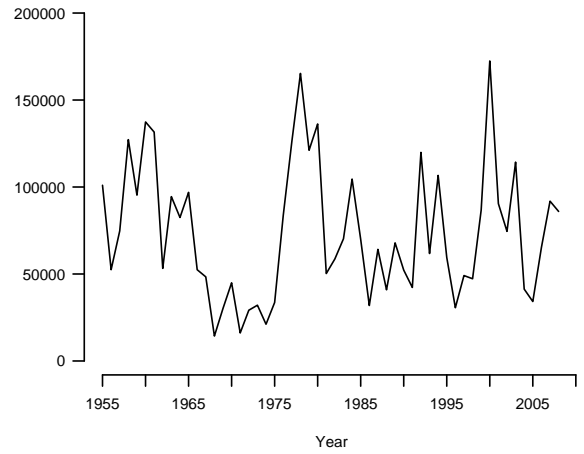
Strata 13,14,15,16,17,18,20,77 Bufflehead



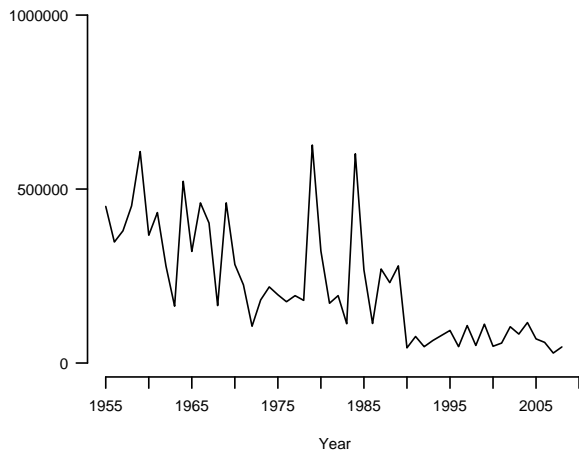
Strata 13,14,15,16,17,18,20,77 Ruddy Duck



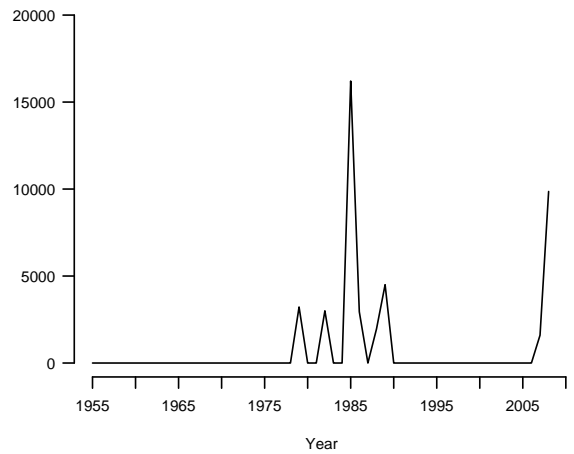
Strata 13,14,15,16,17,18,20,77 Mergansers



Strata 13,14,15,16,17,18,20,77 Long-tailed duck

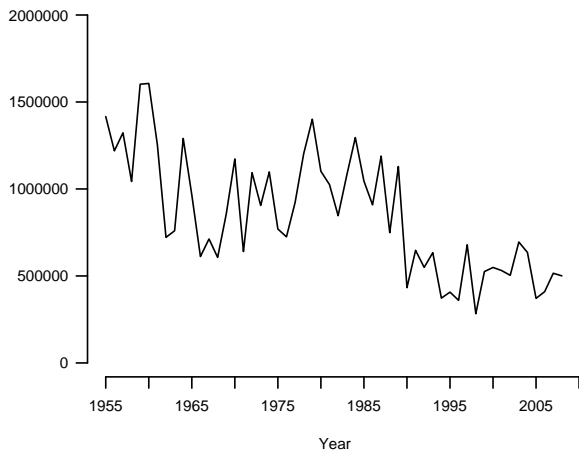


Strata 13,14,15,16,17,18,20,77 Eiders

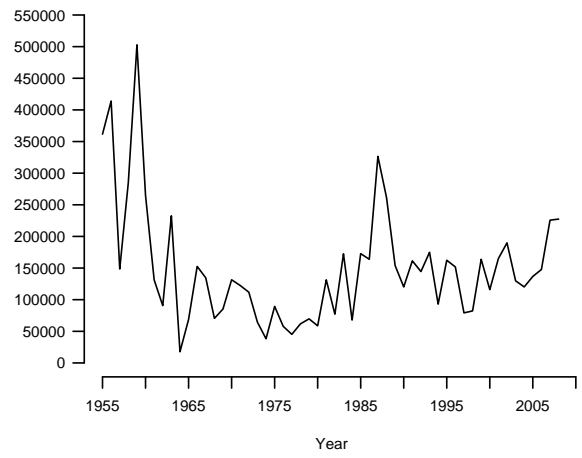


Appendix 2: Continued.

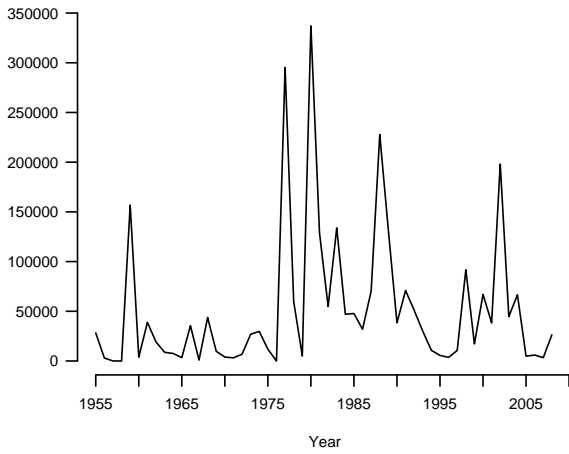
Strata 13,14,15,16,17,18,20,77 Scoters



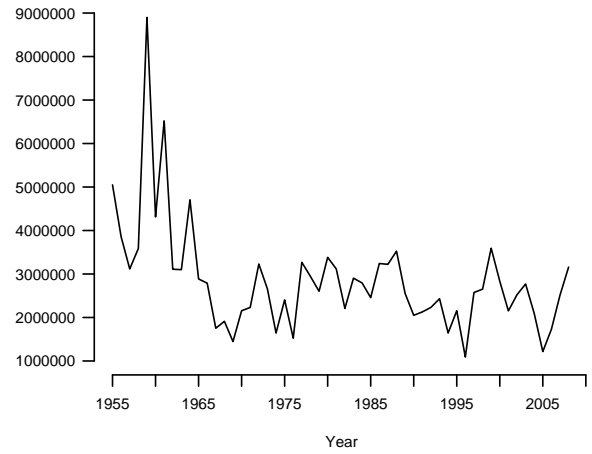
Strata 13,14,15,16,17,18,20,77 Canada Goose



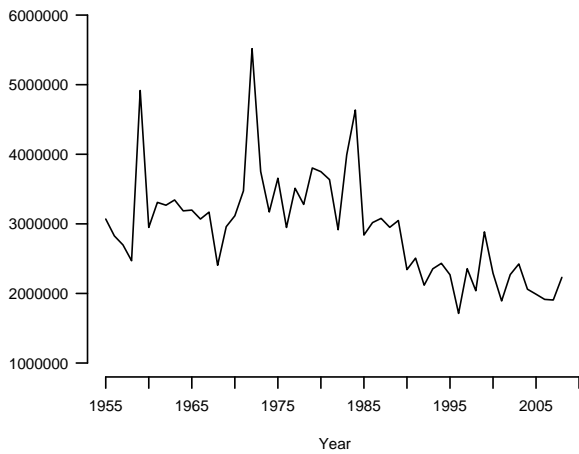
Strata 13,14,15,16,17,18,20,77 American coot



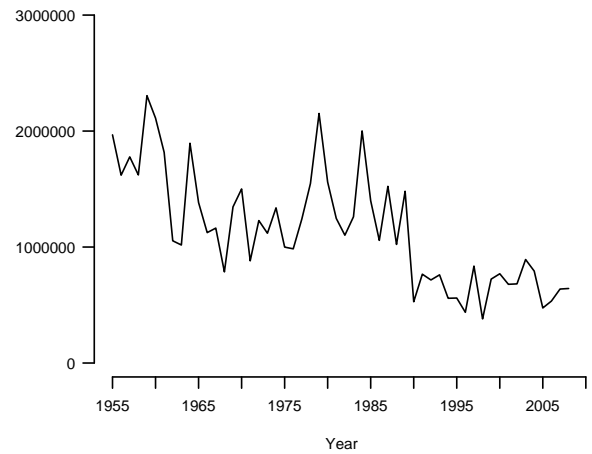
Strata 13,14,15,16,17,18,20,77 Dabblers



Strata 13,14,15,16,17,18,20,77 Divers



Strata 13,14,15,16,17,18,20,77 Miscellaneous



Appendix 2: Continued.

Strata 13,14,15,16,17,18,20,77 Total Ducks

